Educational Research (ISSN: 2141-5161) Vol. 2(6) pp. 1219-1224 June 2011
Available online@ http://www.interesjournals.org/ER

Full Length Research Paper

The Transition from A-Level to Under-Graduate Geography: A Focus on Midlands State University, Zimbabwe

[1*]Steven Jerie and [2]Remmigio Mangizvo

[1]Lecturer, Department of Geography and Environmental Studies, Midlands State University, P. Bag 9055, Gweru, Zimbabwe
[2]Lecturer, Department of Geography and Environmental Studies, Zimbabwe Open University, Midlands Region, Zimbabwe

Accepted June 03, 2011

Geography demands good analytical and reporting skills and these are taught for application in real world situations. Geography is therefore, a natural complement to many other subjects in the physical sciences and the humanities. It can be combined with science subjects such as biology, chemistry and mathematics or with commercial subjects such as accounting, management of business and economics or with arts subjects such as history, English, sociology and development studies. Geography at degree level needs to be clearly the same subject as at A-Level and so there needs to be a substantial amount of continuity with similar issues examined and with a similar factual base using similar analytical concepts. It is also true that degree level study must offer something over and above A-Level and students should be exposed to new issues using concepts that are new to them. Balancing these two issues is a real problem in the transition to undergraduate geography. For individual students, the first year is a significant transition point, one that may affect the development of attitudes towards continuing learning at tertiary education and beyond. It may also be a line to evaluate how prepared individual students are, and whether they need to do better support in their tertiary studies. The first year has also been identified as the year in which the greatest amount of academic failure and attrition from study occurs. Students tend to find the course more difficult than they had expected and they have problems balancing personal relationships with study.

Keyword: A-level, Undergraduate, Geography, Zimbabwe.

INTRODUCTION

The study of geography is enticing, challenging and relevant to today's world. Geographers study the natural processes of the physical environment as well as the activities and consequences of humans in the environment. Some geographers specialise in climatology, geomorphology, hydrology or environmental change. Others concentrate on population dynamics, settlement and problems of rural and urban areas or even the experience or particular groups such as the Tonga in Zimbabwe or the Maori in Australia. Still, others specialising in spatial analysis bring the power of geographical information science to bear on a wide range of research problems. Increasingly, these varied interests are coming together in the study of environmental problems and geographers lead the way in resource management. Geography teaches valuable skills such as spatial data analysis and geographical information systems, land and hydrological interpretation, introduction to population and economic statistics, computing skills, field skills and ethics. Geography demands good analytical and reporting skills and these are taught for application in real world situations.

Geography is therefore, a natural complement to many

*Corresponding author Email: jeries@msu.ac.zw

other subjects in the physical sciences and the humanities. It can be combined with science subjects such as biology, chemistry and mathematics or with commercial subjects such as accounting, management of business and economics or with arts subjects such as history, English, sociology and development studies. Geography at degree level needs to be clearly the same subject as at A-Level and so there needs to be a substantial amount of continuity with similar issues examined and with a similar factual base using similar analytical concepts (Hall, 2006; Knight 2007). It is also true that degree level study must offer something over and above A-Level and students should be exposed to new issues using concepts that are new to them (Keylock, 2006; Harp et al., 2005; Qualifications and Curriculum Authority, 2007; Winterson and Russ, 2009; Lister, 2009; Marland, 2003; Green 2006). Balancing these two issues is a real problem in the transition to undergraduate geography.

