Reinventing the Teaching Learning Process: Lessons from the University of the North

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Abstract
A study was carried out to examine the teaching and learning methods used at the College of Agriculture at the University of the North (UNIN) and identify innovations needed to improve teaching and learning within the agricultural college of the University. The population for the study was composed of undergraduate students from their first, second, third and fourth years of study in agricultural sciences at the University of the North, South Africa. The study used a Likert scale of 1 to 5 to prioritize needs and attitudes of respondents. Respondents agreed that traditional teaching methods such as lecture and demonstration were frequently used at the UNIN (M = 4.7). They also agreed that teachers at the university used lectures too much (M = 4.0). Respondents agreed on the need for teachers to experiment with new teaching methods (M =4.21).

Respondents agreed that they should be empowered to practice more of the methods that they are taught (M =4.2). And that, improving the quality of teaching at the university should be a higher priority than anything else (M = 4.7). Regarding technology use, respondents agreed that teachers need to get additional training on using teaching models and equipment (M = 4.3). Respondents disagreed that teaching equipment used at the university was adequate (M = 2.8) and they agreed that teachers need to be trained in the use of new teaching equipment (M =4.2). Results from the study should encourage teachers and administrators of the university to explore new teaching methods to engage students in active learning strategies in order to improve learning and transferability of skills.
Introduction

The legacy of apartheid and its effects on tertiary education is evident throughout South Africa. By design, historically Black Universities (HBUs) in South Africa have lacked the opportunity for adequate professional development (Subotzky, 1997). Out of every thousand South Africans, 51 White South Africans were enrolled in postsecondary institutions in 1991 compared to 35, 13 and 9 out of every thousand from Asian, Colored and Black South African populations (Herman, 1995). According to a 1997 white paper on education, in 1993, South Africa’s historically White Universities (HWUs) produced 83% of all research articles generated by the Nation’s scholars and 81% of all masters and doctoral students who graduated that year (National Commission on Higher Education, 1997). Nearly a decade after the abolition of apartheid, there are myriad of problems still found within historically black universities. Historically Black universities (HBUs) were designed by the white minority to continue a racial dichotomy. The primary function of the HBUs was to provide personnel for the separate homeland’s civil service structures and for the small, emerging black middle class (EPU-UWC (1997)). Institutional characteristics and academic cultures were developed in which particular emphasis on undergraduate teaching focused on a narrow range of fields associated with the racial division of labor namely; health, education, social work, law and public administration. Under the oppressive conditions of apartheid, the HBUs were subjected to severe financial difficulties as well as other disadvantages that resulted in a poor state of institutional infrastructure. According to Subotzky (1997), the vast majority of HBU student enrollments comprised under-prepared black students. Faculty was generally junior status and under qualified.

The relative lack of progress and low comparative success rate of HBU students can be explained by examining faculty characteristics. In 1992, there were 20% professors and associate professors and 24% senior lecturers at the HBUs compared with the historically White Universities (HWUs) 35% and 30% respectively. In the EPU-UWC study, participants expressed dismay about the quality of faculty and teaching at the HBUs. Several respondents revealed that many HBU faculties were recruited for their political or ideological inclination rather than their academic abilities. It also came to light that most of the faculties at HBUs were former graduates at the university. Revelations about the quality of teaching in the HBUs included; poor teaching methods and practices; faculty not engaged in networking through professional organizations, not attending seminars and not using visitor and exchange programs. Educators also lacked knowledge of how to use electronic media and too many used lecture driven teaching methods. Teachers also failed to participate in scholarly activities such as keeping up to date with the field’s current literature and participating in departmental course reviews. These problems were exacerbated by the fact that South Africa had no national criteria for assessing the quality of the country’s higher-education institutions until a 1997 bill established the National Commission on Higher Education. This independent body advises the Education Minister on higher education and provides quality assurance in higher education through its Higher Education Quality Committee (South Africa Info, 2003). In South Africa today, the size and shape of higher education is being transformed into a system that better meets South Africa’s resource requirements. Increasingly, there is a need to view teaching as an intellectual act that contributes to the transformation of knowledge (Boyer, 1990).
Theoretical Base

