
The Effect of Discussion Classes on Students' Overall Performance at an Institute for Open and Distance Learning in South Africa: Analysis Using Mixed-Effects Models

^{ab*}Maupi Eric Letsoalo and ^cTšhegofatšo Makgakga

^aCentre for Academic Excellence [CAE]

^bDepartment of Mathematics, Science and Technology Education [DMSTE]
University of Limpopo

^cInstitute for Open and Distance Learning [IODL]
University of South Africa

Corresponding Author: MaupiELetsoalo@gmail.com

ABSTRACT

Most ODL students have had little to no exposure to the ODL environment. Therefore, institutions must assess the impact of existing support mechanisms, such as discussion classes, aimed at assisting students to succeed in the program. This exploratory quantitative study evaluated the overall effect of discussion classes on undergraduate mathematics education student academic performance. Students who registered for Measurement in Intermediate and Senior Mathematics in the 2018 academic year at the University of South Africa constituted a study population. Both crude and adjusted mixed-effects models indicated that those who attend and those who did not attend discussion classes performed insignificantly differently. However, the reduction of the estimate after adjusting for assignment score is educationally important and it has presented an opportunity to re-evaluate the importance of the intervention strategies. This paper suggested that student support in ODL has the potential to improve student success rates. Also, the interventions should be guided by an informed choice of philosophies that underpins the rationale for open and distance learning. A further in-depth study is needed to understand how various aspects of student support contribute to success in open and distance learning. Understanding student support services, their contribution, and importance from the perspective of university administration and all stakeholders may aid ODL policymakers in formulating policies and strategies for student academic assistance, as well as offering the necessary guidance to improve service quality

Keywords: *Discussion classes, Affective factors, Support strategy, Academic performance, Open and distance learning*

INTRODUCTION

Individuals and society can participate fully in the development process by acquiring knowledge, abilities, skills, and attitudes through education. Open and distant education is seen as significant avenues for delivering education and removing barriers for as many people as possible. Many people rely on open and distance education, including those who live in remote places, those who are unable to leave their home or office to study, and those who would otherwise be unable to do so. With the availability of alternative education

opportunities such as massive open online courses (Wong, 2016; Au, Li, & Wong, 2018), open and distance learning (ODL) institutions are under increasing pressure to maintain their quality of education delivery and student satisfaction to retain students, as well as to develop measures to meet the needs of a diverse student population (Au, Li, & Wong, 2018). This could be due in part to the fact that the distance learning (DL) landscape is becoming increasingly competitive.

Higher education systems are confronted with the task of addressing the differing needs of students. They address this

task by, among other ways, using learning technology that allows students to learn more openly and flexibly (Tait, 2014), and share common goals relating to access, retention, flexibility, and employability (Zuhairi, Karthikeyan, & Priyadarshana, 2020). During this corona-virus era, the use of technology for teaching and learning became a new normal for those institutions that relied on a face-to-face mode of operation. Thus, advances in technology challenge higher education further to transform themselves into addressing the changing needs of the world of work and to provide access and quality education in more flexible fashions (Zuhairi, Karthikeyan, & Priyadarshana, 2020).

In assessing the factors that affect student performance in any educational system, two aspects, which are individual factors and institutional factors, are normally considered. Individual factors are those related to the student such as interest, attitude, ability, social-economic status, gender, and the like (Letsoalo, Maoto, & Chuene, 2018). Those from the institution include the availability of the materials, behaviour, and competence of the educator or lecturer. For example, Smith and Naylor (2001) reported that degree performance is influenced significantly by personal characteristics.

