

# Comparison of urban and rural dropout rates of distance students

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*South Africa has one of the highest university dropout rates in the world. As a country, it also has a history of forced location and the withholding of resources, including quality education, from certain rural areas. This study investigates, the effect of urbanisation (of the area in which a student resides) on the dropout rate of distance students in an introductory taxation course. Using Kember's longitudinal-process model of dropout from distance education as a point of departure and interrogating the "characteristics" of students, it was found that the effect of urbanisation on its own only accounted for a 1% higher dropout rate for rural students over their urban peers. When urbanisation, as a variable, was combined with other demographic variables, the outcomes were sometimes unexpected. Ten multi-variable comparisons indicated that rural students always represented the students who dropped out the most. However, in four of these multi-variable comparisons, rural students were also those who dropped out the least. A further study could examine the characteristics of population groups and language groups within rural communities to ascertain why certain students drop out more than others. Recommendations are made for specific interventions that could assist in supporting students that are prone to dropout.*

**Keywords:** Student profile, dropout, retention, demographics, urban, rural, open and distance learning, distance education

## Introduction

South Africa's graduation rate is one of the lowest in the world (15% based on headcount enrolments) and it is even lower for Black students (Letseke, Cosser, Breier & Visser, 2010: 1). Forty per cent of South African university students drop out during their first year of study and 20% during their second or third year (Letseke *et al.*, 2010: 3). The reasons for dropout are complex and numerous, and include financial issues, lack of resources and substandard schooling. This high dropout rate means that scarce financial and human resources are being allocated to support students who ultimately will not attempt a summative assessment. This is even more crucial in South Africa where there are limited government resources, a shortage of skilled workers and a history of social divide (MacGregor, 2010).

For South Africa, where social divide was based on discriminatory urbanisation controls, the effect of student location could be more pronounced than reported results of international studies. Urbanisation controls in the apartheid South Africa not only forced certain race groups to live in certain areas, but also withheld education and resources from these areas. Students in rural areas lack access to resources, infrastructure and opportunities afforded to students in urban areas and are, therefore, disadvantaged (Pennfather, 2008). Since democratisation, there has been an increase in urbanisation in South Africa, a result of which is improved access to opportunities such as tertiary education for previously disadvantaged groups (IEASA, 2010: 14). Improved access to opportunities, resources and better quality infrastructure have led to a substantial change in the profile of students who study at tertiary educational institutions, especially at South Africa's largest distance education institution, the University of South Africa (Unisa).

Over the past 70 years, retention, throughput and dropout research has received a great deal of attention (Reason, 2009; Steenkamp, Baard & Fick, 2009). Various models were developed to explain this complex issue (Spady, 1970; Tinto, 1988; Montmarquette, Mahseredjian & Houle, 2001). These models

focus mainly on specific issues affecting student retention in residential students. Due to the nature of distance education, alternative models were developed to explain phenomena in these institutions (Bean & Metzner, 1985; Kember, 1989; Laing & Robinson, 2003). This study will expand the knowledge in the field of distance education, by elaborating on the work done by Kember (1989) and others.

In this study, the following will be investigated: Can the students who are likely to drop out be identified by their location combined with other demographic attributes? Does urban development of the area in which a student resides influence his/her dropout rate either on its own or when combined with other factors? The results of this study will determine whether programmes should be developed for specific groups of students so that they receive additional support.

For the purpose of this study, Kember's longitudinal-process model of dropout from distance education was chosen as a point of departure in order to form a basis for the explanation of student retention. Based on an analysis of previous research, Kember's model purports that the retention cycle commences with a student's unique characteristics.

Studies using this model found various demographic factors, for example, student location (urban or rural), combined to influence a student's propensity to drop out. It follows that a student who is likely to dropout due to these pre-determined circumstances might be retained in the system if better support is provided.