For individual students, the first year is a significant transition point, one that may affect the development of attitudes towards continuing learning at tertiary education and beyond. It may also be a line of evaluate how prepared individual students are, and whether they need to do better supported in their tertiary studies (McKenzie and Schweitzer, 2001). The first year has also been identified as the year in which the greatest amount of academic failure and attrition from study occurs (McInnis, 2001 and Williams, 1982). Students tend to find the course more difficult than they had expected and they have problems balancing personal relationships with study. The decision to withdraw has been carefully considered as the cost to individual students can be high. It can lead to considerable loss of face and sense of personal failure in having to leave after entering with such high hopes due to academic failure (Elliot, 2006). The social nature of the university experience has the potential for contributing positively to academic performance and more generally should influence the individual's sense of competence (MaInnis and James, 1995)

Theoretical framework

Poor performance by university students in their first year can be grounded in two educational theories. These are Weiner's Attribution Theory and Ausubel's Learning Theory. Attributions are the explanations for the causes of events or behaviours. There are two broad types of attributions, internal and external attributions. Internal attributions also known as dispositional attribution explains a person's behaviour in terms of that person's preferences, beliefs, goals or other characteristics. Students in their first year may fail to do well because of these internal attributions. They may not be focused on their studies, or they find themselves doing courses or programmes that they never intended to do, so they lack the drive. Other students get to first year level without a career in mind. External attributions which are also referred to as situational attributions, explain a person's behaviour in terms of he prevailing situation. Students in their first year may fail do well in their studies due to external factors such as poor lecture delivery by their professors. At first year students are exposed to the lecture method yet during their high school days they were used to being taught rigorously by their teachers. Some students could be doing badly simply because they do not have appropriate accommodation that allows them to study.

Attribution occurs at three levels; namely, the locus of causality, stability over time and controllability. Under the locus of causality, failure by students during their first year can be attributed to something about them, that is their ability to tackle the new concepts, the effort they apply in their studies, and their personalities. The locus of causality also has external factors influencing the performance by students (Docking, 1990; Gross, 2005). These include difficulty of the task, how much help the students are getting from the university, and the conditions under which the students are learning. Poor performance by first year university students can also be attributed to what Weiner refers to as stability over time. This is the extent to which poor performance is ending on the one hand, or is subject to change on the other. Whilst many people regard ability as a fairly permanent characteristic, the amount of effort expended on the factor is important (Docking, 1990). It may therefore mean that most students who perform badly during their first year may not be trying harder to do well relying mainly on ability more than anything else. Attribution also looks at the issue of controllability (Gross, 2005; Docking 1990). This is the extent to which poor performance can be controlled by own volition. Students can try harder or may not bother at all.

This paper aims at analysing the problems encountered by students in the transition from A-Level geography to the undergraduate study of geography and environmental studies at the Midlands State University in Gweru, Zimbabwe. Solutions to these problems are suggested for the authorities of both the source areas of the students (the A-Level schools and colleges) as well as the university that enrols these students.

METHODOLOGY

The study was based on an in-depth analysis of the study programmes in the departments of geography of the source areas (i.e. schools and colleges) of the first year students enrolled in the department of geography and environmental studies at Midlands State University. The focus here was on the syllabus content, teaching methods and resources available for instruction. In-depth

Table 1: Students combining specific A-Level subjects with geography

School Type	Geo	Divinity	Shona	History	English	MOB	Maths	Acc	Socio	Econ
Mission	50	22	20	26	12	10	4	2	2	2
Government	46	26	28	14	16	4	0	4	0	0
Private	12	6	4	6	0	4	0	4	0	0
Total	108	54	52	46	28	18	4	10	2	2

Geo= Geography, MOB= Management of Business, Acc= Accounting, Socio= Sociology, Econ= Economics

interviews were also conducted with the key informants such as the A-Level teachers, the head of the geography department and the school head. In the department of geography and environmental studies at university the research was conducted using questionnaires directed at the first year students aiming at obtaining information on the problems they encountered in their transition from A-Level geography to undergraduate geography studies. The key informants in the interviews included lecturers involved in the teaching of first year modules as well as the chairperson of the department.

RESULTS AND DISCUSSION

A-Level background information

The majority of students enrolled for the undergraduate degree programme in geography and environmental studies in 2009 were from mission and government-controlled schools (46% and 43% respectively) and the private schools and colleges contribute the smallest (11%). The distribution of the number of students combining specific A-Level subjects with geography is shown in Table 1.

