CHALLENGES AND LEARNING SUPPORT NEEDS OF MATHS, RESEARCH METHODS AND STATISTICS ODL STUDENTS: THE CASE FOR ZOU-MIDLANDS REGION

Silvanos Chirume

Department of Mathematics and Statistics, Faculty of Science and Technology
Zimbabwe Open University, Midlands Region.

skchirume@gmail.com

ABSTRACT

Statistics and Research Methods are offered in almost all modules of the Zimbabwe Open University programmes while Mathematics is offered in a few programmes. However, all these courses seem to be a challenge to the students no matter what programme or year of study they are in. This is so because the mark profiles show poor achievement and the students display negative attitudes to these courses during their registration and studies as seen from personal observations. This paper investigated the challenges that these students face as they learn through the open and distance learning mode. The targeted sample was 76 students out of 228 who had registered for these modules in the second semester of 2012. All students who had come for tutorials were asked to complete a questionnaire but only 59 responded. Four students, conveniently selected and each belonging to one of the four faculties, constituted the focus group interview panel. SPSS version 11.5 was used to analyse data. It was found that most students faced big challenges pertaining to the administration or management, financial, family and work pressures, library and internet, and their peers. Tutor, module and ‘personal’ related challenges were less prevalent. The study also revealed that students’ success depends on the quality and type of the learning support the university should give and which the students, on their part, must fully utilize to their benefit. The respondents’ most pertinent needs were in the areas of having revised modules, having a user-friendly and clear fee payment plan, having a clear policy on release and publication of results, and on updating and improving library and internet facilities. The focus group interview produced similar results. The university authorities are hereby challenged to have a clear ODL policy that ensures quality, sustainability and continual improvement so as to help students and their communities meet social and economic challenges. Suggestions and recommendations for the learning support students should be given are outlined in this study. These could help to inform policy and improve quality in open and distance learning universities in Africa. African universities have the potential to become ‘world class’ but it seems some lack clear policy guidelines.

Key Terms: statistics anxiety, challenges, learning support, Maths, Statistics, Research Methods, ODL mode, ODL policy

INTRODUCTION

Zimbabwe Open University (ZOU) is a multi-disciplinary and inter-faculty institution that was mandated by the Zimbabwe Government through an Act of Parliament in March 1999 to offer open and distance learning (ODL) to youth and adult learners in Zimbabwe and elsewhere (ZOU General Information and Regulations, 2007). In the second semester of 2012, ZOU had more than 30 diploma and degree programmes on offer. Most of these programmes have Research Methods, or Research Methods and Statistics, or Mathematics modules that the learners must do and pass. However, during registration and tutorials, this researcher has observed that most of these learners show high anxiety and negative attitude to these courses. They procrastinate on assignments and their mark profiles depict poor achievement. It has been shown that about 80% of graduate students suffer from statistics anxiety which reduces their performance in statistics and research methodology courses (Onwueguzie, 2004). The ZOU learners would have to register again for these and other
courses in the coming semester, a scenario that leaves them financially worse off and calls for more anxiety again.

According to Mnyanyi and Mbwette (2009) there is need to remove barriers in ODL in developing countries. The above situation has led this researcher to investigate the challenges that these learners face and the learning support they need.

**CONTEXTUAL AND THEORETICAL FRAMEWORKS**

The primary aim of ODL is to open the world of higher education learning to all, deprived by time, place and poverty (Odeyemi, 2012). In developing countries such as Zimbabwe ODL is of vital importance as a means towards professional development. It might also contribute to equality in education by widening women’s opportunities to learn (Commonwealth of Learning & Asian Development Bank (COL & ADB), 1999) and may lead to poverty reduction if programmes are properly managed and well funded (Mnyanyi & Mbwette, 2009).

Unlike conventional learning in the classroom where the lecturer is there to lecture and explain and the student takes down notes, ODL can be delivered in various modes. The most common are face-to-face meetings or tutorials, use of modules, mixed media courseware, two-way communication (COL & ADB, 1999) and online classes (Odeyemi, 2012). Using these modes, instructors of research methods can address students’ statistics anxiety by imparting in undergraduates, - skills to apply basic numerical and statistical concepts through integration of scientific/statistical analyses and other areas (Yan, 2012). They should teach students in ways that will facilitate the development of their statistical reasoning; the reasoning which incorporates comprehension, planning, execution, evaluation and interpretation (Garfield, 2002). Structural and personal barriers to mathematics (Brown, Brown & Bibby, 2008) can be overcome by increasing learner confidence, self efficacy and encouraging more positive attitude to mathematics.