In this article, Kember's model was expanded to include other demographic variables that had been identified in other studies investigating student retention. During the first phase of the analysis, students were divided based on their location (urban or rural) to determine whether location had any impact on the dropout rate. Subsequently, location of the student was combined with other demographic variables to ascertain the profile of students who have a high risk of dropping out. The data was also combined to analyse multi-variable combinations of demographic factors and the urban or rural location of students.

Based on its historical legacy, South Africa is in a unique position compared to the rest of the world, and this research aims to fill a part of this gap, by examining the effect of location on South African students. The benefit of the study is that it enables tertiary educational institutions to identify the profile of students who are at risk of dropping out. This will facilitate the developing of study material, and support interventions can be adapted and targeted towards students with these demographic characteristics.

## Research method

The descriptive study used secondary data analysis of distance students' university records to determine whether the urban/rural status of the student combined with other demographic factors could describe those students who tend to drop out. For the purpose of this study, 'drop out' means that the student did not attempt the examination for this module.

As this article will consider the effect of the students' location on the probability of their dropping out, the concept of location, urban versus rural, needs to be defined. There is no nationally or internationally accepted definition of urban areas as opposed to rural areas (Pennefather, 2008). According to the South African Department of Rural Development (2009), rural areas differ in "nature, location and circumstances". These areas, which are usually dependent on agriculture, can include small towns and settlements. Usually rural areas do not have adequate resources such as water, educational facilities and employment opportunities (Molefe, 1996).

In order to divide students into rural or urban area groups, for this study, a new variable (referred to as the urbanisation variable) was developed. This variable was based on the level of urbanisation in each magisterial district in South Africa. The following three decision rules were applied to classify the magisterial district as either urban or rural:

- The urbanisation profile of all magisterial districts in South Africa was obtained from the All Media Product Information Survey (SAARF, 2009). The eight types of settlements were grouped into rural areas (farming, traditional, sparse and small-holding settlements) and urban areas (informal settlements, urban settlements, industrial areas, hostels and institutions).

- The percentage of people living in each type of settlement was established for each magisterial district.
- Using these percentages, all the magisterial districts were classified as follows:
  - Rural: magisterial district where less than 50% of the people live in urban settlements.
  - Urban: magisterial district where more than 50% of the people live in urban settlements.

The urbanisation variable per magisterial district, based on the above decision rules, was incorporated into the data set as an independent variable.

## Population and data

The study was conducted using student records of students registered (2.615 students) for a taxation module offered as part of various BCom qualifications, on second-year level. To ensure comparability between the groups, only data of students registered in the first semester of 2010 was used rather than data from different years that might have incorporated other external factors.

- To comply with ethical requirements, no individual student's characteristics were reported on. Only trends in group information were used for the purposes of this study.
- The Unisa student database was used to gather the demographic information (magisterial district, age, gender, language, employment status, population group, and previous academic performance) of all students registered for the selected module. This included the magisterial district in which the students resided. Once the urbanisation variable had been determined (as described above), it was incorporated into this data set.

## Data editing and validation

With the aid of a statistician, various statistical tests were performed on each of the data elements in the data set to ensure reliability and validity of the data. After adding the independent urbanisation variable, a final data set was prepared in Microsoft Excel. The final data set contained 2.615 students (2.352 urban students and 263 rural students).

This set was subjected to various descriptive analyses and statistical tests to ensure the validity and integrity of the data. A reliability test using the Cronbach's *alpha* test found a 0.7 *alpha* value. This value meets the minimum reliably of 0.7 (Pallant, 2009). Where the combination of demographic variables had fewer than five elements, these groups were not used in the analysis.

An initial descriptive analysis was done to determine whether urban students compared to their rural peers had a lower risk of dropping out. Even though the intention of the reported results was not generalised beyond the scope of the study itself, profiles could be ascertained from the data.

The results and analyses are provided in the following sections. Due to limitations in the data distribution between subgroups, inferential statistical techniques could not be performed in this study. The results presented in this article are based on a descriptive analysis of the data obtained.

