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Statistical Modelling in Enrolment Management: A Higher Education Case Study

Humphrey Brydon, Sarel Steel, Dineo Mahlangu, Jessica Maloma, and Renette Blignaut

Abstract

Enrolment management is important to institutions of higher learning. Administrators at these institutions are annually faced by the question: how many offers for a given academic programme should be made to applicants to meet the registration target set by the authorities?

Data on past and new applicants are available at most institutions. In this paper, data from the Faculty of Natural Sciences at the University of the Western Cape are used to develop a statistical model that provides estimates of the likelihood of new applicants accepting registration offers from the Faculty. The paper therefore contributes to the important field of strategic enrolment management. The paper shows how a statistical model estimated from historical data can assist administrators to determine the number of offers that should be extended to applicants to reach a given registration target.

Key words: admission points, decision tree, higher education, logistic regression, registration targets

ABOUT THE AUTHORS: HUMPHREY BRYDON (EMAIL: HBRYDON@UWC.AC.ZA), SAREL STEEL, DINEO MAHLANGU, JESSICA MALOMA, AND RENETTE BLIGNAUT: UNIVERSITY OF THE WESTERN CAPE, SOUTH AFRICA

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Résumé: La gestion des inscriptions est importante pour les établissements d'enseignement supérieur. Chaque année, les administrateurs de ces établissements sont confrontés à la question suivante : combien d'offres pour un programme académique donné doivent être proposées aux candidats pour atteindre l'objectif d'inscription fixé par les autorités ? La plupart des établissements disposent de données historiques sur les candidats et de données relatives aux nouveaux candidats. Dans cet article, les données de la Faculté des sciences naturelles de l'Université du Cap Occidental sont utilisées pour développer un modèle statistique qui fournit des estimations de la probabilité que les nouveaux candidats acceptent les offres d'inscription de la Faculté. Cet article contribue donc au domaine important de la gestion stratégique des inscriptions. Il montre comment un modèle statistique estimé à partir de données historiques peut aider les administrateurs à déterminer le nombre d'offres à faire aux candidats pour atteindre un objectif d'inscription donné.

Mots clés: points d'admission, arbre de décision, enseignement supérieur, régression logistique, objectifs d'inscription

Introduction

Universities and other institutions of higher learning annually face the challenge of identifying prospective students who should be offered registration opportunities. The available facilities place an upper limit on the number of first-time entry students who can be admitted. Financial considerations on the other hand encourage the admission of larger numbers of students. The dilemma is exacerbated by throughput considerations, requiring admitted students to be successful and graduate in the shortest possible time.

There are several sources of uncertainty in this scenario which should be taken into account in an admission/enrolment strategy: applicants who are offered the opportunity to register may decline the invitation; those who do accept an invitation may fail to register; those who do register may not graduate in the minimum time, or at all. Accurate and reliable data on current applicants, and historical data on the profiles of successful students, can be used to minimise the uncertainty by using advanced data analysis methods. This paper describes such an approach, developed at the University of the Western Cape for applicants to the Faculty of Natural Sciences. More specifically, historical data is used to develop a statistical model that can be used to identify first-time applicants with a high likelihood of accepting a registration offer. These form the subset

of applicants who should be approached first by the Faculty with offers of registration. Using such a model streamlines the admission process, which is important given the tight timelines at the start of an academic year. A conclusion from the research is that the output from judicious application of statistical (machine-learning based) algorithms to relevant data can be a valuable aid to decision makers in enrolment management. "Aid" is a key word in this statement: the intention must not be to replace the human enrolment manager with an artificial agent.

Several research questions are addressed in the paper. Firstly, what are the important variables when historical data available at the Faculty of Natural Sciences of the University of the Western Cape are used to develop a statistical model for predicting the response of new applicants to registration offers? Following on this, the second question concerns the specific statistical model that should be used for this purpose, keeping in mind the conflicting requirements of model accuracy and interpretability. Finally, the third question deals with the value that can be derived from including the predictions from the model into the enrolment strategy at the institution.

Section 2 of the paper contains a survey of selected papers on data-based support in the enrolment process. This is followed in Section 3 by a summary of the data that were analysed in this paper, and a description of the steps required to clean and prepare the data for analysis. A non-technical description of the method that was used is provided in Section 4, and the results are presented and discussed in Section 5. The paper closes with conclusions and suggestions for further research in Section

Literature Survey

Papers on the application of statistical algorithms in the enrolment problem have been regularly published. The focus in Basu et al. (2019) is similar to the focus in this paper: which qualifying applicants should be offered an opportunity to register? This question is framed as a binary classification problem: an applicant offered a registration opportunity can either accept or decline the offer, where the latter response includes cases where an applicant receiving an offer does not respond. The authors analyse a dataset consisting of 11001 cases, each having 35 variables, and compare the performance of seven techniques for solving the classification problem: logistic regression, a naïve Bayes approach, decision trees, support vector machines, nearest neighbours, random forests and gradient boosting. The metrics used in comparing the different methods are accuracy, precision,

recall, score, area under the receiver operator characteristic (ROC) curve and the Matthews correlation coefficient (MCC). According to Basu et al. (2019), these metrics address the imbalance property of the data: only a relatively small proportion of applicants offered a registration opportunity accept such an offer (this proportion is known as the yield rate). Definitions and a discussion of the suitability of these and other metrics appear in Section 4.

Basu et al. (2019) find that, overall, logistic regression performs best, albeit by small margins. Although not mentioned by these authors, logistic regression, in addition to its good performance in terms of the evaluation metrics, has the added advantage of producing output that is easy to interpret. This is important from the perspective of explaining to an applicant who did not receive a registration offer the reasons for such a decision. The authors do, however, discuss the importance of the input variables and conclude that the five most important ones are GPA score, campus visit indicator, high school class size, reader academic rating, and gender.

Although the focus in Lofti and Maki (2018) is on graduate applications and admissions, it contains several insights that are valuable in the present context. The importance of an enrolment strategy incorporating an effective predictive model is emphasised, and it can be argued that this is even more important in first-time entry enrolment strategies. In their thorough literature survey, Lofti and Maki (2018) highlight several earlier contributions. Thomas et al. (2001) investigate the problem of identifying the applicants that will be most impacted by recruitment efforts. They develop a logistic regression model for predicting enrolment based on four groups of variables, viz. demographic, academic, geographic and behavioural. It should be noted that their study did not include any financial aid variables. Thomas et al. (2001) find that targeting students with predicted enrolment probabilities between 0.3 and 0.6 leads to an increase in the yield rate.

Lofti and Maki (2018) focus on developing a model that can be used to predict registration of applicants after admission to a post-graduate study programme. They use data on approximately 40 variables to develop a decision tree model for this purpose. The authors argue that decision trees hold several advantages over logistic regression: a decision tree can model non-linear relationships, is easy to interpret, and is able to deal with categorical inputs with large numbers of categories. However, Hastie et al. (2009, p. 310), cast doubt on the last point. Lofti and Maki

(2018) also find that the most important predictor variables are financial aid related variables, geographic location, academic variables and age. A further interesting significant variable turned out to be the number of days following application until admission.

Langston et al. (2016) discuss strategic enrolment management at tertiary institutions. They emphasise the importance of accurate enrolment prediction in this process, stating that efficient enrolment management is a combination of accurate enrolment forecasts and informed judgment on the part of enrolment managers. Regarding specific modelling approaches, they present an extensive discussion of trend analysis, with logistic regression also being mentioned. One of their findings is that prediction per subpopulation (academic program) yields more accurate results, provided the sample sizes are not too small.

Goenner and Pauls (2006) consider enrolment forecasting based on inquiry data, i.e., data obtained from inquiries made to the institution by possible applicants. This is more challenging than using applicant data. The authors propose a Bayesian model averaging approach, in which a posterior weighted average of different candidate logistic regression models is determined. One of the interesting points arising from their investigation is that distance from the institution seems to have a non-linear effect on the likelihood of a student enrolling.

A slightly different angle is explored by Mountford-Zimdars and Moore (2020), who discuss the use of contextual data in enrolment forecasting. The authors discuss the use of contextual data in an admission strategy with the aim of redress: contextual data place the school marks of a student within the context of social environment. Although this is a relevant aspect, a disadvantage is that the study is qualitative, based on results from interviews conducted with relevant individuals.

Basu et al. (2022) use random forests to address two versions of the enrolment forecasting problem. The first version considers a three-class classification problem: a student receiving an offer from the institution can either accept the offer and register, or accept the offer but not register, or reject the offer. In the second version, a hierarchical approach is employed. In the first stage one of two categories is predicted for an applicant: accept or reject an offer that was made. In the second stage only those who accepted the offer are considered and split into two sub-categories, viz. register or do not register. The authors refer to these latter cases as applicants who "melt away".

Soltys et al. (2021) present a detailed proposal for enrolment forecasting that implements XGBoost on an Amazon Web Services (AWS) platform. Snippets of the actual Python code that was used are provided, making the paper valuable to someone intending to duplicate the analysis in a different context. Another contribution of the present paper is the fact that an applicant can be placed in one of three categories: those who will most probably register (and therefore do not need recruitment effort), those who will most probably not register (and for whom recruitment effort will most probably be wasted), and those falling in-between, who are the ones who should be targeted during recruitment.

The focus in this paper is specifically on predicting how an applicant qualifying for a programme at a university will react to a registration offer. Consequently, the model proposed in the paper operates at an individual applicant level. There are many papers dealing with the broader problem of predicting enrolment numbers from historical data, and the related problem of predicting student success. Two examples in an African context are Satope (2014), dealing with university enrolment in Nigerian universities, and Nyenya and Rupande (2015), discussing Zimbabwean institutions. However, these and other similar contributions fall outside the scope of the present paper.

Data Summary

Historical data are available on students applying for admission to an academic program in the Faculty of Natural Sciences at the University of the Western Cape. The data go back to 2022 and were used to develop the statistical model. Details on the data and the steps followed to clean it are now provided. Ethical clearance for this project was granted by the University of the Western Cape (HS23/4/17).

The data used in the development of the statistical model contained 84,424 observations (prior to data cleaning and preparation) in total. Data for the years 2022 (20,969 observations) and 2023 (28,890 observations) were used as training data and data for 2024 (34,565 observations) were used as validation data. Additionally, the number of applicants included in the study was reduced in consideration of certain inclusion criteria as discussed below.

The variables included in an initial decision tree that was fit to the data were APS (Admission Points System) score, age, school quintile, race,

gender and area (urban or rural). A binary variable indicating whether an applicant accepted an offer or not was used as the target.

For the purposes of this study, only those applicants with available National Senior Certificate (NSC) results were included in the study. The reason for this lies in the admission criteria of the University which involves the conversion of NSC results, using a university points-based system, to an APS score. This APS score, obtained from final matric results, is then used to determine whether an applicant meets the minimum requirements for different programmes.

It is worth mentioning at this point that applicants do not apply for the extended curriculum programmes (ECP) within the Faculty of Natural Sciences. Applicants apply for one of the 10 offered programmes and are cascaded into the respective ECP programmes (Programme 1 does not offer an extended programme) during the application review process. In total there are 19 programmes offered within the Faculty of Natural Sciences. The proportions of applicants for the 10 mainstream programmes, for the years 2022 - 2024, are given in Table 1.