Simond (2008) and Thorpe (1993) point out several challenges that ODL learners face. Some of them according to Simond (2008) are:

- failing to balance the combination of work, family and education,
- not acquiring go online distance study habits,
- having no one around to monitor procrastination in the ‘culprit,’
- failing to motivate themselves due to isolation from tutors and peers,
- difficulty in forming study groups due to differences in how they use time,
- failure to cope with distance learning strategies like video/audio tapes material, and internet,
- inadequate preparation for examinations due to laziness and improper time budgets,
- inability to properly use the library.

These challenges may contribute to students’ statistics, mathematics or research anxiety. They can be overcome through proper planning, time management, avoiding procrastination and having a positive attitude.

Thorpe (1993) separates the challenges into learner-associated and institution-associated factors. Those due to learners include reasons that the courses are overloaded, too difficult, not sufficiently advanced or that the content is uninteresting. The institutional factors are that there is not enough tuition counselling available, no adequate facilities, schedules are disorganised and individual tutors are problematic. She suggests that the ODL institutions should provide proper learner support systems and that the learners need effective counselling and tutoring services.

While students generally view statistics as the worst course taken in college or university (Hogg, 1991 cited in Wiberg, 2009) and some ‘would rather die than continue their study of mathematics’ (Brown, Brown & Bibby, 2008, p. 10), statistics and mathematics cannot be avoided because of their importance and use in our daily lives (O’kwu & Anyagh, 2010; Garfiled, 2002). Research Methods undergraduate students also think that research is about punching numbers and sitting through advanced derivations (Yan, 2012). Therefore they express overwhelming anxiety about learning research (Einbinder, 2012), hence there is need to make students more interested in statistics and mathematics and to help them see the importance of using statistics (Schacht, 1990) or using research in social work (Einbinder, 2012).

To overcome mathematics/statistics/research anxiety in college or university students and especially in ODL institutions such as ZOU, learners need support in one or several forms. Learner support is defined or can be viewed as meeting the needs of learners by providing learning...
experiences in terms of guidance, planning and feedback that are necessary for continued student motivation and completion of the course (Sampson, 2003). COL & ADB (1999) give two kinds of support that distance educators need to offer to the learners. These are intellectual support or tuition, organisational support and emotional support or counselling. These kinds of support can be provided through face to face tutorials, by telephone, by email and computer conference, by fax and post, by audio cassette and/or by video conference.

Support personnel include full time academic staff, part time tutors, counsellors and advisors, administrative staff, library staff, friends, family members, staff of collaborating institutions and other learners or peers (COL & ADB, 1999). The support structures need to be in place and well managed and tuition givers and counselling personnel need to be well versed with their tasks. They should have qualities of warmth, genuineness, acceptance, empathy, organisational skills, explicating skills and listening skills.

ODL learners need institutional identity which makes them feel that they are part of a body of learners of a recognised and accredited institution, hence the need for quality assurance in ODL (COL & ADB, 1999). Quality is a characteristic of products and services an organisation offers. Quality assurance is a process directed towards achieving that characteristic while quality control implies an inspection or removing faulty products that fail to conform to a predetermined standard (COL & ADB, 1999). Quality control, quality assurance and the assessment of quality systems (monitoring, evaluation and auditing of procedures) all lead to total quality management which is necessary for institutions or organisations to produce desired results, continue functioning or even to improve. The institution should have a quality policy manual that spells out its aims, goals, objectives, vision, mission, core values and strategic plan. The procedure manuals with clear-cut job descriptions, roles, rules, regulations and procedures should be available and accessible to staff members and well understood.

Barasa (2012) points out that African ODL institutions widen access to education but do not assure success because of some dilemmas, one being lack of proper ODL policies. In Zimbabwe an ODL policy was launched in August 2012 by the Ministry of Higher and Tertiary Education with one of its aims being the training of Mathematics and Science teachers through ODL (Bwititi, 2012).
students in order to check on the authenticity of the questionnaire data.

Population, Sample and Sampling Procedure
There were 621 registered students in the second semester of 2012. Of these, 228 had registered for Mathematics, Statistics and/or Research Methods. The researcher had observed that, in the past semesters, about a third of the total registered students came for weekend schools or tutorials. This could be because tutorial attendance was and is not compulsory. The researcher targeted 76 (1/3 of 228) students belonging to the 4 different faculties. There were enough questionnaires for all the available students on their timetabled weekend schools and each student present was given a questionnaire to complete and submit at the end of the tutorial session. Fifty-nine questionnaires were returned resulting in a 77.6% return rate. Convenience sampling was used to select 4 students (one representing each faculty) for the focus group interview.