The Government of South Africa’s white paper on education in 1997 sets out the policy framework and purposes of higher education as follows: “To meet the learning needs and aspirations of individual South Africans through, the development of their intellectual abilities and aptitudes throughout their lives. Higher education should equip individuals to enable them make the best use of their talents and of the opportunities offered by society for self-fulfillment. It is thus a key determinant of life chances, an important vehicle for achieving equity in the distribution of opportunity and achievement among South Africans”. An opening speech by the South African Minister for Education during a conference on higher education curriculum at the University of Pretoria in April 2004 reiterated the government’s position and strategic purpose for higher education in South Africa as: “To produce graduates who are well rounded and thoroughly grounded; who are skilled and competent; who are creative, flexible and adaptive to new challenges; who are adept in critical thinking and cultural literacy; who are enabled and empowered to participate fully in their economy, their society and in their world that is rapidly becoming a global village”.

Against this backdrop, the inclination to pursue active teaching and learning strategies rather than passive ones become imminent. The passive kind of class has a teacher who lectures and feeds information to students. The teacher tells the student how to think and what to think about the subject. The outcome in such a class is measured by the speed with which facts are forgotten by students. In an active class, however, the teacher stimulates students to learn for themselves by asking questions and by posing problems. The teacher engages students in certain activities that force them to think about and comment on the information presented to them. Students become active participants in the teaching and learning process. They become engaged in activities that force them to analyze, synthesize and evaluate information in discussion with their fellow students.

Through asking questions, writing or explaining to their group members, students are empowered to reflect upon ideas and how they use those ideas. Students are also motivated when they learn through creative and purposeful activities (Conn, 2004; Kearsley and Shneiderman, 1998). Incorporating experiential learning experiences into a classroom setting offers students the opportunity to apply what they learn to other situations (Mabie & Baker 1996, Powell & Wells, 2002). Students who develop connections between the subjects they study and related careers become more motivated and even learn more (Lynch, 2000). Also through creativity and discovery, authentic learning helps students find personal meaning of the content that they are taught (Kearsley and Shneiderman, 1998, Smith, 2002).

Purpose and Objectives

The purpose of this study was to help decision makers and educators design teaching and learning strategies that will meet student needs and adequately prepare them to respond to the needs of rural community in South Africa. One objective for the study was to examine the teaching and learning methods used at the College of Agriculture at the University of the North (UNIN). The second objective was to identify innovations needed to improve teaching and learning within the agricultural college at the university. Specifically, the study sought to identify the strengths and weaknesses of the teaching methods used at the UNIN.
Methods/Procedures and Data Sources

The population for the study was composed of undergraduate students from their first, second, third and fourth years of study in agricultural sciences at the University of the North, South Africa. UNIN remains the largest tertiary institution in the Northern Province serving more than 6 million people of whom 98% are black South Africans. A self administered cross-sectional survey was used to collect data. The data reported here consisted of two sections. The first section collected information on perceptions about teaching effectiveness and the second section focused on technology used to teach. The study used a Likert scale of one to five to prioritize student needs and attitudes of respondents. This implies that, a mean of 5 equal to very strongly agree, 4 equals to strongly agree, 3 equals to agree, 2 equals to disagree and 1 equals to very strongly disagree.

Results/Findings

Perceptions about teaching at the University

Students indicated that teachers tend to use traditional methods at the university ($M = 4.7$, Table 1). The majority of the students tended to agree that quality teaching has declined over the last three years ($M = 3.1$) and that improving the quality of teaching at the university should be a higher priority than anything else ($M = 4.7$). Respondents tended to agree that the government does not provide enough support for the university ($M = 4.1$). Respondents indicate that, more teaching money is needed to do an adequate job of teaching ($M = 4.2$). Students agreed that teachers need to improve their teaching methods ($M = 4.5$), to learn using new methods ($M = 4.3$) and that teachers should use more computers and computer applications to teach ($M = 4.1$).
Table 1. Means and standard deviations regarding perception about teaching at the University of the North.