Table 1: Distribution of Applications per Mainstream Programme

Programme	Proportion of applicants (%)
1	10.09
2	6.38
3	5.59
4	10.78
5	10.02
6	17.84
7	6.65
8	12.82
9	12.68
10	7.14

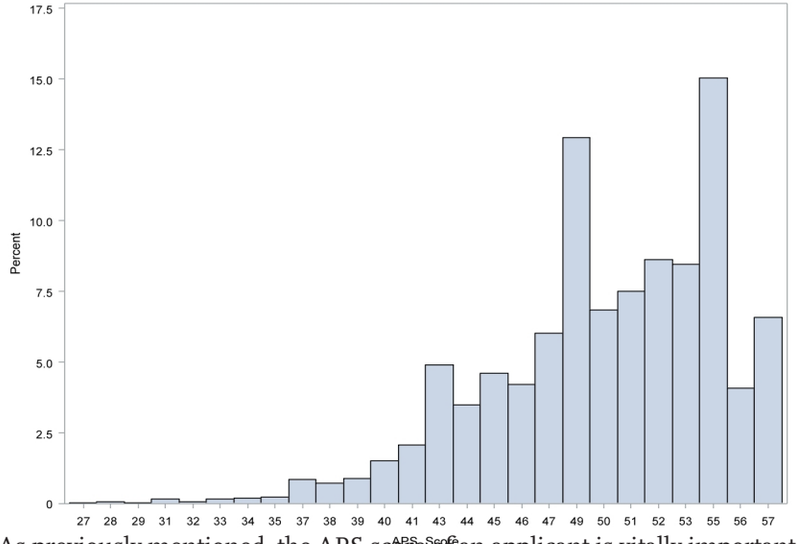
As shown in Table 1. four of the 10 programmes offered in the Faculty receive less than 10% of applications, with Programme 6 receiving a substantial proportion of applications. As discussed later in Section 5 in conjunction with registrations targets, these proportions of applications received for each programme further emphasise the need for a statistical

model to determine which applicants should receive registrations offers. The proportions of applicant race groups and gender are presented in Table 2. It can be clearly seen that African applicants make up the vast majority of applications to the University of the Western Cape, followed by coloured applicants. From Table 2, it is evident that there are slightly more female applicants to the Faculty of Natural Sciences than male applicants.

Table 2: Race and Gender Groups

Race/Gender	Female	Male	Other
African	43.12%	39.75%	0.10%
Asian	0.16%	0.13%	0%
Coloured	5.00%	4.19%	0%
Indian	2.20%	1.86%	0%
White	1.99%	1.25%	0.02%
Other	0.08%	0.11%	0%

Figure 1: APS Distribution for Training Data



As previously mentioned, the APS score of an applicant is vitally important in the decision as to whether or not to extend an offer to the applicant. As shown in Figure 1, the APS scores (with mean and median of 49.760 and 51, respectively) are slightly negatively skewed (skewness of -0.759) with a kurtosis value of 0.446. Another important point to note here is

that applicants with an APS score below 27 were excluded from the model development as these scores do not meet minimum requirements for degree admission to the University.

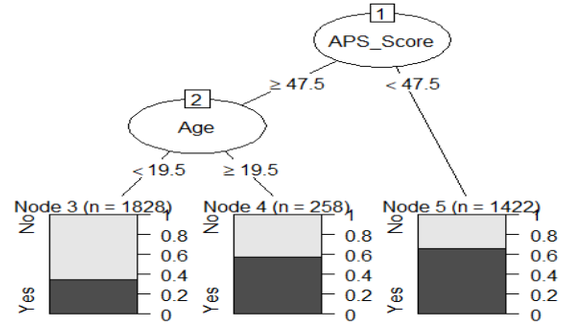
The target variable for this study was a binary variable, where the values 0 and 1 reflected whether an applicant declined or accepted an offer, respectively. Of importance in this study is the attachment of a probability to these binary indicators, thereby assisting those involved in enrolment in the decision of whether to extend an offer to an applicant.

Method

The first research question stated in Section 1 of the paper requires using the data described in the previous section to develop a model for predicting the likelihood that an applicant to the Faculty will accept a registration opportunity. From a statistical perspective, this can be viewed as a binary classification problem. It is customary in binary classification problems to denote the response variable by Y, with $Y = 0$ signifying that an applicant who received a registration offer declines the offer, and $Y = 1$ signifying acceptance of the offer. A statistical model for such a scenario can be used to estimate the probability of the event $Y = 1$ for a given applicant.

During a first exploratory step in the analysis a classification tree was fit to all the data, resulting in the tree shown in Figure 2.

Figure 2: Decision Tree fit to the Data



It is seen that the first split is on the APS score of a student, with $APS < 47.5$ and APS ≥ 47.5 describing the two branches. For the APS ≥ 47.5 branch a further split occurred at and . The tree shows that for those students with APS score below 48, approximately 65% accepted an offer that was extended by the University. For those students with , the older students

(aged 20 or more) tended to accept an offer more readily than younger ones (19 or younger). Almost 60% of these APS score students older than 19 accepted, while only approximately 35% of those 19 or younger did so. The numbers of students in the different nodes are shown in Figure 2.

The above results suggest that APS score and Age are the two most important input variables when predicting whether an offer extended to a student is accepted or not. As a second step in the analysis, a logistic regression model was fit to the reduced dataset containing only the response, APS score and Age. For this second step of the analysis, a separate logistic regression model was developed for each of the 10 mainstream programmes. As an example, the fitted model for Programme 3 is given below (the model results for other programmes are included in the Appendix to this paper, including the training and validation observation counts):

$$f(x) = -5.41 - 0.01 * APS + 0.59 * Age - 0.01 * (APS * Age)$$

Interestingly, the model contains a negative coefficient for APS. It therefore seems that the likelihood of accepting an offer decreases with an increase in the APS score. This result was also observed in other fitted models and is not surprising: students with higher APS scores would likely apply to many institutions and only accept an offer from their more preferred institution.

The proposed logistic regression model can be used in different ways to estimate the number of offers to be made to a cohort of N qualifying applicants. One of these is now described. Denote the number of vacancies (i.e., registration target) that must be filled by M (a known quantity), and the estimated number of offers that must be extended by T (to be determined). For each applicant in the cohort an estimate is obtained regarding the probability that an offer which was extended to the applicant will be accepted. These estimated probabilities are denoted by:

$$pi = P(\text{student } i \text{ accepts the offer}) \text{ for } i = 1,2, \ldots\ldots, N.$$

Now consider the small artificial example in Table 3, where $M = 5$ vacancies have to be filled. Scenario A shows 10 applicants with their probabilities of accepting a registration offer in the second row. These probabilities are obtained by applying the logistic regression model to the attributes of the applicants. In Scenario A, the probabilities are all assumed to be equal to 0.5. This implies that for every two extended offers one can, on average, expect one applicant accepting. The third row in Scenario A contains the

cumulative probabilities. This shows that we can expect to fill the $M = 5$ vacancies if we extend $T = 10$ offers (the first point at which the cumulative probabilities reach the target of 5).

It is highly unlikely that all the applicants will have the same predicted probability of accepting a registration offer. Scenario B shows a more realistic case. The same argument as in Scenario A shows that now only $T = 9$ offers need to be extended, since the cumulative probability reaches the value 5 at the ninth applicant.

Scenario C considers the same probabilities as in Scenario B, but now the applicants have been reordered in descending order of probability. If offers are extended to the applicants in this order, the cumulative probabilities show that we can expect offers to be sufficient to reach the target.

Table 3: Determining the Number of Offers from Predicted Probabilities

Scenario A										
Applicant	1	2	3	4	5	6	7	8	9	10
P(accept offer)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Accumulated	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Scenario B										
Applicant	1	2	3	4	5	6	7	8	9	10
P(accept offer)	0.2	0.5	0.4	0.9	0.8	0.5	0.6	0.3	0.8	0.9
Accumulated	0.2	0.7	1.1	2.0	2.8	3.3	3.9	4.2	5.0	5.9
Scenario C										
Applicant	4	10	5	9	7	2	6	3	8	1
P(accept offer)	0.9	0.9	0.8	0.8	0.6	0.5	0.5	0.4	0.3	0.2
Accumulated	0.9	1.8	2.6	3.4	4.0	4.5	5.0	5.4	5.7	5.9

Formulated generally, the predicted probabilities are accumulated until the first point at which their sum exceeds the target, i.e., we take T = minimum$\{n: \sum_{i=1}^{n} p_i \geq M\}$.

In practice, if we determine T in this way and it turns out that $\sum_{i=1}^{n} p_i < M$, then the cohort seems to be too small to fill all the vacancies and an offer is extended to every student, i.e., we take $T = N$.
A decision must also be made as to the order in which the students should be approached with offers. Table 3 illustrates two options. In Scenarios A and B the applicants are offered registration opportunities without taking

the predicted acceptance probabilities into account (i.e., offers are made based on applicant ordering). In Scenario B, this leads to nine offers having to be extended. Scenario C shows another possibility: approach the students in decreasing order of the predicted probabilities. This makes sense since the applicants who are, according to the model, more likely to accept an offer are approached first. In Scenario C, this leads to a reduction in the predicted number of offers that have to be extended, with only seven instead of nine offers required. The disadvantage of this approach is that it does not necessarily prioritise the students who have the highest APS scores, i.e., those most likely to be successful in their studies. This is a consequence of the negative relationship between APS score and likelihood of accepting an offer. A further option is therefore to approach the students in order of decreasing APS score. This will, however, most likely lead to a larger value of T than that produced by the previous method.

Suppose a given classifier is applied to the cases in a dataset. What metrics should be used to evaluate its performance? The answer to this question should take into account the imbalance in enrolment data: usually only a small proportion of students accept an invitation to enrol. We therefore focus on evaluation metrics suitable for imbalanced data. It is well known that accuracy is an unsuitable metric in imbalanced cases, and that recall (the proportion of students accepting an offer who are predicted to do so), precision (the proportion of students predicted to accept who actually do accept) and the F_1 - score (the harmonic mean of precision and recall) are better options. In addition, the Matthews correlation coefficient has desirable properties as a classification metric, also in imbalanced scenarios (see for example Chicco et al., 2021 for a definition and a discussion of its properties).

Result

Model Result

In this section we discuss the logistic regression model results for each of the mainstream programmes. Table 4 shows the values of six classification metrics obtained from the validation data for each of the ten programmes.

Although there is considerable variation in the values of the metrics amongst the programmes, the overall performance is somewhat disappointing.

