

Teaching with Integrity in the Life Sciences: The Case of Lecturer at a University in South Africa

Lorna Holtman¹, Riaan Cedras² and Rosemary Raitt³

^{1,3}Division for Postgraduate Studies, ²Department of Biodiversity and Conservation Biology, University of the Western Cape, Private Bag X17, Bellville, South Africa, 7535

Teaching With Integrity in The Life Sciences: The Case of Lecturer At a University in South Africa

Lorna Holtman¹, Riaan Cedras² and Rosemary Raitt³

^{1,3}*Division for Postgraduate Studies, ²Department of Biodiversity and Conservation Biology,
University of the Western Cape, Private Bag X17, Bellville, South Africa, 7535*

Address for Correspondence:

Dr. Lorna Holtman

Division for Postgraduate Studies

University of the Western Cape, Private

Bag X17, Bellville, South Africa, 7535

Telephone: +27219599286/2451

E-mail: holtman@uwc.ac.za

KEYWORDS teaching with integrity, University teacher, lecturer, reflective teaching, Action research, teacher-efficacy, Life science

ABSTRACT This paper explores the use of an interlinked framework of teaching with integrity, reflective teaching and teacher efficacy which acted as lens to describe the changes a novice University lecturer underwent as he reflected on his teaching. Data sources included his emails to his curriculum specialists colleagues and disciplinary lecturers, notes made during and after his course and feedback from informal (unsolicited emails from students) and formal evaluations of the course. His self efficacy and hence confidence in his teaching improved greatly over the year long course and two major source of this were *mastery* of his pedagogical practices and pedagogical content knowledge as well as *social persuasion* (positive feedback from students). The active learning strategies he employed encouraged students to interact and engage with each other, and with their lecturer and this impacted on their learning.

I. INTRODUCTION

In South Africa there are many students who come to university from disadvantaged backgrounds and from dysfunctional schools (Bloch, 2009). They often have problems with English since they have been taught in English, which is not their mother tongue (home language), by teachers who are not English speaking (Nel & Müller, 2010, Bloch, 2009). The problem with language makes it difficult for them to learn the basic concepts of Life Science and as a result they have a tendency to rely on memorising the work (Downs, 2005). Furthermore, de Beer (2006) is of the view that these students need academic support because they lack the skills necessary to study science and mathematics. Moreover, Nel & Nel (2009) point out, that these students' lack analytical reading skills for the sciences and this is one of the biggest problems.

Introductory Biology courses are usually large classes with students who are either enrolled in the course as mainstream students or others who are registered for an elective. Motivations and attitudes towards the course in question therefore vary. The lecturer is therefore faced with a diverse group of students from various backgrounds and levels of preparation for tertiary studies. The course reported on in this study is a Foundations level course and not a mainstream course. In the case of this course, an infused curriculum intervention in the year zero, mainstream science courses, like the Life Science module focused on here, mainstream content is infused with academic literacy skills training and the course extended over a year instead of a semester (Holtman and Marshall 2008).

This article is based on the work of one Life Science lecturer but the process of writing has involved two Science Education Curriculum specialists because, as noted by Young and Irving (2005), lecturers in other disciplines do not use specialized terminology in describing their teaching. The lecturer sets the scene in the quotation from his notes on his teaching:

At the beginning of the year when I started teaching life science I had little experience in giving classes to first year students. For the first couple of weeks into the 1st term, I was told by my co-lecturer to create my own set of PowerPoint's and lecturing material. It was then that I discovered the joy and fun of creating my own lecture material for my class. For the first couple of weeks I was "allowed" to do so, this created some idea on how I can stand on my own. However when "official" content material had to be delivered, I was sort of "told" this is how we did it last year in the main stream module and in the extended curriculum. Even though, I was told I could do in class what I wanted, I always knew it would be frowned

upon. During the first term and close to the middle of the second term I basically “inherited” her teaching style, methods and pace. I felt that I could bring little to the table and I was left with little space and time to create my own lecturing style.

The fact that he “inherited” teaching style, methods and pace created problems in his teaching since the students found it difficult to follow and voiced their problems as seen in the following quotes from the first semester evaluations: “There is too much work and notes so it’s hard to cope.” “He explains too fast sometimes.” “It’s too much to cope with and is making my life sad.” “Need more visuals.” “Big terminology”. It is clear that after this feedback from his students, his confidence took a knock. We are reminded as well that University lecturers are usually only disciplinary experts and are usually not trained in pedagogical practices or teaching (Johannes et al. 2013).