Studies have established that learning is influenced by many factors (Gentilucci & Muto, 2007; Siweya & Letsoalo, 2014; Masemola & Letsoalo, 2017), both cognitive (Hasson, 1988; Hannula, 2002; Green & Gilhooly, 2005; Simpson, 2008; Makgakga & Sepeng, 2013) and effective or non-cognitive (Abraha, et al., 1991; Letsoalo, 2017a). Cognitive factors include memory, verbal abilities, and reasoning aptitude. These can be measured by setting performance and achievement tasks, where the answers are given can be grouped as

correct or incorrect, or acceptable or unacceptable (Abraha, et al., 1991). Student performance's affective factors include students attribute, institutional attributes, and home characteristics (Abraha, et al., 1991; Letsoalo, Maoto, & Chuene, 2018). The meaning of academic performance seems to be 'taken as shared' as authors do not clearly define what academic performance is (Letsoalo, Maoto, & Chuene, 2018). The authors indicated that it refers to how an individual student can demonstrate his or her intellectual abilities.

In sociological research, the relationship between family socioeconomic status (SES) and students' academic performance has been extensively documented. Considine and Zappala (2002), for example, examined the effect of social and economic disadvantages on school students' academic performance in Australia. They found that families with more affluent parents nurture higher levels of achievement in their children on social, scholastic, and economic levels. They also discovered that these parents provide their children with higher levels of psychological support by creating situations that enhance the development of abilities needed for academic achievement.

Several student characteristics are important in influencing performance (Kirk & Spector, 2006): age, gender, marital status, class attendance (Letsoalo, 2017b), semester course loads, entrance examination results, previous academic achievement (Letsoalo, 2019a), relevant learning experience (Cheung & Kan, 2002; Letsoalo, 2019a), and relevant academic background (Cheung & Kan, 2002).

Universities set up programs to help students succeed in their academic endeavours [in order to] mitigate the negative impact of the aforementioned factors. Therefore, student support helps students to

attain levels of understanding impossible for them to achieve without assistance. Student support in ODL, which is an approach that focuses on opening access to education and training provision, freeing students from constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners, has been a fundamental question to address since the ODL system has existed. Despite the transformation of the ODL into a technology-based system, the principles of support services for distant students remain the same, in which students are engaged in learning and motivated to learn independently and autonomously (Zuhairi, Karthikeyan, & Priyadarshana, 2020). A key concern for all those involved in recruiting and teaching in ODL must be the effective support of their students. Distance students need support for three reasons, namely the need for support (Zuhairi, Karthikeyan, & Priyadarshana, 2020), the reduction of dropout (Bozkurt & Akbulut, 2019), and the nature of learning (Tait, 2003; Zuhairi, Karthikeyan, & Priyadarshana, 2020). Tait (2000) sees the primary functions of student support as threefold; namely, cognitive, affective, and systemic. Further, the researcher indicated that such an understanding of the role of student support comes primarily from social constructivist ideas that knowledge is in a real sense made and remade by participation in learning. To support the learners in an ODL environment, distance teachers must have adequate skills and experience to facilitate the learning process through designing and building support that will encourage learning (Dzakiria, 2005).

There are various approaches to supporting distant or at-risk students. Students are said to be at-risk or high-risk students if they are at risk of dropping out of their study programmes or are more likely not to complete their studies (Letsoalo, Maoto, & Chuene, 2018). Identifying and targeting at-

risk students and then offering additional support before a programme of study runs, is one approach to improving retention (Hughes, 2007). Furthermore, the author indicated that the second approach is to support students during their course.

Universities such as the University of South Africa (Unisa), the University of Limpopo (UL), the University of Liverpool, and Witwatersrand University have taken a holistic approach to student development. Such universities have sections, centres, departments, or units that offer support for many issues that students may face, ranging from time and stress management skills to depression, anxiety, and grief counselling. For example, the Baditi Student Support Mentoring programme (BSSMP) within the Centre for Academic Excellence (CAE) at UL is aimed at mentoring students to adjust both socially and academically to university life. CAE equips students with academic skills for them to succeed academically. It provides academic development and support to students by conducting study skills workshops, such as time management, examination techniques, study methods, etc. It identifies students' academic needs and addresses them. The University of Pretoria's Student Counselling Unit (UPSCU) is a professional psychological support service. It puts a high priority on the mental health and wellness of students and therefore provides the student population with access to a counselling unit. Students are offered academic, therapeutic, and emotional support. The University of Stellenbosch's Student Support (USSS) offers advice and support to all its students on academic and/or personal and social matters. Support includes tutor programmes for students who need additional academic support, workshops (e.g., effective time management, improving study skills, stress management), and therapy and personal development sessions (e.g., relationship problems, and depression).