Table 4: Final Logistic Regression Model Metrics

Programme	Precision	Recall	F1 Score	MCC	AUE	Misclassification Rate
Programme 1	0.314	0.745	0.442	0.004	0.524	0.458
Programme 2	0.397	0.568	0.467	0.003	0.668	0.332
Programme 3	0.250	0.618	0.356	0.004	0.686	0.295
Programme 4	0.783	0.714	0.747	0.006	0.671	0.401
Programme 5	0.272	0.524	0.358	0.002	0.697	0.218
Programme 6	0.546	0.717	0.620	0.003	0.738	0.207
Programme 7	0.489	0.579	0.530	0.002	0.694	0.374
Programme 8	0.099	0.571	0.168	0.004	0.679	0.206
Programme 9	0.412	0.615	0.494	0.002	0.663	0.246
Programme 10	0.105	0.300	0.156	-0.001	0.731	0.227

An important reason for this is the imbalanced nature of the training data, with the number of positive responses being a small minority. A direction for future research is to implement an approach for addressing this imbalance, thereby potentially improving the performance of the model – see for example Chen et al. (2024) for a recent discussion.

For the purposes of this study, it is worth noting the precision metric (i.e., probability of correctly predicting an acceptance). All models, apart from that for Programme 4, produced quite low values for this metric. The opposite is true for the recall metric, where models appeared to be able to predict non-acceptance more accurately than acceptance (except for the 4th programme listed where prediction appeared to remain stable).

The ability of the models to produce better predictions for the non-acceptances is somewhat confirmed by the F1-Score as all models produced values that are fairly high (i.e., indicative of better false positive/negative predictions). This trend is further confirmed with the misclassification rate, where no model produced a rate less than 20%, with Programme 1 producing a high rate of 45.8%.

The MCC and AUC metrics appear to suggest the same performance from the models (i.e., a "coin toss decision"). All MCC values are quite close to zero, suggesting that the decision to extend an offer to an applicant and that the applicant will accept the offer, is a coin toss. In terms of the AUC metric, all models, besides two, produced values less than 0.700, with

Programme 1 producing a value of 0.524 (with 0.500 considered to be a "coin toss decision").

Offer Estimates

Table 5 contains a summary of the estimated number of offers to make using the approach described in Section 4. The table shows additional information as well that would be available to the enrolment manager at the time of deciding how many offers to extend.

Table 5: Final Offer Estimates for 2024

Programme	Total Applicants	Registration Target	Number of Offers to Make
Programme 1	360	80	279
Programme 2	241	60	234
Programme 3	410	70	311
Programme 4	207	60	All applicants
Programme 5	377	55	275
Programme 6	716	85	536
Programme 7	211	50	199
Programme 8	504	40	200
Programme 9	564	70	304
Programme 10	282	40	192
Programme 2 - Extended	N/A	20	All remaining
Programme 3 – Extended	N/A	30	80
Programme 4 – Extended	N/A	20	N/A - all applicants made mainstream offer
Programme 5 – Extended	N/A	20	All remaining
Programme 6 – Extended	N/A	50	155
Programme 7 – Extended	N/A	20	All remaining
Programme 8 – Extended	N/A	15	90
Programme 9 – Extended	N/A	20	69
Programme 10 - Extended	N/A	20	76

The second and third columns in Table 5 contain the number of applicants and the registration target in 2024 for each programme, respectively.

As was previously mentioned, applicants do not apply for an extended programme but are cascaded into the equivalent extended programme. For the methods that have been put forward, if an applicant was not made an offer for the mainstream programme, they were included in the applicant list for the extended programme and subsequently either made or not made an offer for the extended programme.

The estimated number of offers to be extended to applicants appear to be in line with the previous year's offers, except for programmes 2, 4, 5 and 7.. For these programmes, either all remaining applicants needed to be made an offer (with no guarantee that these were the correct number of applicants needed for the counting methods), or there were no applicants remaining in the pool for the extended programme (i.e., all applicants were made an offer for the mainstream programme).

The above does occur in practice and it is in these types of scenarios that enrolment managers rely on ad hoc measures of collating additional applicants (e.g., in agreement with an applicant, they could be moved to a programme where applications are needed). A more common occurrence is where late applications for programmes would be accepted.

Conclusions and Recommendations

The discussion in this section is structured around the research questions stated in the introduction.

What are the important variables determining the response of an applicant to a registration offer? The analysis of the Faculty of Natural Sciences data at the University of the Western Cape showed that two variables are particularly important: the APS score of the applicant, which gives an indication of academic ability, and age. Other variables in the data, such as school quintile, race, gender and area (urban or rural), did not distinguish well between positive and negative responses to registration offers. An important conclusion is that there are significant interaction between APS score and age: in the high APS score group the older applicants more readily accepted registration offers than the younger ones.

The second research question relates to the specific statistical model that should be used for predicting the response of new applicants to registration offers. Logistic regression was used in this study. The main advantage of logistic regression is its easy interpretability. This is important, since it

should be possible to explain to applicants not receiving registration offers why this is the case. Also, similar published studies confirm that the

performance of logistic regression compares well with that of other more complex machine learning approaches – see for example Basu et al. (2019).

The third research question refers to the value added by using the proposed model as part of an enrolment strategy. This question can only be answered fully after the model has actually been incorporated by the Faculty. The results from applying the model to historical data suggest that using the model will serve to improve the enrolment process.

This paper deals with an important and complex problem, and the following is a selection from the many possibilities for further research:

(i) How can the performance of the logistic regression model be improved by using a suitable method to address the imbalanced nature of the training data?

(ii) The proposed logistic regression model provides point predictions of the responses of applicants to registration offers. How can measures of confidence in the predictions, for example confidence intervals, be computed?

(iii) The example in Section 4 explained how the predicted probabilities obtained from the model can be used to estimate the number of applicants who should be approached with registration offers. Are there other more effective approaches?

(iv) On a more practical level, a conclusion from the study is that applicants with high APS scores are less likely to accept registration offers, reflecting the availability of offers from other institutions. How can this group be targeted to increase their registration rate?

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Appendix

Table 6: Fitted Models for Mainstream Programmes

Programme	Training (N)	Validation (N)	Coefficient values			
			Intercept	APS	Age	APS*Age
Programme 1	263	360	11.6460	-0.3569	-0.6402	0.0191
Programme 2	153	241	-58.5793	1.1956	3.4754	-0.0718
Programme 3	256	410	-5.4088	-0.0145	0.5943	-0.0065
Programme 4	138	207	30.8757	-0.7138	-1.1637	0.0277
Programme 5	242	377	79.1506	-1.7948	-3.8356	0.0867
Programme 6	386	716	-17.9661	0.2236	1.3001	-0.0199
Programme 7	200	211	-9.9018	0.1928	0.8103	-0.0168
Programme 8	288	504	-13.7073	0.1999	0.8490	-0.0142
Programme 9	219	564	3.1810	-0.1050	0.0475	0.0001
Programme 10	159	282	-45.2553	0.9725	2.6528	-0.0576

Doctoral Graduate Attribute Development: Lessons From the South African Context

Janine S. Senekal, Erica Munnik, and José M. Frantz

Abstract

Doctoral graduate attributes (DGAs) are the qualities and characteristics of a doctoral graduate. They are considered in the context of concerns for the quality and outcomes of doctoral education. Graduate attributes develop through formal education and the hidden curriculum, influenced by various agents such as the supervisor, peers and the institution of study. In doctoral education, where there is rarely a structured curriculum, consideration of how DGAs develop warrants investigation to ensure threshold levels of DGA development can be supported. Semi-structured interviews were conducted with doctoral supervisors, graduates and students from four South African higher education institutions. This article describes barriers and facilitators impacting the development of DGAs. The findings provide evidence of the interplay between various aspects that facilitate DGA development, including the doctoral student, supervisor(s), peers and institutions. The lack of awareness of DGAs and support available are important barriers to DGA development. It is recommended that support be offered at all levels, to facilitate learning. Agency should be encouraged to support the pursuit of doctoral scholars' novel contribution, and growth as creative problem solvers. The research contributes by constructing a framework of support for DGA development.

Key Words: doctoral education, doctoral graduate attributes, hidden curriculum, higher education, postgraduate education and training, researcher development, research supervision, South Africa university.

ABOUT THE AUTHORS: JANINE S. SENEKAL (email: jssenekal@uwc.ac.za), ERICA MUNNIK (email: emunnik@uwc.ac.za), and JOSÉ M. FRANTZ (email: jfrantz@uwc.ac.za): University of the Western Cape, South Africa.

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Résumé:
Les attributs du diplômé de doctorat (DGA), les qualités et les caractéristiques d'un diplômé de doctorat sont examinés à l'aune des préoccupations relatives à la qualité et aux résultats de la formation doctorale. Les attributs du diplômé se développent au cours de la formation formelle et à travers le curriculum caché, sous l'influence de divers agents, notamment le superviseur, les pairs et le contexte institutionnel. Dans le cadre de la formation doctorale, où il existe rarement un programme structuré, il convient d'étudier la manière dont les DGA se développent afin de s'assurer que les niveaux-seuils de développement des DGA peuvent être soutenus. Des entretiens semi-structurés ont été menés avec des directeurs de thèse, des diplômés et des étudiants de quatre établissements d'enseignement supérieur sud-africains. Cet article décrit les obstacles au développement des DGA ainsi que les elements qui facilitent un tel développement.. Les résultats fournissent des preuves de l'interaction entre les différents acteurs qui facilitent le développement de la DGA; il s'agit notamment du doctorant, de(s) directeur(s) de thèse, des pairs et des établissements. La méconnaissance du soutien et des AGD constitue un obstacle important au développement des AGD. Une variété d'offres de soutien à tous les niveaux permet de renforcer l'apprentissage et d'encourager l'action dans la recherche d'une nouvelle contribution et d'un développement en tant que solution créative aux problèmes. La recherche contribue à l'élaboration d'un cadre de soutien au développement de la DGA.

Mots clés:
formation doctorale, attributs du doctorat, curriculum caché, enseignement supérieur, éducation et formation postuniversitaires, développement des chercheurs, supervision de la recherche, Afrique du Sud.

Introduction

In recent years, there has been increased enrolment in doctoral degrees, and subsequent concerns about massification at the expense of quality, and concerns regarding employability and relevance of the apex degree beyond academia (McKenna & van Schalkwyk, 2023; Spronken-Smith et al., 2023). Against this backdrop, doctoral graduate attributes (DGAs) have received greater attention (Spronken-Smith et al., 2023). Doctoral education is a strategic priority in the higher education (HE) context internationally, as it plays a pivotal role in advanced skills development and capacitates the system of innovation for meeting development goals (Cardoso et al., 2022). Common issues relating to doctoral education include high attrition rates, extended time for completion, insufficient funding, and the scope and relevance of skills developed (Cardoso et al., 2022; McKenna & van Schalkwyk, 2023). The perception that doctoral graduates lack relevant skills is partially due to a lack of awareness of DGAs, rather than the lack of development (Senekal et al., 2022). The Doctoral Degrees National Report (hereafter, the Doctoral Review) (CHE, 2022), reviewing doctoral education in South Africa (SA) found many institutions did not meet the threshold requirements of the Qualifications Standards for Doctoral Degrees (hereafter, the Doctoral Standards) (CHE, 2018) or had inconsistencies between faculties and departments. The lack of awareness of DGAs was flagged as particularly concerning (Faller et al., 2023), as this impacts how DGAs are supported and developed. The present article describes barriers and facilitators to DGA development, and presents a framework of support for DGA development.