The paper highlights the experiences and the difficulties the lecturer encountered in teaching the course. We see the lecturer going from “teaching as taught” (traditional teaching approaches) to a phase where he shows discomfort with this and is spurred to change his approach and seek advice.

II. CONCEPTUAL FRAMEWORK

In this section teaching with integrity, teacher efficacy and reflective teaching is explained and the interrelatedness is foregrounded.

We used the concepts in Figure 1 to show that the concepts of teaching with integrity, being a reflective teacher and teacher efficacy are linked and the framework is used in this paper to provide a lens for examining the pedagogical practices and changes the lecturer underwent in his “becoming” as an academic teacher.

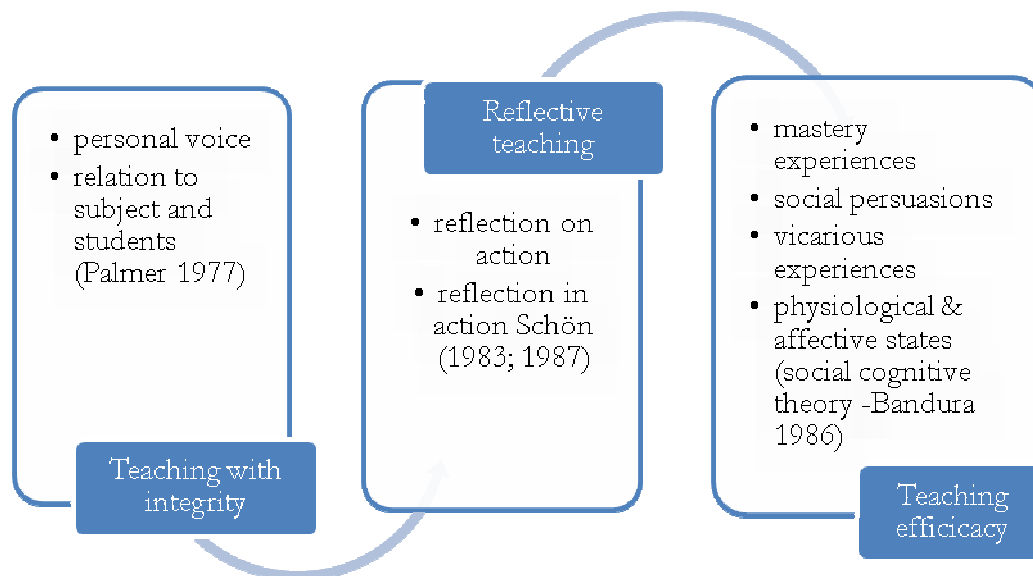


Figure 1: Interlinked framework of teaching with integrity, reflective teaching and teacher efficacy

Teaching with integrity

Good teaching is not just a technique. As Palmer (1990:10) tells us it “comes from the integrity of the teacher, from his or her relation to subject and students...” or as he puts it in another article, teaching is a complex blend of subject, students and one’s inner life or “the convolutions of my inner soul” (Palmer 1997). If the teaching strategies, content and approaches to teaching are prescribed by another, it follows that teaching with integrity would be difficult, if not impossible. In such a situation the lecturer would be denied his/her “own voice” or to be his/her “own person” both of which are essential to teaching with integrity (Katz 2008).

According to Young and Irving (2005) much of teaching at university relies on ‘telling’ and this was the case with the teaching methods role modelled for the lecturer in this study. He had a curriculum to teach and much of it he envisaged he would teach in the traditional lecture or “chalk and talk” style. This is the typical way of delivering content at University level in large classes especially biology courses (Moravec et al. 2010) and because of time constraints very little time is left to engage students actively in the classroom. The lecturer became aware that students were not engaged in his class and that his teaching approach was not working. Teaching with integrity would mean that the lecturer would be able to consider the best teaching approaches to accommodate the learning styles of the students.

Reflective teaching

Good University teachers have disciplinary expertise, good interpersonal skills, good command of presentation skills (van Schalkwyk et al. 2013). However, good University teachers should also be reflective teachers.