## Dropout, location and demographics

Location on its own has an effect on dropout and thus the effect of location was considered regarding the cohort of students involved in this study. According to the literature, each demographic variable can also individually affect dropout (Müller, Swanepoel & De Beer, 2010). This article considers the effect that each demographic variable can have on dropout and how the combination of location and any two selected demographic variables result in different trends.

International research shows that urban students outperform their rural peers (Dawes, Yeld & Smith, 1999), and students from rural areas/small towns have higher dropout rates than their urban counterparts (Pantages & Creedon, 1978). It has also been reported that students from rural backgrounds require greater support to pass their subjects (Stevens & Walker, 1996).

## Urbanisation

The analysis shows that rural students had a dropout rate (16.73%) that was 1% higher than that of urban students (15.73%). This is in line with previous studies, mostly international, that found that the location of a student in isolation had a marginal effect on the dropout rate. The difference in the dropout rates between urban and rural students, reportedly, becomes more pronounced when combined with other demographic variables (Peltier, Laden & Matranga, 1999; Reason, 2009). Various international studies have found that there is an interaction between different independent variables (Peltier *et al.*, 1999; Reason, 2009; Tumes, Shilruf & Hattie, 2008) affecting dropout rates of students. During the next phase of analysis, different demographic variables were combined to determine whether any consistent patterns emerged. Kember (1989: 285) suggests that, in the case of distance students, variables relating to their background and characteristics take on more importance.

In this study, the following endogenous variables (gender, age and language) and exogenous variables (sector of employment and previous academic performance), identified in previous studies (Bean & Metzner, 1985; Kember, 1989; Laing & Robinson, 2003; Reason, 2009) were analysed to determine their effect on dropout, when combined with urbanisation.

Table 1 presents the summary of results when student location was combined with two demographic variables, and indicates which combinations produce the highest and the lowest dropout rates.

**Table 1:** Summary of multi-variable comparisons

Variables combined with urbanisation	Highest dropout rate	Lowest dropout rate
Age, language	Rural, Nguni-speaking, 29-72 yrs	Afrikaans, rural, 25-28yrs Other language, rural, 29-72yrs
Age, gender	Rural, male, under 21 yrs	Urban, female, under 21
Age, employment sector	Rural, not employed, 29-72 yrs	Urban, not employed, under 21yrs
Age, population group	Rural, Coloured, under 21 yrs	Rural, White, 25-28 yrs Rural, Indian, 22-24 yrs
Age, previous academic performance	Urban, 22-24 yrs, above 80% for Accounting	Rural, 25-28yrs, 50-59% for Accounting Rural, 22-24yrs, 70-79% for Accounting
Gender, language	Rural, male, other languages	Urban, female, English-speaking
Gender, employment sector	Rural, male, employed in finance	Urban, male, employed in finance
Gender, population group	Rural, male, Coloured	Rural, male, Indian (5.56%)
Gender, previous academic performance	Rural, male, above 80% for Accounting	Rural, female, 50-59% for Accounting 1
Employment sector, language	Rural, Nguni-speaking, not employed	Urban, English-speaking, employed in finance
Employment sector, population group	Rural, Black, employed in finance	Rural, Indian, not employed
Employment sector, previous academic performance	Rural, not employed, 70-79% for Accounting	Rural, finance, 50-59% for Accounting
Population group, language	Rural, Coloured, Afrikaans-speaking	Urban, White, speaking other languages

<b>Variables combined with urbanisation</b>	<b>Highest dropout rate</b>	<b>Lowest dropout rate</b>
Population group, previous academic performance	Rural, African, 70-70% for Accounting	Rural, White, 50-69% for Accounting Rural, Indian, 70-79% for Accounting Urban, Coloured, 70-79%
Previous academic performance, language	Rural, other languages, 60-69% for Accounting	Rural, Afrikaans-speaking, 50-59% for Accounting Rural, Afrikaans-speaking, above 80% for Accounting Rural, English-speaking, 70-79% for Accounting Urban, Nguni-speaking, above 80% for Accounting

Each of the demographic variables and its effect on dropout is subsequently discussed. Each discussion also encompasses the combination of that demographic variable with the location of the student and its effect on dropout. A discussion on the effect of student location and the combination of two demographic variables concludes each section.