University of Liverpool's student services offers comprehensive support and welfare services through two teams: namely Student Welfare Advice and Guidance, and the Counselling and Mental Health Services.

The widening of access to higher education has, for many universities, resulted in the issue of retention moving to the top of the agenda. Studies, mainly in the distance learning literature, have identified the key reasons why students leave their studies. Reasons cited for leaving include those relating to personal resilience, personal identity factors, support networks, as well as finding the course badly presented, poorly supported, or too difficult (Hughes, 2007).

Though Unisa removed barriers for students to access learning, by among others, implementing programmes that support students financially - student study support still needs to be reinforced to reduce both low pass rates and dropout rates. Nsamba and Makoe (2017) argued that student support in the open and distance learning (ODL) environment is vital to help students to learn. Moreover, student support at Unisa includes feedback on summative assessment, e-tutoring, contact sessions, and online discussion forums to assist students to achieve their learning objectives (Unisa, 2008; Unisa, 2018). On the other hand, Van Zyl, Spamer, and Els (2012) advocate that student support ought to form an integral part of ODL models globally. Consequently, contact classes used as student support strategies in the ODL environment was being an important factor to reduce the transactional distance between lecturers and students. Although contact sessions are important in student support in ODL, it was found that a few departments at Unisa had suspended contact lessons as part of student support owing to a lack of resources (Olivier, 2016). Hence the need to evaluate the effect

of discussion classes as carried out in this study.

PROBLEM STATEMENT

Most ODL undergraduate students come from a background whereby they had full contact with their educators or lecturers for learning. It, therefore, was their first experience in the ODL environment to learn independently without full or any contact with their educators and lecturers. Measurement in Intermediate and Senior Mathematics (MAE103L), a compulsory module for undergraduate student teachers at Unisa, is a semester module offered in the Department of Mathematics Education. The module is aimed at preparing students to understand the meaning, processes, and estimations of measurements (Unisa, 2018). To improve the design, syllabus, teaching strategies or method of delivery of content, and assessment strategy of their courses, higher education institutions must understand the factors involved in student performance. Although Unisa students receive support to access learning and improve success, no research was conducted on the effect of discussion classes on student teachers' performance in mathematics, especially MAE103L. Hence, the impetus of this study.

STUDY OBJECTIVES

The purpose of this study was to ascertain whether the implementation of face-to-face discussion classes as an intervention strategy exerted any difference on student academic performance in MAE103L at Unisa. The face-to-face discussion classes were implemented as an intervention strategy due to students' different personalities in the learning of mathematics. The study intended to answer the following research question: What is the overall effect of face-to-face discussion classes on ODL undergraduate mathematics education students' academic achievement?

To achieve this objective, the researchers evaluated the (null) hypothesis that

- *there is no significant difference in student performance between those who attended discussion classes and those who did not.*

This hypothesis was tested against the (alternative) hypothesis that

- *the difference between the two study groups was significantly different.*

LIMITATIONS

This study focused on a group that registered for the MAE103L in South Africa's Gauteng Province during the second semester of the 2018 academic year. The inclusion of students from all other provinces could have given a different perspective of results. Also, the dataset used for data analysis had no other significant covariates as reported in other studies.

THEORETICAL FRAMEWORK

This study is guided by two theories: namely, the input-output theory and student attrition theory.

Input-output model

The system's theory input-output model was used to form the basis for this study. This theory was advanced by Ludwig Von Bertalanffy in the early 1950s. It postulates that an organised enterprise does not exist in a vacuum or isolation, is dependent on the environment in which it is established (Koontz & Weihrich, 1988). They added that the inputs from the environment are received by the organisation which then transforms them into output after processing such inputs. Figure 1 makes this explanation more explicit.