<table>
<thead>
<tr>
<th>Perceptions</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers at the university concerned about my learning</td>
<td>82</td>
<td>3.8</td>
<td>.89</td>
</tr>
<tr>
<td>Teachers at the university use a variety of teaching methods</td>
<td>86</td>
<td>3.5</td>
<td>1.03</td>
</tr>
<tr>
<td>Teachers at the university use old fashioned teaching methods</td>
<td>86</td>
<td>4.7</td>
<td>1.11</td>
</tr>
<tr>
<td>Quality of teaching has declined over the last three years at the University</td>
<td>85</td>
<td>3.1</td>
<td>1.14</td>
</tr>
<tr>
<td>Improving the quality of teaching should be higher priority at the University</td>
<td>86</td>
<td>4.7</td>
<td>0.55</td>
</tr>
<tr>
<td>The lack of government financial support for the university is lowering the quality of education</td>
<td>86</td>
<td>4.1</td>
<td>1.17</td>
</tr>
<tr>
<td>More teaching resources(money) are needed to do an adequate job of teaching</td>
<td>86</td>
<td>4.2</td>
<td>0.99</td>
</tr>
<tr>
<td>Teachers need to improve the quality of their teaching methods</td>
<td>86</td>
<td>4.5</td>
<td>0.72</td>
</tr>
<tr>
<td>Teachers need to learn new teaching methods</td>
<td>84</td>
<td>4.3</td>
<td>0.93</td>
</tr>
<tr>
<td>Teachers should use more computers and computer applications to teach</td>
<td>86</td>
<td>4.1</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Scale: 5=Very strongly agree, 4=strongly agree, 3=agree, 2=disagree, 1= very strongly disagree

Technologies used to teach at the university

The respondents agreed that teachers at the university use lectures frequently \((M = 4.0, \text{Table 2})\). Teachers do not use the effective teaching methods \((M=3.1)\). Students indicate that teachers should experiment with new teaching methods \((M =4.21)\). Students strongly agreed that other universities use more progressive teaching methods \((M = 4.0)\). Students indicated they have need for more practice and experiential learning \((M =4.2)\). Students indicated that they needed more time for doing independent work \((M 4.2)\), and that the current teaching methods do not prepare them to address social and community problems associated with the real work settings \((M =3.3)\). The vast majority of the respondents agreed that teachers do a good job of teaching \((M 4.0)\). They agreed that teachers have a good background in technical skills but lacked good teaching methods \((M = 3.9)\).
Table 2. Means and standard deviations regarding technologies used to teach at the University of the North.

<table>
<thead>
<tr>
<th>Methods used to teach</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers use lectures too much</td>
<td>86</td>
<td>4.0</td>
<td>1.23</td>
</tr>
<tr>
<td>Teachers lack effective teaching methods</td>
<td>86</td>
<td>3.1</td>
<td>1.10</td>
</tr>
<tr>
<td>Teachers know how students learn best</td>
<td>86</td>
<td>3.1</td>
<td>1.12</td>
</tr>
<tr>
<td>Teachers should experiment with new teaching methods</td>
<td>86</td>
<td>4.2</td>
<td>0.82</td>
</tr>
<tr>
<td>I have heard that other universities use more progressive teaching methods</td>
<td>86</td>
<td>4.0</td>
<td>1.12</td>
</tr>
<tr>
<td>Students should practice more of concepts taught in class</td>
<td>86</td>
<td>4.2</td>
<td>1.02</td>
</tr>
<tr>
<td>Students need more time for independent work</td>
<td>86</td>
<td>4.0</td>
<td>0.99</td>
</tr>
<tr>
<td>Teaching methods use don’t prepare me for the real work setting</td>
<td>86</td>
<td>3.3</td>
<td>1.07</td>
</tr>
<tr>
<td>Teachers do a good job of teaching</td>
<td>84</td>
<td>4.0</td>
<td>0.90</td>
</tr>
<tr>
<td>Most teachers have a good background in technical skills but lack good teaching methods</td>
<td>86</td>
<td>3.9</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Scale: 5=Very strongly agree, 4=strongly agree, 3=agree, 2=disagree, 1= very strongly disagree.