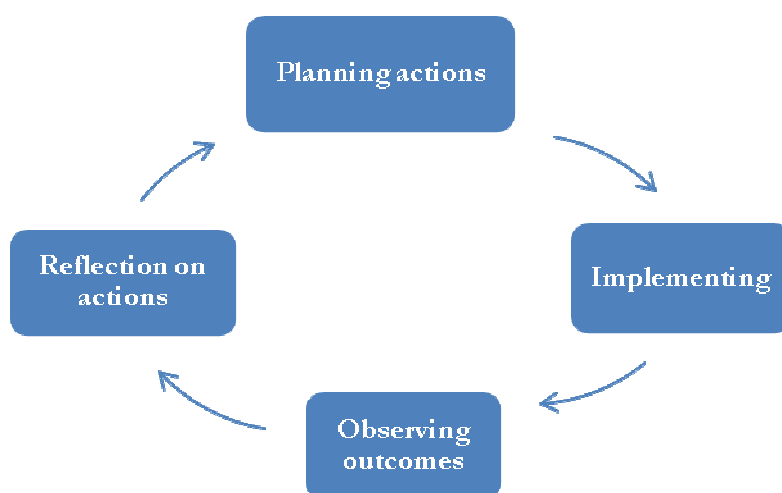
Several scholars point out the importance of a reflective approach to teaching and learning (Schön 1987; Bell et al. 2010; Carroll and O' Loughlin 2013). Schön (1983; 1987) proposed the twin notions of *reflection on action* and *reflection in action* to offer as a framework for reflective practice; the former takes place before or after teaching and the latter takes place during teaching.

In this time in the Higher Education context we are focused on the primacy of teaching, quality assurance and standards, improving participation rates and attrition especially in terms of vulnerable groups. As novice lecturers get uncomfortable with the teaching style (that is lecture style or transmissive teaching) they have adopted, reflection on their teaching approaches becomes necessary. Reflection on teaching before and during as well as after instruction is critical because it allows the lecturer the space to examine lessons taught and to see whether or not the objectives were met. Furthermore, the lecturer is able to both plan the next lesson and to see whether any interventions are necessary. Reflective teaching can lead to greater self-awareness and asking the “what”, “why” and “how” to teach questions can lead to greater power over one's own teaching and to professional growth. The lecturer or teacher therefore goes from intuition to a more critical and analytical self evaluation of his/her teaching practice and student learning and performance (Rahimi and Chabok 2013).

Teacher efficacy

Teacher efficacy (Bandura 1977; 1997) points to the capabilities inherent in teachers or academics; in other words competencies possessed by the teacher. Mastery experiences, vicarious experiences, social persuasion and physiological and affective experiences (author, date) are sources of self efficacy identified by Bandura in his social cognitive theory (1986). Self efficacy is an important competence as it mirrors the belief in “self” that once can bring about a positive result or change in a particular situation or context (Bailey 1999). Morris and Usher (2011) mention that little is known about efficacy of University academics. In their study they provide a summary of the main findings of primary and secondary teacher

efficacy studies as a way of offering some indication of how college teachers' efficacies develop. There is therefore a dearth of literature on teacher (lecturer) efficacy in tertiary institutions. Teaching and learning at this level requires adequate and effective teachers as well and hence the importance of research examining teacher efficacy in tertiary institutions is important. It is important because of the changing profile of students who are entering Universities and the varying levels of competencies they display. The current intake appears to be in need of more academic support, many needs to be motivated to learn. Teachers or lecturers who have a strong sense of self-efficacy are more likely to plan, be organised and show resilience as well as be open minded and willing to try new teaching methods. They are also able to address the needs of students who struggle and hence would be able to work with the diversity of University students entering tertiary institutions (Woolfolk Hoy 2003).



III. RESEARCH METHODOLOGY

Research paradigm: The research is framed within an interpretivist-phenomenological paradigm and employed an action research qualitative research method. In this research study the Action research model (Figure 2) best fits with the way in which the lecturer used trial and error to reflect on his teaching and to implement interventions. The lecturer went through various cycles of reflecting on his teaching.

FIGURE 2: ACTION RESEARCH MODEL USED IN THIS STUDY

The lecturer used the Action research model to guide the new teaching approach steeped in a social constructivist approach. Action research starts with the question, “How do I improve what I am doing?” (Whitehead 2009; McNiff 2008). As this implies, the aim of action research is change (Drummond and Themessl-Huber 2007) and knowledge production. This research started with the question above. Whitehead (2009) acknowledges that action research is difficult to define. Action research in teaching involves planning to implement an activity or intervention, implementing it, observing the outcome, reflecting on what has happened and then planning further action if necessary (Levin 2012; Drummond and Themessl-Huber 2007; Costello 2003). This is the sequence of events followed in this study and depicted in Figure 2. There is no “fixed formula” in the way action research is carried out and the knowledge generated is of a practical nature (Levin 2012).

