

# Chapter 14

## Statistical Analysis of Distance Education Quality: A Case Study

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### **ABSTRACT**

*There is a need to identify factors which impact the performance of students before the quality of the education can be improved. Assessing the level of student performance is one of the requirements before a qualification is accredited by the National Council of Higher Education in Namibia. Low student performance can be an indication that students are receiving low-quality support during their studies. However, concentrating only on student support does not provide a comprehensive picture of where education needs to be improved. Thus, this chapter looks at distance Basic Business Statistics 1A student characteristics and tutor characteristics as predictors of student performance. The chapter is based on a sample of 187 out of 474 distance students who were enrolled for Basic Business Statistics 1A during 2018. Regression and chi-square tests were applied, and study results revealed that student age, achievement in secondary mathematics, and tutor's sex and education level predict student performance.*

### **INTRODUCTION**

Quality Management (QM) is a process which is supported by institutional policies and systems (Martin & Parikh, 2017). QM is used by an institution to maintain and enhance the quality of the education experienced by its students (Martin & Parikh, 2017). The QM instruments encompass the review of academic programmes, implementation of student surveys on teaching effectiveness; student and staff satisfaction surveys; student workload assessments and analysing student progression and success (Martin & Parikh, 2017). According to a 2006 study by the University of Pretoria (UP) (as cited in Aluko, 2009), student feedback (formative evaluation) can be relied upon to ascertain the strengths and weaknesses of distance education programs, which in turn can guide the improvement of program quality. According to Scott (2008), quality can be monitored by looking at the impact of higher education in terms of evidence of

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high quality student performance on valid, reliably marked assessment items; positive performance on proxy measures of impact including employability, salaries, employer satisfaction with graduates and successful further study. For staff, quality monitoring can involve statistics on staff promotion as a result of involvement in the course(s), retention and reported staff satisfaction levels (Scott, 2008).

The quality assurance aim is to ensure that a product or service is fit for the market (Inglis, 2005). For instance, for universities to protect their critical market overseas (distance students), they need to ensure that the standard of the educational products that they have been offered on distance education matches the standard of what they are offering on contact mode (full-time mode) (Inglis, 2005). In this case, there is a need to assess whether distance educational services such as tutoring and student assessments enable distance students to gain knowledge at the same rate as the full-time students. The student performance in examinations is aimed at assessing the level of knowledge the student gained (Fry, Ketteridge, & Marshall, 2009). According to Scott (2008), one practical way to address the issue of quality assurance (QA) for student assessment is to undertake a comparative study of assessment products across similar fields of education and levels of study. This study could for example compare the standards of assignments and examination question papers for distance students enrolled for Basic Business Statistics 1A across NUST centers. Basic Business Statistics 1A distance course assessment products could further be compared to part-time and full-time Basic Business Statistics 1A assessment products. However, NUST Basic Business Statistics 1A distance students only get assignments as a form of continuous assessment to qualify for final examinations while full-time and part-time students mainly base their continuous assessment marks on tests which makes them better prepared for examinations than the distance students. For the distance Basic Business Statistics 1A course, Namibia University of Science and Technology (NUST) still uses the traditional distance system, in which hard copies of assignments are mailed or collected by students at their respective distance centres. Completed assignments are submitted by students in hard copies, either mailed or physically, at the respective distance centres for marking to establish students' continuous assessment marks to be used in determining if a student qualifies for writing examinations or not. Basic Business Statistics 1A students whether on distance or contact mode (full-time and part-time) undergo the same (standardised) final examinations.

According to Utekhin (2008), a lot of tasks of quality management can be solved with the use of Statistical Techniques (ST), however many universities do not apply results of ST to support institutional decision-making processes. Regression analysis and the chi-square test are STs or statistical tools which universities use to identify important factors which impact the quality of education offered to their students. Regression analysis allows the modelling, examination, and exploration of relationships to understand the factors behind observed spatial (geographical/location) variations of the quality of education at different education centres.

NUST has a dynamic student population studying on full-time, part-time and distance modes. The 2018 semester 1 NUST student performance in Basic Business Statistics 1A revealed that distance students articulated the highest failure rate of 62% (294 out of 474) compared to the full-time failure rate of 50% (108 out of 217) and part-time, 39% (57 out of 145) (NUST, 2019). This indicates that for the Basic Business Statistics 1A course, distance students receive low quality education compared to full-time and part-time students. This chapter argues that it is not enough just knowing that distance education is associated with low pass rates (Karel & Letseka, 2015). Hence, the chapter will evaluate the quality of distance education in terms of student progression and success or performance. This will be done by modelling, examining, and exploring factors behind the low-quality education experienced by Basic Business Statistics 1A distance students at NUST. To achieve an unbiased comparison, the chapter will

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