Literature

DGAs and the Hidden Curriculum

DGAs are the qualities and characteristics of a doctoral graduate (Yazdani & Shokooh, 2018). A recent systematic review of DGAs by Senekal et al. (2022, p.1) proposed "knowledge, research skills, communication skills, organisational skills, interpersonal skills, reputation, scholarship, higher order thinking skills, personal resourcefulness, and active citizenship" as relevant DGAs. Graduate attributes are most commonly implemented in undergraduate degree programmes, where attributes are embedded in the curriculum (Spronken-Smith et al., 2023). At a doctoral level, the degree typically entails independent research under supervision accounting for most, if not all, of the degree credits (CHE, 2018); so, there is no formal curriculum into which the DGAs may be embedded. The Doctoral Review highlighted that graduate attributes "are not explicitly formulated during postgraduate studies but... their attainment is embedded in the nature of doctoral studies" (CHE, 2022, p. 2022), with some attributes evidenced in the thesis itself, and others considered to be subjective. The 'hidden curriculum' encompasses the range of informal, unofficial and unintentional learning taking place within and beyond formal HE spaces, and should be considered of equal import as formal curriculum spaces (Elliot et al., 2020). Therefore, the hidden curriculum must be considered as pedagogical space for DGA development.

Agent Supporting Doctoral Education

The Doctoral Review flags the influence of the national context, institutional contexts, field/discipline, and the supervisor, in impacting DGA conceptualisation and differentiation (CHE, 2022). The Doctoral Standards present general threshold DGAs, but implementation requires

a differentiated or hierarchical approach, prioritising certain attributes, based on institution, field and discipline (Faller et al., 2023). The lack of understanding of DGAs is a barrier for its implementation and support for doctoral development (Senekal et al., 2024). The development of DGAs, such as ownership and agency, are supported by various 'hidden curriculum agents', including among others, supervisors, fellow students, and colleagues (Elliot et al., 2020). If utilised, these agents "support, empower and enable doctoral researchers in creating learning pathways that are strategically intended to harness a tailored hidden curriculum based on personal needs and professional aspirations" (Elliot et al., 2020, p. 131). Similarly, researcher development at a postgraduate level has been conceptualised to occur at various levels, including the individuals' personal characteristics, supervisors support and institutional context (Albertyn et al., 2018). Each of these actors has potential to support or hinder the development of DGAs during the doctoral journey.

The provision of support for researcher development at an institutional level is aligned with strategic initiatives to support postgraduate retention and throughput (Frantz et al., 2021). Supplementary or co-curricular workshops and courses offered on various topics support admission-level skills gap reduction (Mantai & Marrone, 2022). Although a range of courses supporting academic and personal attributes are available, most doctoral graduates attended workshops on academic and research topics (Spronken-Smith et al., 2023). Doctoral graduates stressed the need for additional support for developing personal and interpersonal skills, such as teamwork and communication (Spronken-Smith et al., 2023). Institutions provide support through departmental or faculty activities, and student support services (Frantz et al., 2021). The HEI is the broader context in which doctoral education takes place, yet the supervisor is the students' primary point of contact at the HEI.

Research on doctoral supervision highlights concerns about quality of supervision, increased enrolment, reliance on novice supervisors, and insufficient training and support for supervisors (Cardoso et al., 2022). The supervisory relationship has a significant impact on completion time, positive student experiences and overall capacity development in doctoral programmes (Flotman, 2021; Senekal, 2014). Supervisors are noted as 'hidden curriculum agents' (Elliot et al., 2020), supporting doctoral researchers' development, and socialising them into the academic community (Frick, 2023). Wisker (2023, p. 89) frames the supervisors' role as one of "opening of doors, demystification, modelling, sharing and networking enabled by interactive dialogues, dynamic interactions and practical action." Developmentally, supervisors support students by

containing and normalising uncertainty in thesis work (Albertyn & Bennett, 2020). Uncertainty is experienced at various levels, including the research process and personal self-doubt or imposter syndrome, which can result in the student avoiding their research, trying to reduce their uncertainty, or harnessing it for their development (Albertyn & Bennett, 2020). Supervision typically takes place through developmental dialogue and feedback (Wisker, 2023). The supervisor's role in supporting independence is through interdependence (Elliot et al., 2023). 'Interdependence' is argued to be more apt than 'independence' as a DGA, since research is rarely conducted in isolation (Frick, 2023). Recent shifts in doctoral education internationally suggest a movement away from the traditional master-apprentice model, towards more structured and collaborative supervision models (McKenna & van Schalkwyk, 2023). Collaborative supervision spaces help overcome the challenges of potentially limited time, expertise or support from a single supervisor (Cardoso et al., 2022). Collaborative supervision has the benefit of multiple supervisors, often with different areas of expertise, and diversified teams that include postdocs and other postgraduate researchers (McKenna & van Schalkwyk, 2023). While this collaborative approach is not without its challenges, it may be more suited to the Global South, and for North-South collaborations, to support the development of knowledge with local relevance (McKenna & van Schalkwyk, 2023).

Collaborative supervision creates nurturing spaces for doctoral students through peer networking, reducing the loneliness often experienced in the doctoral journey (McKenna & van Schalkwyk, 2023). Colleagues and other students are also considered to be hidden curriculum agents (Elliot et al., 2020). The socialisation of doctoral candidates into research communities occurs through the opportunities doctoral candidates engage in during their doctoral studies (Aarnikoivu, 2023). Exposure either leads to familiarity and engagement in the academic community, or alienation and avoidance of the community (Aarnikoivu, 2023). Engagement in peer mentoring can support a range of attributes, including "leadership skills, teamwork and interpersonal skills" (Frantz et al., 2021, p. 11). Engaging in peer support can "powerfully transform the often isolated and challenging journey into a reflexive and developmental one" (Dangeni et al., 2023, p. 49), and creates a sense of connection and socio-emotional support (Frantz et al., 2021). The nature of the socialisation and support from peers during the doctorate is an important consideration in the doctoral journey.

Doctoral Intelligence Framework

The Doctoral Intelligence Framework proposed by Albertyn (2023) includes four domains: "Knowing (developing expertise), Doing (benefits of practice),

Thinking (high-order mental processing) and Willing (open-mindedness for continuing development)" (p. 4). 'Knowing' includes discipline-specific knowledge and depth of expertise typified by the doctorate, and hidden curriculum components related to a mindset for lifelong learning and the personal and societal value associated with the doctoral degree. 'Doing' relates to the practical components of the research product, and the subsequent "learning by doing" (p. 160), resulting in confidence, ownership and agency. 'Thinking' includes the various problem-solving and creative thinking tools that doctoral scholars utilise, and supported researcher identity development, including confidence and independence. 'Willing' is reflected in the iterative nature of postgraduate research, and underpins the learning process, giving the scholars the motivation and drive to persevere, with the bigger picture of the purpose of their degree in mind (Albertyn, 2023). Albertyn (2024) argues that developing mindsets is nonlinear, occurring iteratively throughout the doctorate, and that the framework may be applied to reflect on doctoral education at any stage. This framework will be used as a lens to interpret the findings of this study.

The Current Study

Given the range of DGAs evidenced in the literature, the varied contexts in which DGAs develop, and the implicit nature of many attributes requiring increased support, there is a need to explore barriers and facilitators to DGA development. DGAs are not just outcomes of the doctorate, but are required at admission and are crucial for the successful completion of the doctorate (Mantai & Marrone, 2022; Senekal et al., 2024). For example, students need a basic level of research skills to conceptualise and initiate their study. Their research skills continue to develop while conducting their research, facilitating progression in the study. An understanding of facilitators and barriers to the development of DGAs will inform improvements to system(s) to ensure doctoral graduates are appropriately supported in developing the attributes they are expected to graduate with. This article describes barriers and facilitators that doctoral supervisors, graduates and students experienced, impacting the development of DGAs. The findings provide evidence of the interplay between various aspects that facilitate DGA development, including the doctoral student, supervisor(s), peers and institutions.

Study Context

There has been a marked increase in doctoral enrolment at many African universities, including in SA, aligned with local and international policy agendas (Cardoso et al., 2022). Increased enrolments triggers concerns of institutional capacity and quality (Faller et al., 2023). SA holds a strategic

role in doctoral education in Africa, being home to the top ranked HEIs in Africa, and drawing many international students, particularly from the Southern African Development Community (Noel et al., 2022). It is a pertinent study location for examining issues of doctoral education.

Methods

A qualitative, descriptive study was conducted to elicit participants' experiences of DGAs. Participants included doctoral students (n=4), graduates (n=3), supervisors (n=6) and an academic specialising in HE quality assurance (n=1). Two of the doctoral students and one of the doctoral graduates were also employed at a higher education institution in South Africa. Participants were purposefully selected to ensure maximum variation of perceptions and equal representation of students and graduates to academic staff. Interviews continued until saturation was reached, and no new information emerged. Participants were from four SA HEIs: University of the Western Cape (n=6), Stellenbosch University (n=3), University of KwaZulu-Natal (n=3), and Central University of Technology (n=2), from various disciplinary backgrounds (including humanities, social and natural sciences), and with an equal split in terms of gender.

The criteria for selection were:

1. Doctoral students who were enrolled at a SA HEI for at least two years and had completed at least part of their data collection (n=4);
2. Doctoral alumni who had graduated within the last six years from SA HEIs (n=3); and
3. Academics who were from SA HEIs and who had more than five years of supervision experience at a doctoral level (n=6), or were involved in HE quality assurance at their institution (n=1).

Participants were invited to participate via email, after which an agreed upon time was identified for the interview. The first author conducted semi-structured interviews with each participant, via Zoom, between January and April 2022. Interviews were approximately 60-90 minutes in length, audio recorded and transcribed verbatim. Transcripts were analysed following Braun and Clarke's (2012) steps of familiarisation, coding and theme development using Atlas.ti (version 9). An inductive approach was used for coding barriers and facilitators to DGA development.

The study obtained ethics clearance from the Humanities and Social Sciences Research Ethics Committee (HS21/7/19) at the University of the Western Cape. Standard ethics principles were adhered to, as permission to access participants was obtained from the universities, and informed

consent from each participant. Participants' personal information was anonymised in the transcripts to uphold confidentiality and anonymity. Doctoral students were coded as "DS", doctoral graduates as "DG" and academic staff (including the quality assurance academic) as "AS", each with a corresponding number as a unique identifier.

Finding and Discussion

Participants discussed four broad areas of support, including institutional support, supervision support, peer support and intrapersonal support, each of which contained aspects that facilitated or hindered the development of DGAs. The findings demonstrate that there are many sources of support available to doctoral students for the development of their DGAs. The importance of various sources and options for support reflects the benefit of 'multiple ways of doing' in accessing the hidden curriculum and supporting doctoral development (Preece, 2023). Multiple support systems allow doctoral students to use their agency to select what is most suitable for their needs and learning style, taking ownership of their learning and supporting their autonomy as independent researchers.