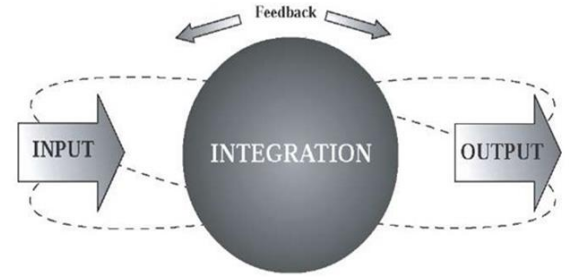


Figure 1: Input-Output model in education [Source: Letsoalo (2022)]

As adapted by this study, students (input) are admitted into the school or university (ODL) with different inherent attributes, family, and educational background; when they get into the university system, the university through its resources (both human and capital) process such students through the learning process which is aided or made easier through the resources or variables attributed to such university. The effectiveness of such variables is measured through the output of the students which is measured in terms of their academic performance. All the components of the model (system) must function in harmony to achieve the envisaged outcome. Therefore, the inter-relationship among the parts of a system must be understood by all parties to ensure the inter-dependent nature of the parts (Oso & Onen, 2005).

Student attrition theory

Bean and Metzner (1985) came up with the student attrition theory to explain the attrition of non-traditional students including distance learners. They identified four factors affecting persistence: academic variables such as study habits and course availability; background and defining variables such as age, educational goals, ethnicity; environmental variables such as finances, hours of employment, family responsibilities,

and outside encouragement; and academic and psychological outcomes while at the college. These variables can challenge students and push them out of the educational institution by putting too much pressure on their time, resources, and sense of well-being.

When both academic and environmental variables are favourable, students should persist. When both variables are unfavourable, students are likely to drop out. When academic variables are positive but environmental variables are negative, the favourable effects of academic variables on student goal attainment are suppressed. Students may drop out of college despite strong academic performance if they perceive low levels of utility, satisfaction, or goal commitment, or if they experience high levels of stress.

REVIEW OF RELATED LITERATURE

Student support in open and distance learning environment

Distance education institutions are facing challenges to accommodate a growing number of students nationally and globally (Krishnan, 2012; Roberts, 2014). For example, Unisa experiences such a challenge since it is one of the biggest ODL institutions in Africa. ODL is a multi-dimensional concept aimed at bridging the time, geographical, economic, social, educational, and communication distance between student and institution, student and academics, student and courseware, and student and peers. Also, ODL focuses on “removing barriers to access learning, the flexibility of learning provision, student-centeredness, support students and constructing learning programmes with the expectation that students can succeed” (Unisa, 2008, p. 2)

The ODL institutions’ students are faced with different learning opportunities and challenges (Tsagari, 2013) and those challenges include the physical distance

between the lecturers and students, and the technological tools that are used for interaction (Moore & Kearsley, 1996; Nsamba & Makoe, 2017). In particular, the distance between the student and lecturer in the ODL environment affects the teaching and learning, and it is this distance that contributes to students’ feelings of isolation and disorientation (Moore & Kearsley, 1996). Thorpe (2002) highlighted that ODL institutions have transitioned from traditional printing and correspondence models to the use of digital technology tools because of the diverse range of practices implemented than ever before.

The relationship between the educational institution and its students is provided by student support services (Shabani & Maboe, 2021). These services are defined differently and given different names by different authors (Olivier, 2016). For example, Robinson (1995) refers to ODL student support services as registrations, advisory services, learning support services (academic), counselling, tutoring, guidance on learning, and feedback on assignments, interaction with teaching and administrative staff, career services, provision of study centres, and financial assistance. A similar definition was provided by Tait (2003) who regarded student services as providing feedback to students, face-to-face teaching, short residential schools, special texts to help students, regional learning or study centres, personal tutors, and administrative support. Unisa’s (2008) operational definition refers to student support services as face-to-face contact sessions, peer support, in-text support, and administrative support. Therefore, student support is a generic term that is applied to a range of services that were developed by an institution to assist its students to meet their learning objectives and to gain the knowledge and skills to be successful in their studies (Shabani & Maboe, 2021). Accordingly, those services are

necessary for ODL environments to cater to students' cognitive, emotional, and social needs (Krishnan, 2012; Nsamba & Makoe, 2017). Arguably, student support services serve as the interface between the students and institutions (Krishnan, 2012; Shabani & Maboe, 2021).