The danger of action research is that the scientific community do not regard it as rigorous enough. It is regarded as ‘common sense’ (Levin 2012; Beylefeld 2005). Beylefeld (2005)

asserts that this problem arises because the process of the research is often reported without showing where and how interpretations and actions were derived. Action research has no value to others “unless its findings are considered trustworthy and relevant” (Levin 2012). The author believes that the strength of action research lies in the fact that the researcher “has lived in the field” but he warns that distance for reflection is essential. McNiff (2008) agrees that “knowledge is generated by a knowing subject, from within a social context, and this is best communicated through narrativised accounts that tell the story of one’s learning.” This is an account of how and why one lecturer changed his teaching style and how the students benefited by the change.

Rigor can be built into action research by using the following strategies: research partnering; acting to prevent researcher bias; using standardised methods; and looking for alternative explanations for the data (Levin 2012). Research partnering can serve to counter researcher bias since talking through data with another person brings another perspective. The lecturer who started this action research approached two education specialists to act as partners. This also helped to counter any researcher bias that was present in the work. Action research can use all methods available, both quantitative and qualitative. Consciously looking for another explanation for the data is a way of “creating critical distance for the researcher (Levin 2012). It involves considering what it would take to “disconfirm the research findings” and is a powerful way of countering researcher bias and building in trustworthiness (Levin 2012).

Data collection sources: The email communication between the lecturer and the two science education specialists served as data. Student feedback (solicited and unsolicited) emails, concept maps, Facebook discussions and quizzes, exam scripts and end of semester evaluations of the course all served as data for this research study. The lecturer set up the Facebook account to encourage students to post topics which they were struggling with and to encourage them to engage with him and their peers on difficult content of the lectures. The lecturer had an open-door policy and encouraged students to consult with him; some preferred to email him instead. The collection of qualitative data was therefore mostly achieved through emails and qualitative responses to surveys and Facebook discussions. The Action Research model allowed for various cycles of data collection.

Sampling: The class was a first year Life Science class in the Extended Curriculum programme at the University of the Western Cape. They were experiencing problems with

the course work and it was the first year that the lecturer had presented the subject. However, for this paper, the lecturer and how he effected change in his teaching is the focus of this paper. The lecturer or University teacher holds a Masters degree and is pursuing his PhD in Zoology. He is a young man who is employed on a part-time basis as teaching assistant teaching an extended first year Biology course to a class of typically 150 students. We prefer to use the term lecturer in this paper as these matches with the job description at the University in question.

Students in this programme have met the entrance requirements for access to Degree studies, but are admitted to the four year programme based on their potential (as demonstrated through an entrance test and their formal school leaving certificates, the National Senior Certificate) to pursue University level studies. The Extended Curriculum Programme is offered because UWC is committed to widening access to higher education and to educational redress (Holtman et al. 2004) and the Foundation course is an academic intervention to support the students to pass critical junctures of first year University. The first semester of University life for students can make or break them. After the first few tests, students have their continuous assessment marks which can give them an indication of success or failure for the rest of the academic year and can also be a source of information for identifying at-risk students early on and providing added support as an early intervention. Lizzio and Wilson (2013) see the first assessments at University as either improving self-efficacy or confidence of students or creating loss of personal and academic confidence.

The student evaluation forms for the first and second semester provided a further motivation for the interventions that were implemented. This paper however focuses on the lecturer's reflections on the course and his teaching of this course and how he implemented certain interventions during the academic year. The course extended over a full year and is equivalent to the semester long mainstream course.

Research Questions

The research question pursued in this paper is:

How effective was the change in the lecturer's approach to teaching the course in terms of impacting the lecturer's self-efficacy?

Ethics: Ethical clearance for the research study was granted by the University and students were informed about the purpose of the research in this project and consented to the

anonymous use of their information as obtained from Facebook entries, emails, observations of their interactions, examination results and other data obtained from them. Students were informed of their right to withdraw from the study and were assured of anonymity and confidentiality.

Data analysis process: The email discussions and Facebook discussions were analysed by coding the sentences and categories emerged as a result (Henning, 2004). The data from the student emails were used to support the findings of the lecturer's self reporting emails and the Facebook discussions of students with their peers and with their lecturer. Validity and trustworthiness is ensured by the thick description of the processes followed and by the presentation of the data and findings.

IV. RESULTS AND DISCUSSION

Data were analysed and the following themes, viewed through the lens of teaching with integrity, reflective teaching and teacher efficacy, emerged from the data.