Institutional Support

Participants reflected on various forms of institutional support available at their respective institutions. Formalised support was noted to be largely determined by the curriculum design of the doctoral programmes, as the design of the programme and thesis itself determine the product of the thesis and the "process that the student undertakes, in order to, ultimately, develop the[ir] attributes" (AS7). Supplementary training or development offered by institutions includes "academic writing workshops, ...writing retreats, ... [and] coaches" (DS1), and "seminars for... students on the thesis writing process" (AS1). Participants note that training supports the development of academic and professional skills, and includes proposal writing, literature reviews, research methods, data analysis, writing for publication, time management skills; and pre-doc programmes, inductions and writing retreats. Such support is provided by the department, faculty, designated postgraduate support offices and/or the library. Supplementary training bridges students' skills gaps, and complements the supervision process. As a supervisor notes, "Some of them haven't even got the basic skills... So instead of sitting each one down individually, I would send them off to these courses" (AS5). For staff who are enrolled for their doctorates, there is also support in the form of teaching relief, allowing them to "just [focus] on the PhD during that time and that helped a lot" (DS2).

There are various systems at institutions providing facilitative spaces to support doctoral students and the development of their DGAs.

While there is a range of support available from institutions, the lack of awareness of these programmes – on the part of students and supervisors – is a barrier to the utilisation thereof. One student noted: "I know [about] it, because I work at the institution, but nobody actually tells you" (DS2). Supervisors and faculty representatives need to be proactive in connecting students to the resources available, to facilitate awareness and access. One student who is also a staff member noted, "I went to go look for those resources for myself, and then for my students... [I have] put together a list from my own experience" (DS2). However, supervisors can be a barrier to making use of supplementary training, as a student reported that their supervisor "wouldn't approve things or they would say no, you should focus on this and that right now" (DS4). In some instances, there are statistical consultants at institutions; however, some supervisors are reluctant to allow students to use these services, due to the perception that students should work independently to develop and demonstrate their data analysis skills. Furthermore, students may not have the time to attend multiple training courses, due to their multiple responsibilities (studying, working, family). Supervisors play a key role in providing access by making students aware of and approving access to available institutional support.

The findings indicate that the institutional support available is supplementary, non-credit bearing and not compulsory, as doctoral education in SA typically excludes a formal coursework component (CHE, 2022). Supplementary training allows students to increase their skill set as needed, since not all students enter the doctoral programme with equal levels of skills; hence, the lack of skills may be a challenge for progression in their doctoral research. Increased expectations of entry-level attributes for doctoral studies (Mantai & Marrone, 2022), coupled with under-prepared candidates (Faller et al., 2023), make supplementary training an essential component of institutional support. McKenna and van Schalkwyk (2023) highlight an international shift towards more structured and collaborative curricular approaches to doctoral education, with the inclusion of coursework in the first two years of study. This is worth considering, particularly in contexts with underprepared or disparate levels of preparedness among doctoral candidates. Structured and collaborative approaches could help students in overcome gaps in their skill sets, which would otherwise be a barrier to the further development of their DGAs.

Supplementary support available at institutional level primarily focuses on the development of research and academic skills, and DGAs that are

explicitly aligned to the degree. Spronken-Smith et al. (2023) found that almost three quarters of graduates engaged in workshops or courses targeting research and academic skills. While workshops on non-research/academic attributes such as communication, teamwork, networking and career development were available, participants identified a need for better support for the development of these attributes (Spronken-Smith et al. 2023). Supplementary training may be considered as part of the informal curriculum and as support to the formal learning processes of thesis work; yet it is also part of the hidden curriculum due to the socialisation and peer support in these spaces. Attending training provides opportunities for doctoral students to network, increasing the potential to foster social support from peers in a similar experience, reducing the isolation and loneliness of the doctoral journey (Albertyn et al., 2018). The institutional context's role in DGA development mirrors that identified for postgraduate researcher development by Albertyn et al. (2018), thus confirming the central role of institutions in the provision of a supportive environment.

These findings show that the formal curriculum and support programmes in HEIs are embedded in the knowing and doing domains of the Doctoral Intelligence Framework (Albertyn, 2023). However, it is vital to also focus on developing higher-order thinking in creative and novel, even risk-taking approaches to the doctoral process and product (Albertyn, 2024). These aspects are part of the hidden curriculum, and are critical to DGA development, as higher-order thinking, includes creativity and problem-solving (Senekal et al., 2022). The development of these higher order thinking skills, which are critical for the novel contribution required of the doctorate, is an important aspect that may be supported in the supervisory context.

Supervisory Support

Supervision plays a crucial role in supporting doctoral students and the development of their DGAs, yet variation in supervision approaches impact on the nature of the support. Supervisors reflect on how they approach academic skills development, which primarily takes place in the form of critical feedback and engagement with drafts. One supervisor noted: "I do it through quite a lot of intense work, both in conversation but also in commenting on drafts" (AS4). Some take a more direct approach: "you need to be actually hard with them, and not take nonsense" (AS5). To ensure students take ownership and grapple with their work, one supervisor said: "most of the time I… need them to struggle through it" (AS3). The supervisor argues that grappling supports the student in becoming an independent researcher "which is my understanding of what a PhD graduate should

be" (AS3). Supervisors use different approaches, some being more hands on and others using more reserved approaches, each supportive of the development of the typical, academic attributes, including attributes like ownership and independence.

Some participants stress the importance of learning and teaching as part of supervisory responsibilities. One supervisor noted: "I think we should teach our PhDs more" (AS5), and another highlighted that "supervisors [do] not address the learning and teaching that must take place in a PhD" (AS2). However, one supervisor argues that there is limited time and capacity for teaching, which they believe should take place outside of supervision: "you need to be able to stand on your own feet in terms of skills. I shouldn't now still be teaching you the skills; you should be applying them, and I should just be leading you" (AS5). The lack of teaching and learning in the supervisory space is a barrier to the intentional development of DGAs. Supervisors may lack the resources or skills to provide the required support, and are "under a lot of strain" (AS4) which can be a barrier to providing support directly. Supervisors reflected that their own skills and abilities affected their focus in supervision: "I don't have those skills. So, that could be why I'm not pushing it" (AS1). However, a supervisor's limitation is an opportunity to refer students to supplementary institutional training. Supervisors are themselves the product of the supervision they received. One supervisor said: "I find myself doing that. I've been supervised like that." (AS5). They note a general expectation that the experience of being supervised is sufficient supervision training, and in some cases, there is a lack of formalised supervision training, both during the doctorate and for academic staff. This is not to say that there are no formal supervision training opportunities at the institutions represented, but rather that these are not necessarily known by or available to all of the participants. This impacts the nature and scope of supervision provided, and is a barrier to development of DGAs in the supervisory space. The supervisors' own willingness or capacity to provide training and development within the supervision context impacts the development of DGAs within that space. As noted above, some supervisors actively support the pursuit of interdisciplinary engagement and skills development, while others may, perhaps inadvertently, prevent students from accessing such support.

Supervisors noted that they tailor their supervision approach, based on students' needs and professional aspirations, as "you will implement the strict understanding of the graduate attributes, and then you will add some things that you will regard as important for the transfer between the academic environment and then also business and industry" (AS6). If the student is a staff member as well, there may be more professional

mentoring that takes place, as "you're also preparing the student one day to enter academic life" (AS6). The focus of supervision then shifts to not "just helping them with their research, [but to] modelling the supervision process" (AS3). However, the mentorship dynamic does not always fall into the scope of supervision. A student noted: "I am lucky... [that] there was a huge mentorship component" (DS1). Participants point out that while supervisors may guide, internal motivation is key, as "I can remind them of what motivated them, and I can inspire them, but they need to hold that motivation through the process" (AS3). With a more independent student, "the supervisor's role can be more of a sounding board" (AS4). However, one supervisor argued that the supervisory relationship should primarily be an academic one, expecting students to utilise social support "when things don't work out and when the resilience isn't there" (AS5). Such supervision styles may primarily support the academic DGAs, but neglect the more intrinsic, personal DGAs, which are seen as "indirect outcome[s]" (AS5) of the doctoral process, which is by nature a "major growth experience and a major learning curve" (AS5). The tailoring of supervisory approaches facilitates the nurturing of specific attributes. The lack of such tailoring is a barrier to suitable attribute development, as students receive generic support that is not aligned with their aspirations or academic needs.

The supervision model impacts DGA development as well. Co-supervision has the benefit of availing expertise in various areas for a multidisciplinary project. However, it can be a barrier when there is disagreement, with one supervisor "in the middle" (AS5), or where one supervisor is more involved and the other more distant. As illustrated in the following case, where the primary supervisor "gives broad direction and then he is not involved. And my secondary supervisor gives most of my detailed feedback" (DS4). Cohort supervision has the benefit of students working together on similar projects, and being able to provide input and support to each other, "so what the one has learnt can actually influence the other one in a positive way" (AS3). The supervisory model can facilitate or be a barrier to the development of DGAs, depending on how it is negotiated and executed.

The findings highlight the role of the supervisor as a gatekeeper for access to learning, which aligns with the concept of the supervisor as an agent of the hidden curriculum. Such a supervisor may "support, empower and enable doctoral researchers in creating learning pathways that are strategically intended to harness a tailored hidden curriculum based on personal needs and professional aspirations" (Elliot et al., 2020, p. 131). Supervisors may be more aware of their role in relation to the formal and/or informal curriculum, but less aware of their role in relation to the hidden curriculum. The role of the supervisor in supporting researcher development at the Masters level (Albertyn et al., 2018) continues at a doctoral level, which is in contrast to views that doctoral students should be independent already. However, independence needs to be fostered and developed through interdependence and a collaborative, supportive supervisory relationship (Elliot et al., 2023).

Supervisors' (lack of) awareness of DGAs informs the (lack of) support for a range of DGAs (Faller et al., 2023). Supervisors reflected that they provide input particularly about critical thinking (thinking mindset), and input concerning subject matter expertise (knowing mindset) (Albertyn, 2023). Supervisors engage primarily with the development of more academic attributes in their supervision, referring primarily to the formal curriculum space. How supervisors engage and support students, particularly in grappling with uncertainty, is crucial to the creative process of knowledge creation (Albertyn & Bennett, 2020). Supervisors who contain and normalise uncertainty, as it surfaces, facilitate the learning process and empower students to harness uncertainty for their growth and development (Albertyn & Bennett, 2020). While the supervisor may refer the student to institutional training, this does not abdicate supervisors of their teaching and learning responsibilities. It is the supervisors' responsibility to ensure that "the student acquires all required generic skills in the research supervision process" (Noel et al., 2022, p. 86). Supervisors utilise various approaches, and prioritise different attribute development, but it appears that a tailored approach based on the students' existing skill set, needs and aspirations should guide the focus and to an extent, the nature of the supervision provided. These findings align with the importance of supervisors supporting broader skill development for employability (within and beyond academia), and tailoring approaches based on career aspirations (McKenna & van Schalkwyk, 2023). The tailoring of approaches reflects what Preece (2023) terms, the 'multiple ways of doing' which scaffolds learning through options, supporting agency and ownership in decision making. A tailored approach further aligns with the implications of the Doctoral Review, that not all students develop the same attributes in equal measure (CHE, 2022), but that a differentiated approach, based on field of study or discipline, career goals, and institution of study determines the hierarchy of DGAs developed (Faller et al., 2023).