Instruments and Data Collection Procedure
Instruments for this study included questionnaires and an interview schedule. The questionnaire had 3 sections and 19 items. Section A (items 1-8) asked for biographical information such as diploma/degree, course code, current year of study or level, gender, age group, previous qualifications held, marital status and employment status. Section B had items (9-15) of a 5-point Likert type asking students to indicate whether they had any challenges pertaining to the module, the tutor, the library and internet, the administration, their peers, and any personal challenges including health, disability, family, and work-related ones. There was also provision for respondents to write their comments, opinions, causes of challenges and suggestions for the way forward in the open ended sections of items 9 to 15. Section C was open-ended and required respondents to specify the different kinds of learning support that they needed in areas such as the module, the tutor, assignments, examinations, media, peers, family and university management. The questionnaires, which had to be completed and returned at the end of the tutorial session, were personally distributed to all students who had come for tutorials at their usual official venues during the second semester of 2012. The focus-group interview questions were the same as those on the questionnaires excluding section A, but they were not asked in the same order. The interview was informal and was conducted in a friendly and free atmosphere that enabled interviewees to say anything pertaining to their learning of the said subjects in an ODL mode. The researcher triangulated and verified this data with the data collected from the questionnaires and from the review of related literature.

The questionnaire was validity-checked by ZOU peer researchers who had published at least one article in a referred journal. To check for reliability, the instruments were then pilot-tested with a few selected students from the Special Education and Agriculture departments and it was observed that they had had no problems in completing the questionnaires and that there were minor variances in how they answered the questions.

Data Analysis Procedure
Open-ended questions in the questionnaires were analyzed question by question by selecting and grouping together responses and looking for similar themes or meanings. The closed-ended questionnaire responses of the 5-point Likert type had both ‘positive’ and ‘negative’ items mixed in a random manner. For positive items such as ‘the tutor is knowledgeable in the subject area,’ strongly agree (SA) was coded 1 indicating a very minor challenge, while strongly disagree (SD) was coded 5 indicating a very big challenge. Negative items such as ‘the module needs to be reviewed’ or ‘I do not understand statistical/mathematical language’ had SA to SD coded in the reverse manner (from 5 to 1). The smallest total score would be 1x59=59 and the largest would be 5x59=295. A non-response was coded zero (0). Total scores for all the respondents and for all the sub-items were then classified to show the magnitude of the challenge as follows:

<table>
<thead>
<tr>
<th>Negligible or no challenges</th>
<th>Some 'moderate' challenges</th>
<th>Big challenges</th>
<th>Very big challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-72</td>
<td>73-146</td>
<td>147-220</td>
<td>221-295</td>
</tr>
</tbody>
</table>

A percentage of the sum of all total scores for all sub items under each question expressed over the grand expected total score would yield a ‘challenge exists’ rating. Dzinotyiweyi and Fleischner (1995) used the “30% cut off rule” to accept views supported by at least 30 percent of the respondents as reflecting the general views of the target group responding to the question concerned. In this study, a frequency count for SA’s and A’s (or SD’s and D’s for negative items) above 33% would be taken to show that the students ‘really’ faced the challenge(s) and that this reflects the general views of the target group. The software Statistical Package for the Social Sciences (SPSS) version
11.5 was used to do all the computations, crosstables, correlations, regression analyses and statistical tests.

According to Stewart (2006) there is no one best or correct approach to the analysis of focus group data. The nature of the analysis should be determined by the research question(s) and the purpose for which data are collected. In this study the focus group interview data were qualitatively analysed by looking for main ideas or concepts and using key-words-in context analysis (Onwuegbuzie, 2009). The procedures followed were transcribing the data, conceptualising and categorizing it, examining relationships and comparing them with those mentioned in the questionnaires and in literature review for the purpose of triangulation or checking on the validity and reliability of the given information.