Discussion classes as a student academic support

Olivier (2016) classified or identified discussion classes or face-to-face contact sessions as some of the ODL student support services. Face-to-face contact sessions are interactions between lecturers and students. These interactions may occur during counselling (Ushadevi, 1994), discussion classes (Olivier, 2016), or contact sessions (Van Zyl, Els, & Blignaut, 2013; Van Zyl & Spamer, 2013; Olivier, 2016).

Studies that have been conducted on the discussion classes as student support focused on the student experience (Ogina & Mampane, 2013; Tsagari, 2013; Mampane, 2015); student success (Van Zyl, Spamer, & Els, 2012; Van Zyl & Spamer, 2013; Olivier, 2016), student expectations, and students' feelings (Ushadevi, 1994; Van Zyl, Els, & Blignaut, 2013). Studies that investigated the effect of discussion classes gave mixed results. In the study that used written assignment and examination results for Organisational Behaviour of Human Resource Management (HRM) qualification, Olivier (2016) reported that those who attended contact sessions performed better than those who did not. However, the examination performance of the attended group did not differ significantly differently from those who did not attend. Van Zyl and Spamer (2013) investigated the effects of contact class - and vacation school attendances on ODL student academic performance in Advanced Certificate in Education (ACE) programmes. The study findings revealed no significant difference

between students' contact classes and vacation school attendance. Bowa (2008) has investigated the effect of contact classes on student academic achievement of distance education students in Kenya. The study revealed that the cognitive, affective, and systemic learner support including contact classes did not have any effect on student academic performance. However, Mchengetwa and Ssekuma (2012) reported a significant difference in academic achievement between those who attended discussion class sessions and those who did not, with the results favouring the attended group.

Academic proficiency (AP) is the ability to read well, to understand style and argumentations, to apply what is read to problems, and for students to understand their own written text (Spencer, Lephala, & Pienaar, 2005). AP consists of two knowledge of the academic language and knowledge of specialised subject matter (Krashen & Brown, 2007). Knowledge of academic language is knowledge of the special language used in school and the professions. In school, it is the language of story problems in mathematics, social studies, and science texts (ibid), and outside of school, it is the language of business and finance, science, and politics. Studies show that there are differences in the specific academic languages used in different areas, but similarities also exist (Biber, 2006; Krashen & Brown, 2007). Since ODL students are primarily interacting with learning material in the absence of lecturers and are expected to decode meaning from what they have read or studied, AP is critical for students to succeed in the program.

On the other hand, knowledge of specialised subject matter consists of, among others, knowledge of mathematics, science, and history. Krashen and Brown (2007) suggested a third component to AP which is

strategies. This aspect of academic proficiency includes competence in the use of strategies that aid in the acquisition of academic language and that aid in subject-matter learning. Spencer, Lephallale, and Pienaar (2005) investigated the effectiveness of contact classes on improving AP. The study revealed an improvement of 9% in writing content, a 1% increase in writing form, and an improvement of 8.6% in reading ability among students.

Students possess different personality types, particularly in mathematics. Personality is a term that includes the characteristics of a person's interests, attitudes, abilities, physical appearance, and harmony to this environment (Per & Beyoğlu, 2011). Zonash and Naqvi (2011) explored the personality traits and learning styles of mathematics, architectural and fine arts students. They reported a positive relationship between mastery learners and conscientiousness, interpersonal-students, and agreeableness, understanding learners and openness, and self-expressive learners and extroversion. The authors argued that personality type has a significant difference in learning approaches and teaching methods regarding learner reaction.