Reflection on action – thinking and planning and realising the need for change

After reflecting on the feedback of students in semester one, the lecturer had this to say:

I spent a day reading through their feedback and because the course evaluation was open ended questions, I could then use these answers in a way on how I would engage with lectures in the 2nd semester.

Meaningful change in teaching can only happen if the conception of teaching changes (Young, 2009). He used the first semester student evaluation feedback to gauge whether he was impacting students and to plan his second semester lectures and his approach. It is clear that his conception of teaching and learning had changed in semester one and was based largely on the feedback of his students. He felt that it was necessary to attempt to engage students by focusing on different mediums. He planned to use emails, biological simulations, concept mapping, videos, Facebook and other social networking platforms, quizzes, and even basic teaching strategies such as the overhead projector and blackboard activities. These were interventions he used in class with the students less so in the first semester but in a more focused way throughout the second semester. It is clear that he had a better sense of a teaching “framework” or reference for his own teaching. His attention, during his reflection

on his actions in the classroom, shifted strategically to simply delivering the content to paying more specific attention to his own teaching style. Entwistle and Walker (2000) refer to this naming and framing process as strategic alertness which allows one to expand ones understanding of a phenomenon – his teaching in this case.

Reflection in action – implementing change

The lecturer changed his approach to teaching largely based on the feedback he received from his students. The lecturer spent a lot of time planning his lectures and looking for resources such as lesson plans and class activities to engage his students. He found it unfamiliar to teach in this different way because he was accustomed to teach as he was taught. For his new approach he conducted weekly internet searches for class activities and he made use of the internet for lecture materials and resources. Furthermore, the pressure of allowing students to understand concepts during revision classes allowed him to develop and create a “method” for himself and the students which they called a “recipe”. He used this to explain the Calvin cycle, photosynthesis, and cellular respiration. These topics are usually very challenging for students. The following excerpt, taken from lecturer 1 on “DNA” (Genetics), illustrates his method:

I started this lecture by going over the tutorial on DNA replication. They had to construct paragraphs on DNA replication using key words given in a chronological order. Because they weren't allowed to use their text books or class notes, the tutors said that it was very difficult for them to construct sentences. Therefore, I had to use a different technique other than that of the tutorial to explain DNA replication. They first had to give me all the enzymes involve, the direction of the DNA strand, a drawing, and the stages in replication: unwinding, complimentary base pairing and joining. They had to use this as a “recipe” where they had to mix the ingredients to give DNA replication in a form of a paragraph. Unfortunately, time ran out, so when they return for lecture one, they will relook at DNA replication and write paragraphs (Lecturer notes).

The lecturer never simply lectured for the entire session. Lujan and Di Carlo (2006) advocate reducing the amount of passive lecture time. This was done. His lectures were broken up into short sections by the use of DVDs, getting students to come to the chalkboard and answer questions then having the class correct where necessary. Sometimes they were required to devise a question of their own and answer it themselves. Spot tests were given

and peer marked so that students would know how much they knew and understood of the work as advocated by Lujan and DiCarlo (2006) who deplore the fact that lecturers often only use quizzes and tests as means of grading instead as means of teaching. Review tests were given regularly so that the lecturer would be aware of what concepts were difficult for students.

Because the majority of the students had difficulty with English, the lecturer made a habit of breaking down 'long' sentences to help the students understand what was required of them. He says, "Throughout the lecture I've learnt that breaking up problem sentences for them helps understand what is required, even if it means writing things out step by step for every (one of the) sentences on the black board (chalk board)". Another technique for helping them with language was to provide key words from a concept to be learned and asking the students to construct a paragraph using the key words.

Teaching efficacy: teaching approach and the lecturer's development—managing "self"

There were a number of challenges the lecturer faced and these impacted on his teaching. There were also a number of new opportunities that arose as he reflected on his teaching. These impacted him deeply and allowed him to make some career decisions (more on this later). Not only did he change his teaching style but his approach toward his students also changed. There was also a noticeable change in lecturer "discomfort" and as the journey continued and the lecturer also developed confidence as the year progressed. He made use of the Action Research model to reflect on his teaching and sought advice from science education specialist colleagues.

My new approach gave me self confidence in the work and a better understanding that not every topic can be delivered in the same way. Changing presentation techniques for every lecture, at first was a difficult job, because i had to show structure, consistency and organisation of the content. I think it was invitational to the students to understand how I am constructing material (content) in lectures. I didn't not sense and refusal or doubt from any students instead i had more a more students asking questions because of the different techniques was using.