### Age

The effect of age, when considered as an independent variable, was found to be an indicator of student retention (Byrne & Flood, 2008; Kaighobadi & Allen, 2008; Tumes *et al.*, 2008). It often appears that younger students drop out less than older students; however, it has been found that when other demographic factors such as gender, population group and urbanisation/location are adjusted, younger students drop out more than older students (Tumes *et al.*, 2008).

For the purposes of this study, students were divided into four age groups, namely under 21; 22-24 years; 25-28 years, and 29-72 years.

### *Age and urbanisation*

As populations in developed countries continue to grow older, so the diversity of student age increases. In this study, both ends of the age scale showed higher dropout rates for rural students. It is suggested that the younger rural students could be first-generation learners (Letseke *et al.*, 2010: 78) and, therefore, support structures could be lacking. With this group, student support systems could be designed to assist these students specifically. Since the older group also showed a high dropout rate, it is suggested that this age group is responsible for providing for families and that this responsibility takes preference over studies. It is suggested that, for this group, where a provider is attempting to study, the government could introduce a structured financial support instrument or some form of incentive.

### *Age, location and other demographic variables*

In this study, when age was combined with other demographics, two age groups, namely the youngest and the oldest group, showed the highest dropout rates in four of the five combinations. In these combinations, the rural students also had the highest dropout rate.

When age was combined with location and language groups, the highest dropout rate was found among the oldest group of students, who speak Nguni. Historically, Nguni speakers live in chiefdoms

or small tribal settlements and the older members of the community are usually responsible for raising families with absent parents. These responsibilities might have a negative impact on their ability to complete their studies (Nguni, n.d.).

When age was combined with location and gender, the results confirmed the findings of previous studies, namely that females drop out less. Although research has shown that age is an indicator of dropout (Kaighobadi & Allen, 2008), there are mixed findings about it being a predictor. In this study, the dropout rate was found to be higher for younger students if they were male and lower if they were female. It is suggested that the younger females would be at home and expected to care for younger children. They could perhaps manage their time to incorporate time for studies. On the other hand, young males are expected to find work and would spend their time “job hunting” or working and, therefore, would have less time for studies. The context in which young rural males and young rural females find themselves and the definition of their roles in the rural community would have to be investigated in more detail to further explain this result.

The combination of age, location and employment yielded an interesting result, because it was the unemployed students who were seen to drop out the most and the least. The youngest group of students who were not employed and located in an urban area dropped out the least. A reason for this could be that these students had just left school, were staying at home, were not working and were studying full-time at a distance. In this situation, all their needs were met with little or no stress of providing for themselves while studying. The older unemployed rural students dropped out the most. As discussed earlier, the older people are responsible for providing food, shelter and other needs in the rural community, and these pressures, especially if the students are not employed, could cause them to drop out.

There was no clear trend in the data when age, location and population groups are combined. Of the five combinations, only one combination showed that urban students had the highest dropout rate. These are students who did well in the first-year (Accounting) module. Anecdotal evidence suggests that students who passed Accounting at an urban school could find this module to be manageable and do well in it, whereas taxation was new to these students. They found taxation to be difficult and decided not to write the examination. Further research would need to be done to investigate whether this is the case.

## Gender

Studies are varied in their results on the effect that gender has on student dropout. Some studies found that gender significantly affected dropout rates of students (Tinto, 1987; Tumes *et al.*, 2008). Reason (2009) conducted a retention study and found that gender was not a strong indicator of retention. Reason (2009: 490) claims that gender was a significant predictor of student retention in a simple model, but not in a step-wise regression, indicating that gender has an interaction with other variables such as age, language, family circumstances, ethnic background and previous academic performance.