The distribution shown in Table 1 shows that the majority of students enrolled for the undergraduate programme in geography and environmental studies had majored in the arts subjects. This is a glaring feature in all the school types and this is typically so in the purely arts subjects such as Divinity (50%), Shona (48%), History (43%) and English Literature (26%). A small proportion of the students had combined geography with commercial and natural sciences distributed as Management of Business (17%), Mathematics (3.7%), Accounting (9.3%), Sociology (1.9%) and Economics (1.9%).

Problems encountered at undergraduate level

A number of problems are encountered by the first year students when undertaking their undergraduate degree course in geography and environmental studies. Firstly, there are modules that demand a mathematical background in order to facilitate analysis, interpretation, presentation and prediction of geographical and environmental phenomena. Secondly, most of the students were being exposed to environmental studies for the first time, despite the fact that the A-Level syllabus has a compulsory component of ecosystem studies and an optional topic on environmental management.

1. Background on quantitative analysis

Although all the undergraduate students met one of the basic requirements of passing Ordinary Level mathematics for undertaking studies in undergraduate geography and environmental studies. Further analysis shows that 99 (i.e. 91.7%) had actually passed mathematics with the basic C grade leaving only 9 passing O-Level maths with a B-grade or better. The result of such a background in mathematics meant that the majority of students preferred to combine geography with arts subjects that presented them with no challenges in as far as quantitative techniques were concerned. However, geography as a subject has undergone several paradigm shifts and one the most important shift has been that associated with the introduction of quantitative techniques that require the use of mathematics in the analysis of phenomena. At undergraduate level the students who enrolled for geography and environmental studies were thus faced with modules that involved mathematical calculations in their first level such as GES 101: Quantitative and Qualitative Techniques, GES 102 Elements of Physical Geography, Computing and Techniques in Geography and Environmental Studies, GES 106 Hydrology and GES 107 Climatology.

The problem with the use of quantitative techniques can be traced back to the attitude of both students and teachers towards section A of the A-Level syllabus that deals with quantitative techniques and map-work. The preamble of the syllabus itself points out clearly to the importance of developing awareness of the relevance of geographical analysis to the understanding and solving of contemporary human and environmental problems. The syllabus thus emphasises the importance of skills and attitudes to increase knowledge of and the ability to use and apply appropriate skills and techniques relevant to the understanding and interpretation of facts relevant in

Table 2: Assignment and examination question preferences for undergraduate geography students

Type of statistical test involved in the question	% preferring the type of test
Descriptive statistics with discursive analysis	44.00%
Significance testing	19.00%
Thematic mapping	37.00%

physical and human geography. These skills and techniques are vital in field work which has its rationale in demonstrating to the students selected techniques that are appropriate to the greater understanding and interpretation of statistics on maps and diagrams and the collection and interpretation of data. The problem associated with the quantitative techniques were also reflected by the fact that only 26% of the first year students had studied statistics as a component of the geography syllabus at A-Level and 43% had some tuition in the fieldwork procedures. It was also established from interviews with the students, A-Level teachers and the university lecturers that despite the fact that the teachers themselves did not enjoy teaching quantitative techniques themselves, the students also had little interest in mathematics at Ordinary level. The importance of mathematics in geography and environmental studies was accepted by 100% of the students, however, only 46% had any interest for statistical calculations, 20% were indifferent and 34% actually did not like anything that involved mathematical calculations. It was therefore little surprise that up to 48% of the students acknowledged that the incorporation of the quantitative techniques at both A-Level and Ordinary level made the subject really difficult for them.