MATERIAL AND METHODS

This exploratory comparative study followed the quantitative design, which is a formal, objective, systematic process for obtaining quantifiable information about the world (Ellis-Jacobs, 2011; Creswell, 2014). A combination of Stata Release 14 (StataCorp, 2015) and Excel (Microsoft, 2013) software packages was used for data management. The statistical software package used to analyse the secondary data that was used in this study is Stata Release 14 (StataCorp, 2015).

Frequencies and percentages were used to describe categorical data. Both crude and adjusted mixed-effects models [see Letsoalo (2019b)] were used to compare the two study groups. Mixed-effects models include traditional random-effect terms and are frequently appropriate for representing clustered data, dependent data, or dependent data arising, for example, when data is collected hierarchically (Letsoalo, 2019b). They are statistical models of parameters that vary at more than one level (Letsoalo, 2017a). The effect of discussion class sessions was measured by the overall performance of students on formative assessment of assignments and tests, and the study endpoint was the overall performance in examination (expressed in percentages). The results are given in tabular format. The interpretation of the results was performed at a 95% confidence limit.

RESULTS AND INTERPRETATION

A total of 117 students who registered for MAE103L in the second semester of the 2018 academic year were considered for this study. The number of students who attend the discussion classes was lower than that of those who did not attend [44 (37.61%) vs. 73 (62.39%)].

Table 1 presents the crude estimates from the unadjusted mixed-effects model. It indicates that the performance between the attended and unattended groups was not significantly different ($\beta = 0.945$, $p = 0.636$, 95% CI: - 2.968 to 4.858). For every percentage increase in the examination result; the overall examination mark for the unattended group was expected to increase by about 0.945% as compared to that of the attended group. Therefore, there is no sufficient evidence to suggest that the two groups performed significantly differently.

Table 1: Crude estimates

<i>Covariate</i>	Coef.	Std. Err.	P > z	95% Conf. Interval
Study Group				
Attended*	0			
Unattended	0.945	1.996	0.636	(- 2.968 to 4.858)
<i>Constant</i>	51.932	1.577	< 0.001	(48.841 to 55.023)

*Baseline Category

Table 2 presents the results of the assignment adjusted-score mixed-effects model. That is, the assignment score was controlled for in the model. It indicates that the unattended group was expected to score marginally 0.924% more than the attended group. It shows that there was no significant difference between the two study groups after adjusting for assignment performance ($\beta = 0.924$, $p = 0.644$, 95%CI: - 2.998 to 4.846).

Table 2: Assignment score-adjusted model

Covariate	Coef.	Std. Err.	P > z	95% Conf. Interval
Study Group				
Attended*	0			
Unattended	0.924	2.001	0.644	(- 2.998 to 4.846)
Assignment score	0.001	0.010	0.883	(- 0.018 to 0.021)
<i>Constant</i>	51.856	1.658	< 0.001	(48.606 to 55.106)

*Baseline category

DISCUSSION AND RECOMMENDATIONS

The effect of assignment scores on the overall student performance indicates that the unattended group was expected to score 0.924% points more than their attended counterparts. This estimate was found to be 0.021 points less than that of the crude estimates which favoured the unattended group. Although the overall performance between the two groups in the two models

was not significantly different, the reduction in the estimates between the crude and adjusted models warrants an important feature for further investigation. More so that studies have shown that student performance is affected by numerous factors. Therefore, a reduction of 0.021 is educationally important to indicate that the intervention (class discussion) should be considered as one of the factors to improve student performance.

As in Van Zyl and Spamer (2013) and Bowas (2008), the overall effect of discussion classes did not show any significant difference in student performance between those who attended and those who did not attend the discussion class. Furthermore, this study findings disagreed with Spencer et al.'s (2005) which indicated that the effect of discussion classes improved students' performance. Also, this study's finding disagreed with Olivier's (2016) results that showed that students who did not attend discussion classes performed significantly better than those who did.

Scholars, such as Fadelelmoula (2018), have hypothesised that class attendance should positively correlate with academic performance. However, it remains important to note that this relationship does not subscribe to the principle of causality. Despite that there is enough evidence to suggest the benefit of class attendance, some students continue to be absent from lectures (discussion class). The reasons for being absent vary from the so-called valid reasons to the so-called less valid reasons.