### *Gender and urbanisation*

Previous research (Byrne & Flood, 2008: 204) does not provide conclusive results as to whether gender affects the dropout rate of students. The results of this study indicate that urbanisation did not have a major effect on the dropout rates of female students, but that it did affect male students. Rural males had the highest dropout rate.

### *Gender, location and other demographic variables*

The effect of the combination of age, gender and location was discussed earlier. Where gender, language and location were combined, the trend followed a similar pattern to that reported in other research. The addition of language as an independent variable seems to indicate that studying in a second language adds to the dropout rate of male rural students.

‘Rural male employed in finance’ was the largest group to drop out and ‘urban male employed in finance’ was the smallest group to drop out. It appears that the geographical situation of the student was once again the dominant factor.

When gender was combined with location and population group, both the highest and lowest dropout rates are noted in rural male students. It is, therefore, suggested that the characteristics of the different population groups have a dominant effect on students dropping out. More research is needed to examine the dynamics of the different population groups and the general characteristics of these communities, in order to determine the effect on dropout.

When considering previous academic performance combined with gender and location, both the highest and lowest dropouts are rural students. It is apparent that further research is required into the reasons why rural students who do well in Accounting drop out more than those who just passed.

## Language

Studies conducted among university students in South Africa found significant differences in the success of students who studied in their home language compared to those who studied in a second language; no studies have shown whether language affects the student dropout rate or not (Du Plessis, Muller & Prinsloo, 2005; Pretorius, Prinsloo & Uys, 2007). South Africa has 11 official languages. The most common home language spoken by South Africans is Zulu (23%), followed by Xhosa (18%) and then Afrikaans (13%). English is the fifth most commonly spoken language in the homes of South Africans; it is also the language that is the most understood in urban areas and the main language used by government and the media (Statistics South Africa, 2001: 8). Only two of these languages (Afrikaans and English) are used in the teaching of taxation at Unisa, which could, therefore, affect the dropout rate. However, language is often a proxy for other circumstances and, therefore, a more complex variable.

In order to simplify the interpretation of the data, the languages were divided into five groups, namely Afrikaans, English, Nguni languages (Zulu, Xhosa, Swati and Ndebele), other African languages (for example, Sesotho, Setswana, and so on) as well as other foreign languages (for example, French and German).

### *Language and urbanisation*

The results from the current study clearly indicate that learning in a second language has a negative impact on a student’s retention. The analysis found that Nguni-speaking students dropped out more, although it is interesting to note that Afrikaans-speaking students were not far behind urban Nguni-speaking students. The combination of language, location and other demographic factors is discussed under each of the other demographic factors.

## Population group

Ethnic background has been found to be an accurate predictor of dropout, although teaching practices can reduce the effect of this (Georg, 2009). As a result of South Africa’s previous dispensation, different population groups have different experiences relating to education (Steenkamp *et al.*, 2009) and, therefore, this variable could have good predictor values. Race as an indicator of dropout has had a consistently significant relationship throughout approximately 70 years of study of student retention in the USA. However, recent studies in the USA have shown that the impact of race on dropout is less consistent (Reason, 2009). In South Africa, race is proxy for other factors, including educational background. The most under-resourced schools in South Africa are rural schools that were part of the Blacks only education (Letseke *et al.*, 2010: 77).

The link between population group and previous schooling will, therefore, have a strong relationship in South Africa. When considering dropout, Shure, Jansen & Harskamp (2007) found past performance to be a significant contributor to predicting student dropout in the Netherlands. Studies in the US also found previous achievement to be a good indicator of retention (Tross, Harper, Osher & Kneidinger, 2000).

### *Population group and urbanisation*

Race, population group and ethnicity have all been highly researched when it comes to predicting retention of students. In South Africa, educational differences still persist and it is suggested that this effect on dropout could be closely in line with what research found in the past.