Conclusions and Recommendations

Students agreed that traditional teaching methods such as lecture and demonstration were frequently used at the UNIN. Respondents also agreed that teachers at the university used lectures too much. The implication for this specific teaching and learning strategy is that lower order thinking skills are propagated. Learners in this circumstance are not offered the opportunity to reflect from a variety of viewpoints. Because they are spoon-fed, they cannot draw logical conclusions from a conflict situation. Therefore, the conclusions and constructs that guide their decision and actions are only superficial and not based on higher order reasoning. This teaching strategy does not build students’ higher level thinking and problem-solving skills. Such an education can only produce students who are ill-prepared to take on social and community problems. By identifying the need for teachers to experiment with new teaching methods, students from the UNIN are calling for an opportunity to be more actively engaged in their teaching and learning experiences. Case study teaching is one effective strategy that is not a budget buster. It can be used conveniently at the UNIN and HBU settings to help produce a new generation of graduates ready to take on problems pertinent to their societies and communities. Presented with a decision case, students will strive to find solutions by discussion, seek factual data, apply analytic tools, articulate issues and reflect on relevant experiences and draw conclusions that can be carried forward to new situations. In the process, students will develop skills that can go beyond the current learning need and can be generalized to address many new circumstances. Students indicated in the study that teaching at the university should empower them to practice more of the concepts that they are taught. Teachers could use case study teaching as an initial step toward more active driven teaching methods and technologies at the UNIN to meet this need.
Implications

Students were consistent in their perceptions regarding the problems in the current teaching learning processes at the UNIN. This finding is supported by the research by (Pearson & Ison, 1992), which stressed the need for a renewed teaching-learning process toward greater display of initiative, leadership, excellence in problem-recognition and solving skills. This perception has helped to identify many weaknesses in teaching practices in colleges and is consistent with many lecture-driven universities. Strategies to develop and employ problem solving, decision making, and higher order thinking are developed through case studies, discussions, cooperative learning and teaching methodologies are needed (Johnson & Johnson, 1985).

Teachers and administrators should be encouraged to explore new teaching methods and engage students in active learning strategies to improve learning and transferability of skills. If students are going to bridge their knowledge to real applications in agriculture, then they need to practice these concepts in practical applications in and out of the classroom environment. Much of the community of the Northern Province (Limpompo) is a laboratory that is eager to apply practical problem solving skills that the university has to offer. It is through these applied teaching strategies that student learning can be enhanced at the university.

Educational and Practical Importance

It is clear from the results of the study that the current curricula, methods and technologies used to teach at the UNIN do not meet the needs of students and the labor market in South Africa. It should therefore come as no surprise it is increasingly difficult for many agricultural graduates in South Africa to find meaningful employment. Their education has neither been tailored to the needs of their own local farmers, nor to that of an increasingly sophisticated commercial sector. Environmental degradation, rapid changes in scientific and technical knowledge, the changing role of women in society and the increasing marginalization of agriculture and rural life all call for changes in the instructional approach to higher agricultural education. To improve employment opportunities for new agricultural graduates from the likes of UNIN, efforts should be made to vary and improve teaching methods and technologies.

The curricula must focus less on specific technical knowledge that could quickly become obsolete, and more on active processes that would tap student abilities to think and solve problems that are relevant to the needs of South Africa. Students have shown in this study that they are eager for new opportunities to learn skills and strategies that are transferable to a wide range of occupations. Teaching methods and technologies at the UNIN as in other HBUs should evolve to reflect the needs of the broader society and communities and thus better respond to the demands for trained human resources. Teaching with practical, reality-based decision cases and appropriate technology use would be a good example of how teachers can change methods and technologies to meet student needs and those of the larger South African society.
References


Education Policy Unit, University of the Western Cape (1997). *The enhancement of graduate programs and research capacity at the historically Black universities* (Final research report). Bellville, South Africa.