The findings indicate a gap in terms of supervision training, as the experience of being supervised is implied to be sufficient for doctoral graduates to be able to supervise (CHE, 2022). The need for supervision training has been raised in other research as well (Noel et al., 2022). The supervisors interviewed reflected that their supervision style is influenced by the way they were supervised. Similarly, their personal challenges or lack

of certain attributes, e.g., project management, impacted their (in)ability to actively support the development of that attribute in their supervision practices. Current shifts to collaborative models of supervision (McKenna & van Schalkwyk, 2023) may assist in overcoming these challenges, through having multiple supervisors with different relevant expertise, and improving support for a range of DGAs in the supervisory space. Supervisory skills and practices are typically considered to be part of the hidden curriculum, as they are learned experientially by being supervised. However, the findings show the importance of ensuring that good supervisory practices are emulated, as these are what will be reproduced. Supervisory training, where not already available, should be formalised, targeting doctoral students, early career academics, and/or established academics, to ensure that evidence-based supervision practices are instilled.

Peer Support

Other forms of support include interpersonal support outside of the supervisory relationship. Students reported having an accountability partner, "someone you're bouncing off ideas" (DS1); "we encourage each other, we celebrate each other's achievement" (DS3). Participants note that other students can provide peer support, whether through a buddy system, summer school or group supervision space. Connecting with others in the same process allows them to "draw on other students' strengths and things that they had completed or gone through already" (DS2). Peer support also makes the PhD less lonely, as one student noted: "I'm independent outside of my supervisors, but in terms of the community of other PhD students, I'm not alone" (DS3). From a supervisor's perspective, encouraging peer support is "important for me to build in enough support for the student, which is not just me, to get them through the process" (AS3). The presence of social support from peers results in less need for emotional support during supervision, enhancing a focus on primarily academic support. However, the ability to ask for help can be a barrier to utilising social support, as one student explained, "I've been less willing to reach out" (DS4). Social support outside of the supervisory relationship is important for DGA development, particularly the personal attributes of endurance.

The findings highlight the importance of peer support for facilitating DGA development. The provision of support and guidance throughout the doctorate, is evidence of peers as agents of the hidden curriculum, facilitating access to and engagement in formal and informal learning and support opportunities (Elliot et al., 2020). Participants noted that the social-emotional support of peers helped to alleviate loneliness (Dangeni et al., 2023; Frantz et al., 2021), and supplemented support of supervisors,

allowing the student to function interdependently. Peer support was noted to be facilitated through institutional learning spaces, such as inductions or buddy programmes, and through group supervision models. This provides evidence of the benefits of peer support facilitated in collaborative supervision models that reduces reliance on the supervisor by creating collaborative nurturing and supportive spaces (McKenna & van Schalkwyk, 2023). On a broader level, peer support is an important aspect of researcher development (Albertyn et al., 2018), and a protective factor in the doctoral journey, facilitating the development of DGAs. Institutions must provide spaces that foster peer support connections and communities of practice, whether through institutional support provided in inductions, workshops and retreats, or through encouraging and supporting collaborative supervision models.

Intrapersonal Support

Doctoral students themselves influence the development of their own DGAs. The proclivity to utilise available resources is important for the development of DGAs. As demonstrated above, "if you want to find assistance in doing a PhD... there is assistance out there" (DG1). Personal investment, the internal motivation and drive for their study, helps students persevere in the face of challenges, facilitating the development of DGAs through difficulties. According to one student, "the PhD process has taught me that you have to be intentional in progressing" (DS3) and that "you need to have radical motivation to do this thing the best way you can. You need to be very invested in it" (DS4). Participants say that self-awareness of one's strengths and areas of growth facilitates identifying where support is needed. Students taking initiative in seeking relevant training opportunities or engaging in self-study to overcome skills gaps supports the development of required attributes. Self-directed learning, for example, watching YouTube tutorials or reading textbooks, overcame limited access to other support. One student noted: "I've been forced to read up and self-educate on more advanced kinds of regression that I wouldn't know how to do, previously" (DS4). Personal investment and taking initiative are facilitators for making use of opportunities available that support DGA development.

Students' existing skills facilitate the further development of DGAs. A student highlighted that their existing literature review skills helped them "find my feet" (DS3) in their interdisciplinary study. Students who have published from their Masters research were thought to experience less imposter syndrome, as "they do have more confidence" (DS1). Supervisors explained that they look for a baseline of academic writing skills, "the potential for thinking innovatively and creatively... [and] competence in

research, although, I think that can be overcome" (AS1). Conversely, gaps in the existing skill set can be seen as a barrier to DGA development. "We find that very few students in our field are prepared for the kind of research that they need to do" (AS5). Lack of methodological preparedness is an area that "students are anxious about" (DS1). A student saw their lack of methodological skills as "one of the main impediments to getting your doctorate... I've wanted to do more than my methodological proficiency allows me" (DS4). While the gap in skills is a barrier, it can be reframed as an opportunity to provide targeted support: "we need to be able to see what can be done, in order to support those students" (AS7). A student's skill set can facilitate or hinder further DGA development.

Students and graduates highlighted the gradual and implicit nature of DGA development. By virtue of the duration of the doctorate, DGA development happens "over time" (DG3), and growth is inevitable, as "you learn quite a lot along that way, and that definitely influenced how I do my work today" (DG2). Participants described development as more implicit, not something that was overtly discussed, but in many cases was "as a direct result of their involvement in a PhD programme" (DG3). DGA development is an ongoing process and "I think those skills continue to develop as I go through the various phases into the PhD... as a PhD advances, one's skills advances too." (DS3). Time is therefore a facilitator for DGA development, allowing students to develop appropriate attributes throughout their doctorate. Imposter syndrome, perfectionism and a lack of self-belief are barriers to DGA development, as students doubt their abilities and can make engaging with support and feedback more difficult. When faced with challenges, or when students "get stuck and they go AWOL [absent without leave], however much you might try and reach out and support" (AS4), it makes it difficult for supervisors to provide the needed support. Imposter syndrome "makes us lose sight of the attributes that we know we have... And I think that's what holds [us] back" (DS1). While part of the learning process, imposter syndrome needs to be overcome to develop DGAs, or conversely, as their attributes develop, their sense of self and self-belief improve. Students may be aware of their limitations; however, they need to take initiative and ownership of their doctorate journey to make use of the support available, so that they can continue through the journey, developing their attributes over time, through overt and implicit means.

The findings highlight that doctoral researchers are agents in their own DGA development. They need to take initiative, to seek out and utilise the various forms of support available, and to identify what works for their learning style and their training needs. However, doctoral candidates do not begin on equal footing, and there is a noted challenge of under-

preparedness amongst doctoral students (Faller et al., 2023). Doctoral researchers' ownership and initiative in making use of opportunities is key to pursuing and accessing the hidden curriculum (Elliot et al., 2023). Albertyn et al. (2018) similarly found that personal characteristics in students' development (including ownership and agency) were crucial for researcher development.

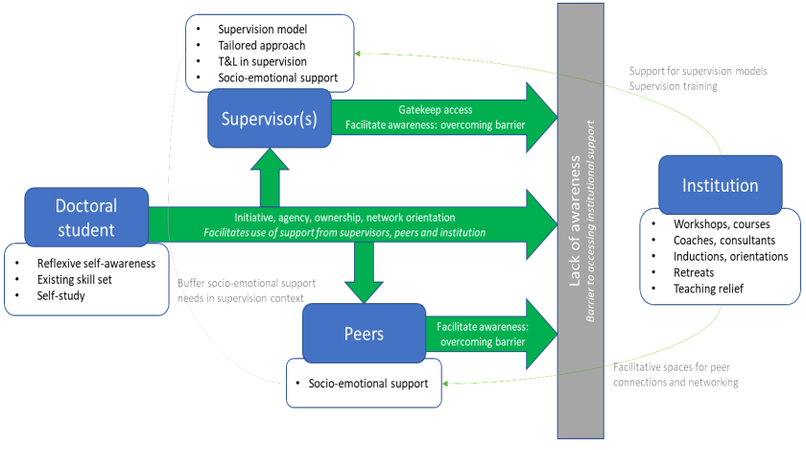
The importance of taking ownership and initiative in doctoral research, is indicative of internal motivation as the driver (willing mindset) (Albertyn, 2023). It is often left to the student to identify what skills they need and take initiative to source relevant training (Mantai & Marrone, 2022). If students are unaware of what skill sets they should be developing during the doctorate, they may struggle to take such initiative (Faller et al., 2023). The inability or reluctance to reach out can also inhibit access to available support networks. Participants note that imposter syndrome and lack of self-belief can further impact the process, as doctoral students withdraw rather than reach out. Therefore, the findings suggest that network orientation is an important determinant of DGA development. Network orientation is the proclivity to make use of the various support networks available (Hagler et al., 2024). Network orientation impacts the perception of thesis writing as stressful, and the working alliance with supervisors, in terms of how readily the student reaches out and utilises support from supervisors (Senekal, 2014). Network orientation is important for distinguishing why certain students make use of support and others do not.

Framework of Support for DGA Development

The interplay of the above support structures suggests a framework for DGA development (Figure 1). The central aspect is doctoral students. Their awareness of their own skill set and areas of growth, together with their ownership, agency and network orientation impact on their likelihood of reaching out for and utilising available support structures for the development of their DGAs. Awareness of DGAs and their progress towards these facilitates intentional engagement and pursuit of their development. The second aspect is the supervisor. Supervisors provide central support for the development of academic attributes in the supervisory space, yet gatekeep access to institutional support. Their responsibility is to support the development of all DGAs, tailoring the approach, based on the individual student needs and career goals, and facilitating access to appropriate learning opportunities where relevant and possible. The provision of such support is limited by their own supervision experience and expertise, and their (lack) of understanding of DGAs and their role in facilitating DGA development. The third aspect are the doctoral students'

peers. They provide socio-emotional support, reducing the alienation and loneliness of the doctoral journey. Peers also facilitate awareness of available institutional support, which doctoral students may be unaware of. The development of peer support communities is often facilitated through institutional support structures or collaborative supervision spaces. The fourth aspect is the institution. Institutions provides support through various channels, including departments, faculty, postgraduate support offices and the library. Support is supplementary and includes workshops, courses, induction programmes, retreats and teaching relief. While these structures support primarily academic and research DGAs, the spaces created facilitate socialisation into the academy, and facilitate the hidden curriculum that supports the development of the intrinsic DGAs as well.

Figure 1: Framework of Support for DGA Development



Conclusion

This study explored barriers and facilitators to DGA development from the perspectives of doctoral supervisors, graduates, and students in the SA context. The findings indicate an interplay between institutions, peers, supervisor(s) and the doctoral students themselves in facilitating DGA development, and a framework of support for DGA development was constructed. While doctoral education in SA typically does not have a formalised curriculum, the supervision space is central to developing knowledge expertise and critical thinking skills. Institutional support for supplementary skills development typically focus on academic skills development related to research skills. Across all these spaces and

support structures, there is potential to access the hidden curriculum of unintentional learning and socialisation. A lack of awareness of support availability is a barrier; yet it can be countered by clear information sharing and expectations communicated by institutions, supervisor(s), and peer networks. However, doctoral students, even with equal access and awareness, will not equally engage with the support available, and students need to take initiative in their area of need. All stakeholders in doctoral education have the potential to support or inhibit the development of DGAs, whether in the formalised, informal or hidden curriculum. Every effort should be made to support multiple ways of doing the doctorate, to support the unique journey of each doctoral scholar to make a novel contribution with their study, and to develop their capacity to be a creative problem solver.