In the South African context, the valid reasons may be influenced by poor transport systems, illness, language barriers, and pedagogical styles within education systems due to previous historical and political influences. Although this study did not investigate the reasons for low attendance or absenteeism during discussion classes; Van Zyl (2013) and Olivier (2016) have highlighted some reasons contributing to low attendance of discussion classes that could have affected the unattended group during discussion classes. Those reasons may include the fact that the unattended group may be the 'Intuitive and Thinking' personality type of students that have a good background in mathematics and do not have mathematics anxiety (Carpenter & Lehrer, 1999; Kise, 2007). In addition, Olivier (2016)

indicated the reasons for students' low attendance as socio-economic conditions, lack of motivation and commitment, and undedicated students who may opt not to attend.

This study showed that most of the students who performed well did not attend the discussion classes. The reason may be like that of Olivier (2016), and Van Zyl and Spamer (2013) who said students may not need these discussion classes as they seem to perform well. The result from the adjusted mixed-effects model indicates that this article should support the notion that discussion class attendance is associated with improved academic performance. Also, it has provided a challenge of what exactly contributes towards the better performance of students who did not attend MAE103L discussion classes. Similarly, one may need to investigate the reasons behind a marginally better performance of the unattended group as compared to their attended counterparts. Future studies may focus on the students' experience and perceptions on the use of discussion forums as a support strategy to enhance learning. Finally, this paper suggests that future studies may model all covariates that were found to be affecting student performance to account for total variation in student performance.

CONCLUSION

The findings of this study indicate that the effect of discussion classes is affected by a variety of factors that this study was unable to account for. It, therefore, indicated that crude estimates did not provide enough evidence to conclude the significance of discussion classes. The adjusted model, on the other hand, suggested that if the dataset included several important predictor variables, reliable estimates could be obtained. The input-output theory and the student attrition theory, which were supported by mixed-effects models,

acknowledged that ODL students brought their orientation and experiences into the ODL environment. Students were equipped to the point where they could be assessed at the level of students who had gone through the MAE103L material after interacting with it. In other words, mixed-effects models accounted for before-and after student's observations.

When it comes to dealing with the issues faced by at-risk students in the form of distant learning, the concept of one-size-fits-all is not always appropriate. Although contact discussion intervention appears logical, it may not be sufficient to apply such intervention while holding all other factors constant in the hopes of obtaining desired results (as illustrated the observed estimates of both crude and adjusted models). Practitioners are advised to use approaches, models, and frameworks that compensate for all effective factors to account for enhanced or expanded variation in student performance.

Open and distance education students need student support to facilitate, engage and motivate students to learn. These student support needs include areas academic, administrative, and other matters needed by distance students to succeed in learning. Any practice that is not informed by relevant theory is more likely to prove to be an exercise in self-deception. There is some evidence, then, that combining the approaches of Self Theory, the Strengths Approach, and Proactive Support may be more successful in supporting students for success than conventional approaches based on identifying weaknesses and emphasising the development of learning skills. However, much more evaluation of such an approach is needed to be certain of that. Nevertheless, the basic and plausible philosophy behind the approach is congruent with the ethical aims of open and distance learning. If a student is

enabled to be fully motivated by this approach, then it is likely they will explore issues of suitable preparation and learning skills development for themselves, be more persistent when facing difficulties, and become an effective independent student, doing whatever they need to succeed. Therefore, ODL institutions have a responsibility to continue exploring strategies to empower academics by, among other ways, offering them continuous training and support to enable them to fulfil the roles required for the effective design and implementation of student-support systems.

Understanding student support services, their contribution, and importance from the perspective of university administration and all stakeholders may aid ODL policymakers in formulating policies and strategies for student academic assistance, as well as offering the necessary guidance to improve service quality.

CONFLICT OF INTEREST

The authors declare that they have no financial or some other form of relationship(s) that may have inappropriately influenced them in writing this article.

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