Students were always aware of what to expect in each lecture. The content map for each lecture was explained a week in advance so that students knew the objectives for each lesson and could prepare ahead of class. Whether they prepared or not, they showed more interest in attending lectures and were not lost in terms of following the course. Knowing what was

expected guided them with respect to where they were heading. The literature shows that pre-class preparation can improve student performance (Moravec et al. 2010).

The course and changed approach to teaching created both challenges and great teaching and learning moments and opportunities. Questions like “How will I know whether and when to change my strategy or modify my instruction?” and “What information will I accept as evidence that my students and I are experiencing success?” “haunted him during his reflective sessions.

This impacted the lecturer:

It changed the way that I look at myself when I explain things and how I go about explaining something. I do not take it for granted that everyone would understand the explanation of topics the same way I would, So I would often try and throw it back to the students who would support what is said and in addition explain it in their own way. I realise that each student learns differently from one another it's just a matter of finding the right technique.....which is can difficult but rewarding.

There is a very strong focus on managing “self” which resonates strongly with the literature on new lecturer/academic experiences (Smith and Boyd 2012). This is tied up with a focus on student needs and learning style awareness and therefore a high priority being placed on teaching. In line with the work of Heppner (1994), the lecturer’s source of improved efficacy is aligned with social persuasion which arose from remarks and feedback from students in his class. But equally important was the mastery experiences – he felt a sense of accomplishment as he mastered the PCK for the different topics he presented. We observe pedagogical mastery in the lecturer’s realisation that students possess different learning styles and as such he had to vary his own teaching style.

Expanded opportunities for communication – creating dialogical spaces

During the course of the second semester his lecture periods became interactive and he paced the sessions to ensure he not only “covered” the content, but that the students understood the concepts and principles. What they understood after the lecture session through engaging with the lecture and classmates became a central theme.

I develop .i.e. flexibility around student understanding, and lectures should NOT be seen as a time slot of too much or too little info/content, RATHER what they understood from a lecture. This is key, and the way I love to teach. I want them not to be anxious about my lectures, a

place where they want to learn and talk about topics i.e. creating interactive lessons about any topic through any medium.

The dialogical spaces (Van Wyk 2013) he created in the classroom and online using Facebook, e-learning chatrooms and emails created a conducive learning environment where content was discussed, students learned from each other and from the lecturer and learning became engaging and interesting. Social media allow students to share and interact and create (Barckzyk and Duncan 2013). The use of technology is not within the scope of this paper and is followed up on in another paper in preparation. The basic biology concepts taught in the Foundations course as well as the transferable skills are critical to the successful completion of their study programme and eventually obtaining the degree. Students who attended the course in 2010 and who were in their final degree year in 2013 provided positive feedback on his teaching style, dialogical spaces he created and the lecturer's approachability:

I found the e-learning chatrooms were helpful since everyone had access to them. I learned to communicate and be able to discuss with my colleagues and lecturer. It was a platform for me to point out which area was confusing for me Some students understood the work much better so it was easy for them to explain to us and we could engage and communicate with students and the lecturer. These mediums of communication assisted a lot in terms of creating an atmosphere where it is easy to ask questions and have the class as a whole participate in helping to approach questions in different ways. It also helped in getting clarity with regards to anything that concerned the module (Student, female, email communication, August 2013). It was easier to engage with the rest of the class as well as you as the lecturer because I had been comfortable to asking you as the lecturer questions via email or any of the networks that were available for consultation. The material we studied and practised in that course still applies to the modules I am currently doing even in my final . The module formed a foundation for every other Biology related module I am currently enrolled in. (Student, male, email communication, August 2013).

The kind of feedback he received from evaluations (both formal (surveys) and informal (emails)) excited the lecturer and made him love teaching – he was filled with a sense of enjoyment for teaching. This points to another source of self efficacy experienced, namely affective states. Jankowska and Atlay (2008) advocate that students become responsible for their own development in terms of knowledge and skills and their teachers become partners and facilitators of their learning. This is increasingly becoming important as students present with different learning styles and knowledge and technology changes so rapidly.

V. CONCLUSIONS

The paper does not look at the performance or achievement scores, exam results of students in this course. The performance data will be reported in a follow up paper. The efficacy we refer to here is that of lecturer's self-efficacy, and how his confidence as a lecturer and teacher grew during his reflective praxis.