RESULTS AND DISCUSSION

Biographical Data

Table 1 Showing frequencies and (%) for Biographical Data for Questions 1 to 8

<table>
<thead>
<tr>
<th>Gender</th>
<th>Freq (%)</th>
<th>Gender</th>
<th>Freq (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>33 (55.9)</td>
<td>Female</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>Age in yrs</td>
<td></td>
<td>Age in yrs</td>
<td></td>
</tr>
<tr>
<td>0-17</td>
<td>0 (0)</td>
<td>18-20</td>
<td>0 (0)</td>
</tr>
<tr>
<td>0-17</td>
<td>0 (0)</td>
<td>21-30</td>
<td>13 (22)</td>
</tr>
<tr>
<td>0-17</td>
<td>0 (0)</td>
<td>31-50</td>
<td>43 (72.9)</td>
</tr>
<tr>
<td>0-17</td>
<td>0 (0)</td>
<td>50+</td>
<td>3 (5.1)</td>
</tr>
<tr>
<td>Current level</td>
<td></td>
<td>Current level</td>
<td></td>
</tr>
<tr>
<td>1st yr</td>
<td>7 (11.9)</td>
<td>2nd yr</td>
<td>19 (32.2)</td>
</tr>
<tr>
<td>3rd yr</td>
<td>16 (27.1)</td>
<td>4th yr</td>
<td>8 (13.5)</td>
</tr>
<tr>
<td>Repeat</td>
<td></td>
<td>Repeat</td>
<td></td>
</tr>
<tr>
<td>Qualifications</td>
<td></td>
<td>Qualifications</td>
<td></td>
</tr>
<tr>
<td>O level</td>
<td>9 (15.3)</td>
<td>A level</td>
<td>9 (15.3)</td>
</tr>
<tr>
<td>Diploma</td>
<td>31 (52.5)</td>
<td>1st Degree</td>
<td>10 (16.9)</td>
</tr>
<tr>
<td>Any other</td>
<td></td>
<td></td>
<td>0 (0)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>9 (15.3)</td>
<td>Married</td>
<td>48 (81.3)</td>
</tr>
<tr>
<td>Widowed</td>
<td>0 (0)</td>
<td>Divorced</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Separated</td>
<td></td>
<td>Separated</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td>Employment Status</td>
<td></td>
</tr>
<tr>
<td>Formally Employed</td>
<td>57 (96.6)</td>
<td>Self Employed</td>
<td>1 (1.7)</td>
</tr>
<tr>
<td>Not Employed</td>
<td></td>
<td>Not Employed</td>
<td>1 (1.7)</td>
</tr>
</tbody>
</table>

Table 1 shows that there were more male than female respondents. A possible reason could be that, because of their multiple family roles, female students could not attend tutorials during the prescribed weekends. The ‘old’ societal concept of educating the boy child instead of the girl child could also be another explanation. Most students (72.9%) were 31 to 50 years old which is the more economical or active working group, possibly of diploma holders (52.5%). The students were more or less evenly distributed across the levels of learning (first year to fourth year). The majority were married (81.3%) and formally employed (96.6%). It seems that young school leavers shun distance education and that widowed, divorced, separated and unemployed or self employed people have challenges of accessing university education through open and distance learning.

Challenges Faced by Students

Question 9: Challenges pertaining to the module

Table 2 showing total scores for the 8 sub-items in Q9

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>176</td>
<td>130</td>
<td>170</td>
<td>160</td>
<td>156</td>
<td>110</td>
<td>93</td>
<td>193</td>
</tr>
</tbody>
</table>

Key: A=module is difficult, B=has relevant information, C=has clear examples, D=module well explained, E=module well illustrated, F=relevant for degree, G=didn’t get module, H=module needs review.

The results show that students faced ‘big challenges’ of the module being difficult, not having clear examples, not well explained or illustrated and therefore needing to be reviewed. Some ‘moderate’ challenges to the students were that the module contained irrelevant information, was irrelevant to their degree although some had the challenge that they did not receive a copy of it. There were no ‘very big’ challenges according to the researcher’s categorization. Some three
respondents, however, commented that the module was too shallow and not related to their field of study. Combining all eight items, a computation of total scores gave a ‘challenge exists’ rating of 50.3%. However by considering only SA or A ticks, 31.1% of the respondents agreed to having challenges relating to the Maths, Statistics or Research Methods module. It can thus be concluded that challenges pertaining to the module were less pertinent than expected. Thus ZOU modules can generally be considered to be good. In agreement, Sampson (2003), in a different study though, found that 91% of the MEd students at a British university were satisfied with their course modules. Module writers need to be aware that courses materials which are difficult or overloaded or uninteresting provide a challenge which can lead to student drop out (Thorpe, 1993).