Recommendations and Implications

A lack of awareness of available support is a barrier to the utilisation and the development of the corresponding DGAs. Induction or pre-doctoral programmes for doctoral students should be implemented to make them aware of the support available at their institution. It should not be assumed that doctoral students already know about the support available. Such programmes should include orientation to the DGAs that they are expected to develop during the course of their studies, enabling students to intentionally reflect o their development and to seek appropriate support as required. Supervisors should similarly share relevant opportunities available to their students, and do what they can to encourage and facilitate the engagement in varied learning opportunities and experiences. The fast-changing pace of education necessitates the ongoing upskilling of supervisors as to new pedagogical practices and self-reflective consideration of their own practices. Similarly, students need formalised training on supervision practices to prepare them, together with experiential learning, for their individual's career aspirations. The inclusion of a coursework component to the doctorate or pre-doctoral programme would facilitate the provision of such training, without overburdening students with a plethora of supplementary activities. Open discussions around DGA development should take place in the supervision space, and more broadly at HEIs to ensure that doctoral students and supervisors are aware of the attributes that they are developing.

HEIs should support and facilitate spaces for peer mentoring and peer group discussion, as these collegial spaces help overcome the loneliness of the doctorate, and facilitate access to the hidden curriculum. Examples include peer mentoring programmes, group writing retreats, reading groups and interdisciplinary spaces for dialogue and discussion. Many

of these would require funding, but the benefits of student support and development could validate the expense. The implementation of additional interventions and/or forms of support needs to be carefully considered, so as not to overload students and supervisors alike, potentially reducing buy in and capacity to meaningfully engage.

Future research should include longitudinal reflections on how DGAs develop over time, and at which points interventions are required to support DGA development. Institution-specific evaluation of support available may provide insight into specific barriers and facilitators in those contexts. Differential patterns in support requirements for doctoral students who are also staff members at HEIs, as well as support for those on extension or at risk for extension should also be considered, as there may be specific needs for these cohorts. Investigation into interventions for DGAs and evaluations as to their efficacy are necessary. The development of a scale to measure DGAs would be beneficial to identify group differences in attribute development, which may facilitate more targeted skills development to cohorts of students.

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The Influence of Teaching Effectiveness and Grading of Students' Work on how Students Evaluate Their Lecturers

Tadios Chisango, Wilberforce Kurevakwesu, Itai Mafa, Simango Tapiwa, and Samson Mhizha

Abstract

This article presents an experimental test of the effects of teaching effectiveness and grading on evaluation of lecturers by students. Although lecturers' grading of students' work presents a key confounding variable in studies that investigate the influence of teaching effectiveness on lecturer evaluations by students, most existing studies use correlational studies. This makes it difficult to separate the effects. In the present study, teaching competence and lecturer's grading of students' work were manipulated orthogonally, in a between-participants design, with a sample of Zimbabwean students, to test their effects on the students' endorsement of the lecturer , and also on potential lecturer evaluation. Hence, there were four experimental conditions: low-teaching competence-low grading, low teaching competence-low grading, high teaching competence-high grading and high teaching competence-high grading. The study tested the following specific hypotheses: (1) The low teaching competence-low grading condition would receive the lowest ratings on dependent measures; (2) The high teaching competence-high grading condition would receive the highest ratings,

ABOUT THE AUTHORS: TADIOS CHISANGO (Email: tadios.chisango@gmail.com, tchisango@staff.msu.ac.zw), WILBERFORCE KUREVAKWESU, and SIMANGO TAPIWA, Midlands State University, Zimbabwe; ITAI MAFA, Women's University in Africa; SAMSON MHIZHA, University of Zimbabwe, Zimbabwe

Chisango, T., Kurevakwesu, W., Mafa, I., Simango, T., & Mhizha, S. (2025). An Experimental Investigation of the Effects of Lecturers' Ostensible Teaching Effectiveness and Grading of Students' Work on how Students Evaluate them . *International Journal of African Higher Education, 11*(2), 42-57. https://doi.org/10.6017/ijahe.v11i2.18075

Results were largely in line with the hypotheses. These results show the benefits that accrue to instructors through giving students high grades. In particular, lecturers with low teaching competence can 'buy' better student ratings by assigning higher grades to students' work, while those with high teaching competence can enhance their ratings even more by giving high grades. Importantly, competent lecturers who grade their students lowly seem to be at the greatest disadvantage, in that they receive rather low ratings. The results indicate the flaws inherent in student evaluations of lecturers when their (lecturers') levels of competence are also taken into consideration. The results are further discussed in regards with the necessity to refining related research, and more rigorous evaluation methods of lecturers' performance in the classroom.

Key Words: lecturers, teaching effectiveness, student grading, quasi experiment

Résumé:
Nous présentons un test expérimental des effets de l'efficacité de l'enseignement et de la notation sur l'évaluation des professeurs par les étudiants. Bien que la notation des travaux des étudiants par les enseignants soit une variable confusionnelle clé dans les études qui examinent l'influence de l'efficacité de l'enseignement sur les évaluations des enseignants par les étudiants, la plupart des études existantes utilisent des études corrélationnelles. Il est donc difficile de distinguer les effets. Dans la présente étude, la compétence pédagogique et la notation ont été manipulées de manière orthogonale, dans le cadre d'une étude entre participants, auprès d'un échantillon d'étudiants zimbabwéens, afin de tester leurs effets sur l'anticipation de l'enseignement dispensé par le professeur, ainsi que sur l'évaluation potentielle de ce dernier. L'étude a testé les hypothèses spécifiques suivantes : (1) la condition « faible compétence pédagogique - faible notation » recevrait les notes les plus basses sur les mesures dépendantes ; (2) la condition « forte compétence pédagogique - forte notation » recevrait les notes les plus élevées. Les résultats ont été largement conformes aux hypothèses. Les résultats sont discutés en fonction de la nécessité d'affiner les recherches connexes et de mettre en place des méthodes d'évaluation plus rigoureuses des performances des enseignants dans les salles de classe.

Mots clés:
Conférenciers, efficacité de l'enseignement, notation par les étudiants, quasi-expérience.

The university classroom is a contentious place, 'administered' as it is both formally and informally, directly and indirectly, by the lecturer him/herself, the students and the university administration per se (Golish & Olson, 2000; Jacob & Lawan, 2020; Shor, 1996). On the face of it, the lecturer has almost complete control over the proceedings that take place within the confines of the classroom, with his/her influence spilling over even into the examination room. This includes selection of specific content to teach, the content and timing of coursework, leading all the way to the setting and grading of examinations (O'Brien et al., 2022).

Almost invariably, a lecturer's job is a deeply satisfying one, one characterised by a lot of discretion, flexibility, and a usually amiable and liberal scholarly environment (Baporikar, 2015). Teaching and inspiring a young adult population, researching on topics one pleases, managing own research grants, vacations, attending conferences and sharing research outputs with colleagues in the field, among other positive features of a lecturer's job, constellate into a special career. In particular, the discretion with which a lecturer conducts his or her duties is premised on the belief that having successfully scaled most or all of the existing steps of the academic ladder, he/ she is unquestionably a competent somebody (Chisango et al., 2022).

However, the lecturer still has to be answerable both to the body of students and the university administration. That forms the nexus from which most murkiness in a lecturer's job derives. In as much as lecturers are assumed to be a competent lot, their 'actual' levels of competence must still be assessed. For this, universities depend to some extent on peer evaluations, self-assessment, peer review, but mostly on student evaluations of lecturers (Rafsanjani, et el., 2020). Yet another measure of lecturers' levels of competence lies in the quantity, significance and impact of research output. In general, this is a much more objective measure, but this has problems of its own, in the sense that there can usually be an inverse relationship between time spent on, and therefore outcomes derived from research activities and teaching. A lot has been written, for instance, on the conflicting roles of lecturers as both researchers and teachers, and on which yardstick should take precedence in appraising lecturers' levels of competence (e.g., Karagiannis, 2009; Rafsanjani et al., 2020). A lecturer with an impressive research profile is certainly a great asset for a university, but he or she is simultaneously (or even primarily) a classroom teacher, who should also be valued as an asset by and to the students through excelling in the classroom, for that primarily is what they are at university for and what they pay fees for. Therefore, student ratings of lecturers are regarded seriously by universities worldwide. With its roots in American universities, the practice of student evaluation of teaching (SET) is now a

norm virtually across the world (e.g., Dev & Qayyum, 2017). As would be expected, SET has its own set of pros and cons. On the positive side, it can be a useful tool in fixing any glaring deficiencies within teaching practices and methods (Mohammed & Pandhiani, 2017)."Good teaching and good learning are linked through students' experiences of what we (lecturers) do. It follows that we cannot teach better unless we are able to see what we are doing from their point of view" (Ramsden, 2003, p. 2).

In Middle Eastern countries like Saudi Arabia and the UAE, which have in recent years registered leaps and bounds in extension of tertiary education, and where there has been a deliberate prioritization of quality of pedagogy over mass production of graduates, SET has become an issue of major focus. The widespread belief in these countries is that, holding other factors constant, competent lecturers will produce competent graduates who will perform well not only in the classroom and examination assessment, but also in the job market. As such, external national bodies such as the Commission for Academic Accreditation and Assessment (NACAAA) in Saudi Arabia have been bestowed with authority and autonomy to closely monitor the quality of education and ensure adherence to quality standards. In countries like Australia, a push towards performance-related funding has now made SET mandatory, with the ultimate goal of ensuring and safeguarding quality of higher education (Shah & Sid Nair, 2012).

However, greater focus has been given by faculty on the negative attributes of SET, given that it is plagued by problematic issues which have cast a shadow of doubt over the reliability and validity of the commonly used measures (Stroebe, 2020). Todd et al. (n.d.) notes three broad categories of such issues: (1) students are not qualified to evaluate faculty for teaching effectiveness; (2) the evidence for the validity of SETs for measuring individual teaching effectiveness has always been weak and is recently waning; and (3) many sources of bias in SET scores exist.