The novice lecturer experienced *mastery* in both content of the course as the year progressed and also his pedagogical practices. He reflected "in action" and "on action" and paid more careful attention to learning styles of his students and their preference for among other social media (e.g. Facebook). Other sources of his newfound confidence in his teaching came from unsolicited student feedback and through the formal course evaluations (*social persuasion*). He felt that teaching was rewarding and experienced a sense of excitement at this and as students' performance levels improved (*affective state*). His teaching style became more flexible and he adapted his lessons when given feedback or after reflecting on a lesson in order to ensure that students understood and grasped the concepts.

The self efficacy of the lecture showed marked improvement over the year and he came to the realisation that he wanted to be a University Professor; he had finally made a decision about his career. Following the course, he applied for a lecturer position at a neighbouring University. He was not successful but just making the interview shortlist was a major achievement and he attributed his confidence during the interview to the research study and the changes he had undergone. He came away from the course he taught with a different view of his students and their needs and capabilities and he found his personal "voice" and awareness of self. He was indeed teaching with integrity.

VI. RECOMMENDATIONS

University lecturers are usually disciplinary specialist and usually neither have teaching experience nor teaching qualifications. As teaching and learning gain primacy in Universities across the globe and student profiles change, it is becoming necessary that University teachers are exposed to innovative teaching and learning practices. Innovations such as exposure to ways in which to actively engage and involve students in their own learning, would allow for peer-to-peer interaction and student-to-teacher interaction and hence promote

learning. Future research could include lecturers from different disciplines. Other research based on this course will be reported in subsequent papers; the use of social media and the impact on student learning; student performance and social constructivist teaching techniques.

ACKNOWLEDGMENTS

We would like to acknowledge the funding received by the National Research Foundation of South Africa. Thuthuka Grant number: TTK2008061700005. We acknowledge the students and lecturers who provided valuable input and feedback on the teaching practices. The opinions, findings and conclusions drawn from this study are the views of the authors and not those of the funder nor of the University of the Western Cape.

REFERENCES

- Bailey JG 1999. Academics' Motivation and Self-efficacy for Teaching and Research. *Higher Education Research & Development*, 18 (3): 343-359, DOI: [10.1080/0729436990180305](https://doi.org/10.1080/0729436990180305)
- Bandura A 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84: 191-215.
- Bandura A 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura A 1997. *Self efficacy: The exercise of control*. New York, NY: W. H. Freeman & Company.
- Barczyk C, Duncan D 2013. Facebook in Higher Education Courses: An Analysis of Students' Attitudes, Community of Practice, and Classroom Community. *International Business and Management*, 6 (1): 1-11. DOI:10.3968/j.ibm.1923842820130601.1165.

Beylefeld AA 2005. The challenge of creating knowledge through action research. *South African Journal of Higher Education* 19 (Special Issue): 1321-1333.

Bloch G 2009. *The Toxic Mix. What's wrong with South Africa's schools and how to fix it.* Cape Town: Tafelberg Publisher.

Carroll C and O'Loughlin D 2013. Peer observation of teaching: enhancing academic engagement for new participants. *Innovations in Education and Teaching International*. DOI:10.1080/14703297.2013.778067

Costello PJM 2003. *Action Research*. London: Continuum.

De Beer KJ 2006. Open access, retention and throughput at the Central University of Technology *South African Journal of Higher Education* 20(1), 33– 47.

Downs CT 2005. Is a year-long access course into university helping previously disadvantaged black student in biology? *South African Journal of Higher Education* 19(4), 666-683.

Drummond JS, Themessl-Huber M 2007. The cyclical process of action research: The contribution of Gilles Deleuze. *Action Research* 5(4): 430 -448.

Entwistle N, Walker P 2000. Strategic awareness within sophisticated conceptions of teaching. *Instructional Science*, 28: 335–361.

Henning E. (2004). *Finding your way in qualitative research*. Pretoria, South Africa: Van Schaik.

Heppner MJ 1994. An empirical investigation of the effects of ateaching practicum on prospective faculty. *Journal of Counseling and Development*, 72: 500-509.

Holtman L, Marshall D, Linder C 2004. Widening (Epistemological) Access: Two Undergraduate Science Courses. In H. Griessel (Editor). *Curriculum Responsiveness: Case studies in higher education*. Pretoria, South Africa: South African Universities Vice-Chancellors' Association.

Holtman L Marshall D 2008. Foundational Provisions in the UWC Science Faculty: Widening Access and Promoting Success. In L.B. Holtman, C. Julie, O. Mikalsen, D. Mtetwa and M. Ogunnyi (editors). *Some Developments in Research in Science and*

Mathematics in Sub-Saharan Africa: Access, Relevance, Learning, Curriculum & Research. Somerset West, South Africa: African Minds.