Question 10: Challenges pertaining to the tutor

Table 3 showing total scores for the ten sub-items in Q10

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>99</td>
<td>124</td>
<td>110</td>
<td>127</td>
<td>124</td>
<td>122</td>
<td>138</td>
<td>117</td>
<td>144</td>
<td>139</td>
</tr>
</tbody>
</table>

Key: A=comes on time, B=easily available for help, C=knows subject matter, D=struggles to explain concepts, E=comes prepared, F=not willing to help outside tutorials, G=uses multiple sources, H=uses relevant examples, I=gives timeous feedback, J=too stingy with marks.

Results for challenges pertaining to the tutor show that students had only some ‘moderate’ challenges. Total score computations gave a ‘challenge exists’ rating of 42.2% while the percentage for SA and A ratings was 14.2%. This study therefore concludes that tutor related challenges were less prominent and this could be due to the fact that tutors in the Midlands region undergo a rigorous interview process and their qualifications are thoroughly scrutinized before they are selected and recruited.

This may vary from one region to another since in a different study Majoni and Chidakwa (2005) found out that 60% of ZOU-Mash Central students were not happy with tutors who absent themselves from tutorials while 75% said their tutors did not come prepared for tutorials.

Question 11: Challenges pertaining to the library and internet

Table 4 showing total scores for the ten sub-items in Q11

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>157</td>
<td>190</td>
<td>174</td>
<td>166</td>
<td>143</td>
<td>171</td>
<td>142</td>
<td>200</td>
<td>146</td>
<td>112</td>
</tr>
</tbody>
</table>

Key: A=has relevant books for course, B=books in short supply, C=computer lab congested, D=internet opens quickly, E=get valuable information from internet, F=I get relevant sources from ebrary, G=library staff incompetent, H=library has old books, I=library opens conducive times, J=Am computer literate.

Results for question 11 indicate that respondents had some ‘big challenges’ of the library having old books, books being in short supply, computer lab being always congested, not getting relevant sources from the ebrary (electronic library), the internet not opening quickly and the library not having relevant books for their course. ‘Moderate challenges’ were recorded for the remaining four items while there were no ‘very big’ challenges. Computations gave a ‘challenge exists’ rating of 54.3% and an SA or A ticks count of 33.1%. It can be concluded that students experienced big challenges pertaining to the library and internet. Similar findings were recorded by Evans and Shortall (2011, p.28) where “access to literature remains a frustration” to ODL students while conventional students were “more content.”

Question 12: Challenges pertaining to the administration

Table 5 showing total scores for the ten sub-items in Q12

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>192</td>
<td>202</td>
<td>196</td>
<td>142</td>
<td>141</td>
<td>161</td>
<td>141</td>
<td>150</td>
<td>164</td>
<td>138</td>
</tr>
</tbody>
</table>
Results in Table 5 shows that there were six big challenges while four were moderate ones. The big challenges or complaints pertaining to the administration were on fees payment procedure, fees structure, registration procedure, handling of student queries, organization of assignments and dispatching of results. The remaining four were ‘moderate’ challenges. Overall, computations produced a ‘challenge exists’ rating of 55.2%. Strongly agree or agree ticks amounted to 36.8% of the other ticks showing that these challenges could be generalized to the target group. Some respondents indicated that the administration should put its house in order by having clear user friendly policies about fees structure and payment plan, among others, and this agrees with findings of Adewale and Inegbedion (2008) in Mnyanyi and Mbwette (2009) where students withdrew from studies because of problems resulting from institutional procedures, pattern of facilitation schedules and poor administrative support.

Question 13: Challenges pertaining to the peers

Table 6 showing total scores for the four sub-items in Q13

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>167</td>
<td>166</td>
<td>176</td>
<td>112</td>
</tr>
</tbody>
</table>

Key: A=Do not get enough help from friends, B=Do not get enough help from classmates, C=I do not help fellow students to do assignments, D= I like working alone, others distract me.

The results in Table 6 show that students faced big challenges of not getting help from their peers and not being able to help each other to do assignments. The ‘challenge exists’ rating was 52.6%. SA and A counts totalled 33.8% and these challenges could be generalized to the target group. However, the score 112 depicts a moderate challenge meaning that students do not really want to work alone but would rather benefit more from group discussions. A possible explanation is that ODL students, unlike conventional ones are scattered all over and do not meet often making formation and maintenance of groups for academic discussion problematic.