The analysis of the data indicated that rural Coloured and rural Black students had a higher dropout rate than their urban peers. The Coloured students showed the biggest difference in dropout rates between rural and urban students.

### *Population group, location and other demographics*

When combining race, location and language, rural Coloured, Afrikaans-speaking taxation students were seen to drop out the most. The urban rural trend is an expected one; however, the result related to language goes against what is expected, as Afrikaans is one of the teaching languages. Therefore, it is submitted that other factors are influencing these students in dropping out.

When previous performance in first-year Accounting is combined with location and population group, the result is a curious one. Rural Black students who achieved between 70% and 79% in Accounting were the group with the highest dropout rate in this classification.

## Previous academic performance

Prior academic performance has been identified as an important factor in identifying dropout in students (Byrne & Flood, 2008). As the students being examined in this study were second-year students, the previous achievement indicator was based on their mark obtained for Accounting, which is a compulsory prerequisite module.

### *Previous academic performance and urbanisation*

The trend regarding previous academic performance and urbanisation is rather disturbing for rural students, as it appears that the higher they achieved in Accounting, the greater the chance they had of dropping out. For urban students, the trend is an expected one in the opposite direction.

### *Previous academic performance, location and language*

When academic performance was combined with location and language, the highest dropout rate was found for rural students speaking other languages who obtained between 60% and 69% for Accounting. Again, students who did well in Accounting dropped out more than other students.

## Employment

Previous studies investigating students' performance found employment to be an important factor (Welman, 2003).

### *Employment and urbanisation*

Studies (Kember, 1989; Welman, 2003) have shown that what distance students do while they are studying does not have a big effect on their dropout rate. The data in this study indicates that employment as opposed to non-employment is an indicator of dropout rather than location; both rural and urban students who were not employed had the highest dropout rate.

### *Employment, location and other demographic variables*

The combination of employment, language and location yielded results indicative of the traditional view regarding urbanisation combined with other variables. The rural Nguni-speaking students who were not employed dropped out the most.



It is interesting to note that the employment sector combined with the population group did not show a similar trend to the combination of language and employment sector. This combination again indicates that the rural students dropped out the most and the least. Rural students employed in finance dropped out more than those who were not employed. There was no clear trend in this information and the characteristics of the different population groups would once again shed more light on the situation.

As expected, when location, previous academic performance and employment were combined, rural students who were not employed were shown to drop out the most. However, what was unexpected was that these were the students who did well in Accounting (achieving between 70% and 79%).

## Conclusion

In view of the fact that the apartheid dispensation in South Africa had a forced location policy, entrenched in law, it was not surprising that the initial comparison of rural and urban students found that rural students had a slightly higher dropout rate than their urban peers. When combining the urbanisation variable with other demographic variables, the highest dropout rate in all but one of the 15 multi-variable comparisons was found among rural students. Rural students also had the lowest dropout rate in four of the 15 multi-variable comparisons (see Table 1).

A limitation of the study was that no trend analysis was performed, as no longitudinal information was available. From a synthesis of the data available, rural males who are Black or Coloured and not employed were identified as the group that most often has the highest dropout rate. The multi-variable comparisons highlighted that, besides location, the characteristics of different rural settlements of the different population groups and language groups could be a dominant cause of drop out. If these characteristics could be understood in the context of dropout, support systems could be put in place to reduce the dropout rate of South African university students and to improve our standing globally.

A few recommendations are made as a result of this study: first, that a longitudinal study be undertaken in order to find stronger trends in the dropout rate of taxation students and to ascertain which is the most predominant trend. Secondly, it is recommended that specific interventions be researched, especially for rural students. These could be in the form of support that is taken to the student in the rural area. Lastly, as rural older males most often form the group who drop out, it is suggested that the government offer some form of incentive to students who can prove that they are family providers. As we progress further into our democracy, we must remember the words of Nelson Mandela: "Education is the most powerful weapon which you can use to change the world."

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