A survey of the modules that involved any statistics revealed that when given the chance, when tackling assignment or examination questions, students avoided questions that demanded any rigorous quantitative analysis. The students were asked to indicate their preferences from the following three types of question on statistical techniques;

- descriptive statistics involving discursive analysis
- significance testing [in fieldwork]
- thematic mapping

Table 2 shows the answers to these questions in frequencies of the undergraduate students.

It was hypothesised that the preference of statistical approach was influenced by the degree of mathematical difficulty inherent in the question. A chi-square test was thus employed to test whether the choices made by students were by chance. A chi-squared value of.... was obtained hence giving the probability of a chance occurrence of less than 0.01. This means that the choice of question is definitely influenced by the mathematical bias of the question type.

Null hypothesis: There is no significant relationship between the students' choices and statistical difficulty of the question

Alternative hypothesis: There is a significant relationship between students' choices and mathematical difficulty of the questions.

If the mathematical difficulty of the questions did not affect the choices of the students, then equal numbers would be expected for each choice. From the 108 students sampled one would expect 36 students for each question, but this was not the case.

2. Environmental studies-Geography nexus

The survey results indicate that up to 53 % of the undergraduate students were encountering studies involving environmental management for the first time at university. This is despite the fact that the courses that had some elements of studies in environmental management were regarded as core modules for the A-Level sties in geography. This is despite the fact that biogeography is a compulsory topic in the A-Level geography syllabus and environmental management is an optional topic in the ZIMSEC human geography syllabus, but the Cambridge School examination syllabus has made it compulsory at A-Level-underlining its importance in the curriculum. Interviews with the A-Level teachers indicated that 69% were holders of the Bachelor of Education or Master of Education Degrees that focused on educational foundations in sociology, philosophy and psychology of education as well as educational administration at the expense of content subject areas in environmental studies or geography. This is one factor that influenced the choice of topics that the educators tended to be comfortable with in the classroom.

Environmental studies focus on how we and other species interact with one another and with the non-living environment of matter and energy. It is a physical and social science that uses and integrates knowledge from physics, chemistry, biology, geology, geography, resource

technology and engineering, resource conservation and management, demography, economics, politics and ethics. Environmental education is concerned with the factual, and conceptual understanding of environments at local, national and global levels and the interactions that take within them involving geophysical, biological, economic and social factors. Such a study requires scientific analysis and also examines man's place within the environment as it involves care for the environment, concern for its management as well as its conservation.

Geography enables learners to understand their environment and how people use and misuse it. It is therefore inevitable that a symbiotic relationship exists between geography and environmental studies as both subjects are concerned with the environment. Geography shares a lot with environmental studies when it comes to teaching and learning strategies especially in relation to the critical areas of fieldwork, case studies, games and simulation work (Munowenyu, 1999). The fact that geography is a spatial science means that it inevitably touches on topical issues that are related to the environment and human life. Issues that fall within this category include environmental degradation due to deforestation, siltation, overgrazing, soil erosion, desertification, land, water and air pollution and climate change.

3. Resources

Learning and teaching resources are a vital component in the undergraduate studies in geography and environmental studies. The challenging economic environment in Zimbabwe impacted negatively on the acquisition of vital resources needed in the subject such as textbooks that covered vital and challenging topics such as quantitative and qualitative techniques, map work, meteorology and climatology, ecosystems and hydrological systems, environmental issues and computing and techniques. Up to 81% of the students and 86% of the lecturers acknowledged that the relevant textbooks for these modules were not available on the market and even in the library and this was also compounded with the inadequacy of computers in the department as well as the whole university. The students also cited the problems of not undertaking field work as stemming from inadequate finance and equipment for these activities. The geography laboratories and computer rooms which need to be the hub of scientific analysis were inadequately equipped with hardware and software vital for geographic information systems such as computers, GPS, printers etc. The laboratories were thus no different from ordinary lecture rooms and this situation was not conducive to the effective mastery of geographic and environmental concepts. Time constraints were also cited by both the students and lecturers in as far as the modules in computing and techniques and field research were concerned. These are practical modules that required more time for in-depth practice in the use of computer technology and other equipment in scientific analysis.