Question 14: Personal challenges

Table 7 showing total scores for the eight sub-items in Q14

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>131</td>
<td>124</td>
<td>96</td>
<td>139</td>
<td>166</td>
<td>158</td>
<td>136</td>
<td>125</td>
</tr>
</tbody>
</table>

Key: A= Do not understand statistical/mathematical symbols, B= Do not understand statistical/mathematical language, C= Statistics has no relevance for my course, D= Have problems using formulae, E= Assignments too challenging, F= Have difficulties using the calculator, G= Do not have correct study habits, H= Need counselling services

Table 7 shows that there were no very big personal challenges. There were however, two big challenges. The first pertained to the assignments which were perceived to be too difficult indicating that perhaps the students need guidance and support on how to ‘attack’ assignments. The second challenge was due to the calculator, a useful tool for getting answers quickly but which the students were having problems on how to operate and use, probably because they had not had access to and knowledge on the proper use of computers and calculators at secondary school level as was the case in Ugandan schools (Opolo–Okurut, Opynene–Eluk & Mwanamoiza, 2008). The rest were moderate challenges which seemed to be related to the negative attitude of the student and his/her lack of requisite skills. The ‘challenge exists’ rating was 45.5% while SA and A counts totalled 23.1% indicating that on the whole, students had less personal challenges somehow contradicting the general belief that students who do not perform well should have more ‘personal related’ challenges. However, these challenges fail to be generalized to the target group.

Question 15: Other Challenges
The scores in Table 8 show that students indicated having very big challenges related to their jobs and/or employers, big challenges emanating from family and financial pressures and moderate health and disability related challenges. On the whole, the total scores produced a ‘challenge exists’ rating of 54.4% and an SA and A total count of 43.7%. These figures indicate that the challenges can be generalized to the target group. However, challenges mentioned in Questions 9 to 14 and these ‘other challenges’ may continue to have a strong influence on the students’ maths, statistics and research anxiety and on their academic performance and attitude towards ODL if they are not quickly and urgently addressed.

**Correlations, T Tests and Regression Models**

Correlations were run using SPSS 11.5 to investigate if any significant relationships could be found between different types of variables (or challenges). Those found to be significant at $\alpha \leq 0.05$ level are summarised in the table below:

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>178</td>
<td>220</td>
<td>222</td>
<td>85</td>
<td>98</td>
</tr>
</tbody>
</table>

Key: $A=$Family pressure, $B=$Financial pressure, $C=$Work/Employer pressure, $D=$Disability pressure, $E=$Health pressure

Positive correlations suggest that the challenges were similar/related or that a reduction in one type of challenge might lead to a reduction of another type while negative correlations imply that the challenges were distinct; an increase in one leading to a decrease in the other.

Paired samples T tests were carried out to compare means between the different variables. There were significant differences between the means of TUT and LIBNET related challenges (p=0.01), TUT/ADM (p=0.007), LIBNET and PERS (p=0.035) and ADM and PEER related challenges (p=0.004). There were no significant differences (at $p>0.05$) between other pairs of variables. A trial to come up with acceptable models of linear regression equations was made. For example, it was found that PERS challenges depended on TUT, LIBNET and ADM challenges, accounting for 45.9% of the variability while the model for PERS vs MOD and PEER accounted for 50.7% of the variability. OTHER challenges (family, work, health, disability) depended on MOD and PEER, the model accounting for 98.3% of the variability. The model for OTHER challenges vs TUT, LIBNET and ADM accounted for 96.9% of the variability. Other trial models produced insignificant and meaningless results and were removed from this analysis. Although the regression analysis models outlined above were not significant at $p<0.05$, they help to explain possible cause and effect relationships and this knowledge might assist university management and academics to have clear ODL policies and challenge reduction strategies.

**Learning Support Needs**

Questions 16, 17, 18 and 19 required the respondents to state and explain the learning support that they needed from the university. These were grouped into academic support, personal support, peer support and support from the management. It should be noted that the majority of the respondents did not comment, making generalization to the target group impossible but it is still important to mention the views of those few students who commented because some of them were quite reasonable and their ideas could help institutions to plan and implement good policies about student support.

In Question 16, 12 respondents (20.3%) said their module has too many errors and so must be revised. 9 (15.3%) said they needed many clearly worked examples in the module. 5 (8.5%) said the module needed to be provided in time while 4 (6.8%) pointed out that they needed more tutorial hours. Two (3.4%) respondents pointed out that...
they needed CD’s and computers with information to supplement the module. Twenty-seven (45.7%) respondents did not give any comments. Due to these low figures, one can conclude that most ZOU modules are alright as they are. This agrees with the responses given in question 9.