Jankowska M, Atlay M 2008. Use of creative space in enhancing students' engagement, *Innovations in Education and Teaching International*, 45 (3): 271-279, DOI: 10.1080/14703290802176162

JohannesaC, Fendlerb J, Seidela T 2013. Teachers' perceptions of the learning environment and their knowledge base in a training program for novice university teachers. *International Journal for Academic Development*, 18 (2): 152–165, <http://dx.doi.org/10.1080/1360144X.2012.681785>

Lizzio A, Wilson K 2013. Early intervention to support the academic recovery of first-year students at risk of non-continuation. *Innovations in Education and Teaching International*, 50 (2): 109-120, DOI: 10.1080/14703297.2012.760867.

Levin M 2012. Academic integrity in action research. *Action Research* 10 (2): 133. DOI: 10.1177/1476750312445034 <http://arj.sagepub.com/content/10/2/133>

Lujan HL, DiCarlo SE 2006. Too much teaching, not enough learning: what is the solution? *Advances in Physiology Education* 30: 17-22.

McNiff J 2008. The significance of 'I' in educational research and the responsibility of intellectuals. *South African Journal of Education* 28, 351-364.

MoravecM, Williams A, Aguilar-Roca N, O'Dowd D 2010. Learn before Lecture: A Strategy That Improves Learning Outcomes in a Large Introductory Biology Class. *CBE—Life Sciences Education*, 9: 473–481

Morris D, Usher E 2010. Developing teaching self-efficacy in research institutions: A study of award-winning Professors. *Contemporary Educational Psychology* 36: 232–245

Nel N, Müller H 2010. The impact of teachers' limited English proficiency on English second language learners in South African schools. *South African Journal of Education* 30, 635-650.

- Nel C, Nel C 2009. A 3-Tier Model for Supporting Reading-to-Learn. In Leibowitz, B., van der Merwe, A. & van Schalkwyk, S. (Eds.). (2009). *Focus on First-Year Success: Perspectives Emerging From South Africa and Beyond*. Stellenbosch: SUN MeDIA.
- Palmer PJ 1990. Good Teaching: A Matter of Living the Mystery *Change* 22 (1), 10-16 <http://www.jstor.org/stable/40177674> Accessed: 18/05/2012
- Palmer PJ 1997. The heart of a teacher: Identity and integrity in teaching. *Change* 29(6), 14-21. <http://www.jstor.org/stable/40165413> .Accessed: 18/05/2012
- Rahimi A, Chabok S 2013. EFL Teachers' levels of Reflective Teaching and their Conceptions of Teaching and Learning. *Journal of Advanced Social Research* 3 (1), 12-29.
- Schön D 1983. *The Reflective Practitioner. How professionals think in action*. London: Temple Smith.
- Schön, D. 1987. *Educating the reflective practitioner*. San Francisco, CA: Jossey-Bass.
- Smith C, Boyd P 2012. Becoming an academic: the reconstruction of identity by recently appointed lecturers in nursing, midwifery and the allied health professions. *Innovations in Education and Teaching International*, 49 (1): February 2012: 63–72.
- van Schalkwyk S, Cilliers F, Adendorff H, Cattell K, Herman N. 2013. Journeys of growth towards the professional learning of academics: understanding the role of educational development. *International Journal for Academic Development*, 18 (2): 139-151, DOI: 10.1080/1360144X.2012.673490.
- van Wyk MM 2013. Exploring Students' Perceptions of Blogs During Teaching Practice Placements. *Mediterranean Journal of Social Sciences* 4, (11): 525-533.
- Whitehead J 2009. Generating living theory and understanding In action research studies. *Action Research* 7(1), 85-99.
- Woolfolk Hoy, A 2003. Self-Efficacy in College Teaching. *Essays on Teaching Excellence. Toward the Best in the Academy* 15 (8), 2003-04. A publication of The Professional & Organizational Development Network in Higher Education (www.podnetwork.org).

Young P, Irving Z 2005. Integrity of practice in lecturers' account of teaching decisions. *Studies in Higher Education* 30(4), 459-472. DOI:1080/03075070500160160 Downloaded 24 July 2012.

Young SF 2008. Theoretical frameworks and models of learning: tools for developing conceptions of teaching and learning. *International Journal for Academic Development*, 13(1): 41-49, DOI: 10.1080/13601440701860243.