CONCLUSIONS

Quantitative techniques are an important course in geographic and environmental science, but seem to be a problem area for the undergraduate students. There is inadequate time and attention devoted to this area both at high school and at university level. Very little time, if any is devoted to fieldwork which is the core of studies in the field of environmental science. Problems of inadequate time are compounded by the lack of appropriate equipment to use in the field, financial resources and transport. Field work forms the basis of data collection in the scientific method of the research process because the hypothesis testing employed in the quantitative research design depends so much on the quality and adequacy of the data collected in the field. Thus, without practice in fieldwork the students encounter serious problems in their final year when they collect data for their research projects which constitute a major component of the final degree classification. There is also generally aversion towards numbers among the undergraduate students and this compromises their performance in those modules with a heavy inclination towards mathematical calculations and scientific analysis such as meteorology and climatology, Geographical Information Systems and Remote Sensing, Qualitative and Quantitative Techniques, Population Studies and Computing and Techniques in Geography and Environmental Studies.

RECOMMENDATIONS

In his dynamic and scientific world, geography and environmental studies are being included under the social and natural sciences in most university departments including the Midlands State University. As a result there is need to seriously consider a pass in Ordinary Level Mathematics as a prerequisite for selection into the degree course just like other science subjects such as Chemistry, biology and physics.

Geography and Environmental studies are typically practical courses and adequate time and resources need to be made available to these modules for effective learning to be achieved. The training of lecturers in these areas need to be an on-going process through departmental in-service training and the facilitation of attendance of research workshops offered by renown organisations such as CODESRIA and OSSREA.

REFERENCES

Docking GJ (1990). *Managing Behaviour in the Primary School*. London; David Fulton Publishers.

Elliot A (2002). "Factors affecting first year students' decision to leave university". *Paper presented at the sixth Pacific Rim First year in Higher education Conference*. Christchurch, New Zealand.

Green A (2006). Universityy challenge: dynamic subjects, knowledge, teaching and transition. Arts and Hum. High. Educ. 5 (3):275-290

Gross R (2005). *Psychology: The Science of Mind and Behaviour*. Hodder Arnold: London.

Hall B (2006). Teaching and learning uncertainty in science: the case of climate change *Planet* 17 pp. 48-49

Harp KS, Koleszar AM, Geist DJ (2005). Volcanoes in the classroom: a simulation of an eruption column J. Geo. Sci. Educ. 53(21):173-175

Keylock CJ (2006). Reforming physical geography to enhance geographic scholarship. Geo. 91(3):272-279

Knight RG (2007). Physical geography: learning and teaching in a discipline so dynamic that textbooks can't keep up. Geo. 92(1):57-61

Kosslyn SM, Rosenberg RS (2004). *Psychology: the Brain, the Person, the World*. Boston; Pearson Education.

Lister B (2009). Latin in transition. Arts and Hum. High. Educ. 8(2):191-200

Maryland M (2003). The transition from school to university: who prepares whom, when and how? Arts and Hum. High. Educ. 2(2):201- 211

McKenzie K, Schweitzer R (2001). Who succeeds at university? Factors predicting academic performance in first year Australian university students" High. Educ. Res. Dev. 20(1):21-33.

McInnis C, James R (1995). First year on campus: Diversity in the initial experience in Australian Universities, Canberra: Development of Education, Training and Youth Affairs.

McInnis C (2001). Researching the first year experiences: where to from here? High. Educ. Res. Dev. 20(2):105-114.

Qualifications and Curriculum Authority (2007) New Secondary Natural Curriculum http//www.qea.org.uk

Williams C (1982). The early experiences of students on Australian University campuses, Sidney: University of Sidney.

Winterson J, Russ M (2009). Understanding the transition from university music and music technology" Arts and Hum. High. Educ. 8(3):339-354