Concerning the tutor, 8 (13.6%) respondents pointed out that they needed more time with the tutor. This agreed with responses given about the module. Seven (11.9%) respondents said their tutor needed to master statistical equations and explanations while another 7 (11.9%) said the tutor needed to give more guidance on how to solve problems. One (1.7%) pointed out that the tutor was good, another one (1.7%) said the tutor should give handouts and use the overhead projector while tutoring, and 35 (59.2%) students did not comment.

The respondents were asked to state the learning support they needed concerning assignments. Ten (16.9%) respondents said the module should clearly guide and give techniques on how assignments are done. Eight (13.6%) students said their assignments should be marked in time and revised thoroughly before the commencement of examinations while another 8 (13.6%) said they needed more time for working on their assignments. This agrees with views given for more tutorial time. Two (3.4%) students said they needed to refer to past marking guides while another two (3.4%) said they did not have anyone to discuss assignments with. One (1.7%) respondent pointed out that there was need for the university to provide facilities for doing and sending assignments online. Twenty-eight respondents (47.4%) did not comment.

Concerning examinations, 11 (18.6%) respondents said they needed a guide on how to tackle them and more time practising past examination papers with tutors. Seven (11.9%) of the respondents said they needed examination dates to be spaced out and exam time tables sent in time to individual students. Four (6.8%) students said the examinations should include information in the module while two (3.4%) students said they needed more tutorials to master exam items. One respondent (1.7%) pointed out that the university should allow students to write examinations without paying full fees. It is not clear how this student would ensure that the university would get its money back. Thirty-four (57.6%) students did not comment.

Asked to comment about results, 15 (25.4%) students said they wanted them to be released early and without errors. Three (5.1%) students wanted results to be accessible via the internet while one (1.7%) said they wanted results to be displayed on notice boards for individual accessibility. One (1.7%) student pointed out the need to provide a results’ analysis whenever results are published. Thirty-nine (66.1%) of students did not write any comments.

Concerning use of media 13 (22%) respondents pointed out that it was limited. They said they needed to have more fast and effective learning through emails, SMS and internet. Two (3.4%) students said the media should be used for publication of results and another two (3.4%) respondents said more books have to be provided to increase learning media in the library. One (1.7%) respondent said the computer lab should open during weekends and at night to increase the time to access the internet and that the number of computers connected to the internet had to be increased. Two (3.4%) respondents said they needed training on how to use the computers. Thirty-nine (66.1%) respondents did not comment.

Question 17 required respondents to state their personal support needs. Eleven (18.6%) respondents said they needed to have a laptop or computer and hands-on skills on e-learning. Four (6.8%) respondents said they needed guidance on how to do assignments, and detailed and clear comments on failed assignments. Another 4 (6.8%) said they needed their weekend school on month ends when they could get some money for travelling while 5 (8.5%) said they needed a full package of learning materials, timetables, rules, regulations and procedures immediately after registration. Three (5.1%) said they needed past exam papers and more worked examples. One (1.7%) student needed financial support while another one (1.7%) needed help on statistical formulae. Thirty (50.8%) respondents did not comment.

Question 18 asked respondents to state the support they needed from their peers. Thirty-five (59.3%) said they needed to discuss past exam papers in groups with their peers. Three (5.1%) students said they needed to share information on the use of the internet, and to share learning materials and reference books with their peers. One (1.7%) respondent said they needed counselling but did not state on what aspect. Twenty (33.9%) of the respondents did not comment.

Question 19 required respondents to list the kind of support they needed from university management. Nine (15.3%) said management should provide
easy access to more learning materials on time. Eight (13.5%) respondents said management should provide more time for students to interact with their tutors and discuss problems encountered. Five (8.5%) said that management should provide a conducive learning environment in terms of a nice geographical space, good buildings, more library books and up to date computer facilities. Two (3.4%) were worried about the calibre of their tutors and needed management to recruit skilled and competent staff and to thoroughly supervise them. Two (3.4%) required management to put in place new market driven programmes like a degree in social work. One (1.7%) respondent said management should initiate thorough reviewing of the statistics modules. Thirty-two (54.2%) respondents did not comment.

If the support needs mentioned in Questions 16-19 are met, students’ maths, statistics and research anxieties may be reduced and performance in these courses improved.

Focus Group Interview

Four students, one from each of the faculties of Science and Technology (ST), Commerce and Law (CL), Applied Social Science (SS), and Arts and Education (AE) constituted the members of the group. They were asked to state the challenges they faced as ODL learners, how those challenges could be overcome and any general information they thought could help to improve the system. Some of their responses were very similar to those echoed by their counterparts in the questionnaires. Here only different ones are going to be discussed. ST said the BSc Maths and Statistics programme had the weakness of being too theoretical, with no project component and no computer applications. If these were incorporated, it could be upgraded to an honours degree programme. CL mentioned that workbooks were not readily available upon registration and she doubted if any had ever been printed. She said there was nothing on the e-learning. She wanted the Statistics and Research Methods tutor not to assume too much background knowledge in his students since she did mathematics and statistics a long time ago. SS said he sometimes experiences stomach and head ache problems as a result of study, family, social and work pressures. He hoped that the university authorities would build a bigger library and bigger computer lab and stork them with up to date and adequate learning materials and equipment. He also said that these should be manned by well qualified staff. Finally, in his exact words AE said, “The administration need to be specific on the diploma which they offer. It is stated invalid in media which is very disturbing. And it should have in place an updated university prospectus which gives clear regulations and information about how worth and important the programme is.”

Conclusion and Recommendations

This research sought to find out whether ZOU students who do programmes or courses involving Maths, Statistics and Research Methods are facing any challenges and if so what could be the magnitude and form of those challenges. In the questionnaires all respondents had challenges which they stated clearly but a few commented on the learning support that they needed. Probably they were not aware of what exactly the ODL institution should provide them as learning support. They could have been influenced by people who have the notion that with ODL one does everything alone and one must fend for oneself or that ODL is a jungle in which only the fittest survive. Findings from the questionnaires were that students faced big challenges pertaining to the administration or management, financial, family and work pressures, library and internet, and their peers. Tutor, module and ‘personal’ related challenges were less prevalent. ‘Personal’ here means of the students’ own making or relating to themselves. Although ZOU students experienced these difficulties, research has shown that ODL is not an inferior form of study and that the learners do not perform poorer than their conventional counterparts (Liorarakis & Papademetriou, 2003; Sampson, 2003). ODL learners’ disadvantages can be overcome through careful planning by the course provider and the individual student (Evans & Shortall, 2011).

The respondents were asked to state their learner support needs. On average, about 46.5% of them commented. They said they needed adequate and up to date resources and equipment related to the library, computers and the internet. They said the management needed to provide a clear and user-friendly fees payment plan since most students, although formally employed, had their own families and were usually cash strapped. Most modules, especially the Statistics ones had to be re-written in simplified language and symbolism and to be more practical (related to the world of work) rather than being too theoretical and difficult as most respondents said they were. This tallies with ideas of Sampson (2003) who believes that in the absence of the tutor and a well stocked library, the role of learning materials like modules and readers is very important and they should be carefully prepared.
The focus group interview produced similar results to those from the questionnaires. However, a student from the faculty of Arts and Education (AE) wanted the university to respond to negative public media coverage about its programmes and to make it clear, maybe in its prospectus, “how worth and important the programme is.” These ideas could help the university to market its programmes, design new ones and increase enrolment.

Basing on these research findings and on the review of related literature, the following recommendations are made:

1. ZOU (Midlands) should convince ZOU (National Centre) to have a clear ODL policy that guides all ZOU operations taking into cognisance aspects of access, quality and success. The policy should have such key aspects as a clear and student friendly fees payment plan, and the nature and worth of programmes offered.

2. ICT’s, internet and library services should be married strongly with the ODL delivery mode since they have become a necessity in this technological age. Equipment, buildings and learning materials for these areas are inadequate in ZOU (Midlands) and should be sourced and improved.

3. Tutors should be staff developed on how to prepare e-learning materials and how to conduct e-tutoring.

4. ZOU should increase the number of face to face contact hours for tutorials from the current 6 to at least 10 per semester.

5. ZOU should have a Research Methods and Statistics Centre in each of its geographical regions and an “Online Centre” for the Virtual Region. These centres should be serviced by well qualified and dedicated staff members (maybe starting with two) who should be able to assist any student or staff member doing research or needing help on any aspect of statistics. The centre should be equipped with computers connected to the internet and installed with various statistical software for quantitative or qualitative data. It should also have some books on research methods. This centre could ultimately end up being a consultancy centre for any one, thus generating money for ZOU.

6. Since this research was conducted only at the ZOU Midlands regional centre, there is need for further research in other regions and maybe using different instruments and target groups.

References