As such, the majority of academics view SET scores with skepticism; the general view is that that they are unreliable as an indicator of teaching effectiveness (e.g., Reckers, 1995). Critics of SET have mounted a multiplicity of arguments against its use over the years. On an ominous level, SET scores can be used by university administrations for punitive purposes, giving them control of faculty over a wide range of issues such as tenure, promotion, professional advancement and even dismissal (Ngware & Ndirangu, 2005). Furthermore, there is evidence converging on the conclusion that there are a lot of extraneous factors such as difficulty of course material, class size and demographic factors such as faculty gender, nationality, age and language of instruction in high school, which co-vary

with SET scores (e.g., Liaw & Goh, 2003; Boring, 2015; Pounder, 2007). The above argument serves as a pointer to another problem that has been noted of SET measures – their multiplicity and discretionary use across studies. For example, Mohammed and Pandhiani (2017) point out that despite there being a substantial body of literature around SET, there is little if any consensus among scholars in regards to their nature and number of items to be used to capture and measure valid and reliable scores. Indeed, an inventory they conducted on items from different studies revealed "diverse and contradictory results" (p. 3). In a more recent research, Esarey and Valdes (2020) argue that even unbiased, reliable and valid student evaluations can still be unfair and that even under "ideal" circumstances, SETs still yield an "unacceptably high error rate." They argue that unless the correlation between student ratings and teaching quality is far, far stronger than even the most optimistic empirical research can support, common administrative uses of SETs very frequently lead to incorrect decisions.

Perhaps the most striking problematic issue is how SET scores are related to grades, whether expected or actual. A robust finding in existing literature is that both actual and expected grades have a direct effect on SET ratings. In essence, expectations of a high grade have been found to lead to high SET ratings, whereas expectations of poor grades have led to low SET ratings (Pounder, 2007). Similarly, actual grades have also been shown to be directly related to SET scores. In one study that investigated this effect, Crumbley and Reichelt (2009) found that over fifty percent of faculty surveyed knew of colleagues who had deflated grading standards and lightened course content in order to boost their SET scores. Many other authors (e.g., Sacks, 1996; Schneider, 2013; Simpson & Siguaw, 2000) have reported similar tendencies, which include spoon-feeding examination content. The need to manipulate SET scores can reach very desperate proportions, as reported by Simpson and Siguaw (2000), who found that some university teachers go out of their way to dish free snacks on the day of evaluation, verbally reinforcing the students on their performance, or having an entertaining "fun" activity prior to the evaluation. By so doing, they would be trying to classically condition the students to give them high ratings, as demonstrated by some classic experiments in Psychology (e.g., Galizio & Hendrick, 1972; Janis et al., 1965).

To Crumbley and Reichelt (2009), all this represents a sad state of affairs in tertiary education characterized by an insidious "power shift and a move from professors running universities and colleges to students/administrators controlling higher education; where students simply punish ...professors on their SET scores" (p. 382). According to Dev and Qayyum (2017), poorly performing students may also give low rating to their lecturers in order

to protect their self-esteem, an argument that is in tandem with cognitive dissonance theory (Festinger, 1957). Hence, according to Tanner (2016), the current trends in SET have had the inadvertent impact of undermining teaching in universities and colleges

Study Objective and Hypotheses

One issue that is clear from the literature examined above is that it has been hard to disentangle the issue of the "actual" levels of teaching competence from other surrounding issues such as the difficulty of course content and student characteristics such as expectations of high versus low grades. Hence, rather than illuminating the issue of lecturer effectiveness, the existing trends in SET practices have further obfuscated its comprehension, leaving incessant cycles of controversy in their wake. Still, student evaluations have over time become a key indicator of teaching effectiveness at most universities and colleges worldwide (Liaw & Goh, 2003). Therefore, if there are misgivings about their validity, the way forward is to continue to prune them of their flaws, rather than dismissing them altogether.

One very important factor that has emerged in past research as a key deflector of teaching effectiveness from accurately predicting SET scores is student grade, whether prospective or actual (Crumbley & Reichelt, 2009; Dev & Qayyum, 2017). However, because most existing research on SET and student grading has been correlational (e.g., Culver, 2010; Waller, 2015), it has not been possible to empirically tear apart the causal effects of teaching competence vis-á-vis grade (or indeed any other such confounding factor) on SET scores. Although some existing research (e.g., Powell, 1977; Smith et al., 2011) tested the impact of student grading on instructor evaluation, this has never been done orthogonally against perceived lecturer competence. This leaves open the question whether these two variables share some interactive and tangible effects.

In other words, the fundamental issue is whether grades (actual vs. expected) would carry more or less weight than actual teaching competence scores in predicting SET scores. This is the main objective of this study. In essence, we orthogonally manipulated scores of teaching competence (low vs. high) against expected grade (low vs. high) in order to determine their interactional effects on SET-like scores. This means that we had the following four conditions in our design: (1) low teaching competence-low grading, (2) low teaching competence-high grading, (3) high teaching competence-low grading, and (4) high teaching competence-high grading. Although all the above permutations of competence and grading were tested,

we were particularly interested in the following two hypotheses:

1. The low teaching competence -low grading condition would receive the lowest ratings on dependent measures.
2. The high teaching competence-high grading condition would receive the highest ratings.

However, of more direct interest to this research was whether grading would offset the effect of teaching competence. To enable the testing of such effects would therefore behoove planned contrasts of the means of the conditions that had the same competence levels but different grading levels. This means that the following two contrasts were planned:

1. Low teaching competence-low grading versus low teaching competence-high grading.
2. High teaching competence-low grading versus high teaching competence-high grading.

If grading had no impact on the rating of teaching effectiveness, the conditions with the same teaching effectiveness scores would thus be expected to attract similar ratings.

Methods

Participants

Two hundred-and-one undergraduate students (102 men, 99 women) from the Midlands State University, Zimbabwe, took part in this study. Power analysis gave a coefficient of .812,, which indicated that the sample size was adequate. They reported ages ranged from 18 to 23 (mean = 20.72 years, SD = 1.14). Seventy (34.8%) of the participants were Social Work students, 88 (43.8%) were from the Department of Human Resources Management (HRM) and the rest (43 = 21.4%) were Psychology students. Thirty-five (17.4%) of them were first-year students (Mean age = 19.09 years, SD = 1.07); 92 (45.8%) were second-year students (Mean age = 20.77 years, SD = 0.87), whereas 73 (36.3 %) were fourth-year students (Mean age = 22.27 years, SD = 0.82). They were all black Africans.

Design, Procedure and Measures

This study employed a between-subjects experimental design with teaching competence (low vs. high) and student grading (low vs. high) as orthogonally manipulated independent variables. The dependent

variables were: (1) lecturer endorsement, measured by four items and (2) potential rating the student would give the lecturer, measured by a single item (see Appendix for the items). These two newly constructed measures showed a high criterion-related validity. To assess criterion-related validity, items were adapted from the teaching and learning dimension in the Professional Student Satisfaction Pre-Test Scale developed by Wang & Wu (2016). Exemplar items include 'I would be satisfied with the lecturer's teaching methods', 'I would be satisfied with the way the lecturer evaluates students' and 'I would be satisfied with the learning atmosphere provided by the lecturer in the class'. Correlations between lecturer endorsement and this scale was .63. In turn, potential lecturer rating also showed a high correlation of .58 with this scale. Hence, criterion-related validity of the new measures was high.

The experimenters, who are Lecturers in the School of Social Work and the Departments of HRM and Psychology, introduced the study as a student evaluation of a prospective lecturer who would soon take over from one of the lecturers that would be leaving his job. They then presented information which portrayed the in-coming lecturer as (1) low in teaching competence and low in grading, (2) low in teaching competence but high grading, (3) high in teaching competence and high in grading, and (4) high in teaching competence but low in grading. For instance, the high competence-low grading condition was introduced in the study as follows:

> As you might or might not know, one of our lecturers in the department/ school will leave the MSU soon to take a post at a regional university. A new lecturer will soon take over. The lecturer has provisionally passed his interviews at MSU. However, HR would like students to be involved in determining whether they are making the right choice, in line with new regulations. From the lecturer's previous employment, HR got the following details:
>
> 1. His/her average competence ratings as a lecturer as per peer evaluations (i.e., by two lecturers unknown to each other and unknown to the lecturer) on a scale of 1(bad) to 5(good) is 4.10 (this represented high teaching competence).
> 2. His/her average grading of students on essays marked out of 20 is 11/20 (this represented low student grading). This was followed by four self-report items which assessed the students' endorsement of the lecturer, all anchored on a 1(not at all) to 5(very much) scale (Cronbach's α= .88). Last was presented a single item that assessed the students' potential evaluation of the lecturer on a 7-point scale of 3(very poor) to 3 (very good).

Results

Preliminary Analysis

We computed descriptive statistics pertaining to lecturer endorsement and potential rating, as a function of condition (lecturer competence vs. student grading), as indicated in Table 1. As we had predicted, the high competence-high grading competence condition received the highest ratings, in terms of both lecturer endorsement and potential evaluations. The next highest ratings went to the low competence-high grading condition ahead of the high-competence-low grading one, giving initial support to our suspicion that high grading holds sway on students' ratings of lecturers. Predictably, the low-competence-low grading condition received the lowest ratings.

Table 1: Means and Standard Deviations for Lecturer Endorsement and Potential Evaluation

No	Condition	M	SD	M	SD
1	Low Competence-Low Grading	2.38	0.94	-0.93	1.73
2	Low Competence-High Grading	2.86	1.18	1.76	1.68
3	High Compentence-Low Grading	2.57	1.02	1.00	1.54
4	High Competence-High Grading	3.07	1.03	3.05	0.77

Main Analysis

The main analysis was in the form a one-way MANOVA, with Condition ([1] low teaching competence-low grading, [2] low teaching competence-high grading, [3] high teaching competence-high grading, and [4] high teaching competence-low grading) as the independent variable; Lecturer endorsement and potential lecturer evaluation were the two dependent variables. The multivariate main effect of condition was statistically significant, Wilks 'A = .61, $F(6, 478) = 18.65$, $p = .001$, partial $\eta^2 = .26$. In turn, the univariate main effects of condition on lecturer endorsement and potential evaluation scores were both statistically significant, MS =4.68, $F(3, 190) = 4.38$, $p = .006$, partial $\eta\ 2 = .09$; MS = 92.15, $F(3, 190) = 40.27$, $p = .001$, partial $\eta 2 = .44$, respectively.

To follow up on the univariate effects of condition, planned contrasts were conducted. The results confirmed that the high teaching competence-high grading condition was rated higher on lecturer endorsement scores than the average of all the other conditions, $t(197) = 18.42$, $p = .000$. Also as predicted, the low teaching competence-low grading condition was rated lower than the average of the other conditions, $t(197) = 16.04$, $p = .000$. Similar contrasts on the potential evaluation scores yielded the same results: $t(197) = 24.46$, $p = .000$; $t(197) = 3.38$, $p = .002$, respectively.

Further contrasts were run to test the differences in mean scores of the following conditions, as alluded to before, with regards to both lecturer endorsement and potential evaluation scores, in order to effectively test the differential effects of teaching effectiveness versus grading:

- Low teaching competence-low grading versus low competence-high grading, and
- High teaching competence-low grading versus high competence-high grading.

The results presented in Table 2 confirmed that the low teaching competence-high grading condition was rated higher on both dependent measures than the low teaching competence-low grading condition. Again, as was expected, the high-competence-high grading condition had higher ratings on both measures than the high-teaching competence-low grading condition.

Table 2: Contrasts Testing Effects of Teaching Competnce against Student Work Grading

Contrast		*df*	*t*	*p*
Low teaching effectiveness- low grading vs.low teaching effectiveness higher grading	Lecture Endorsement	197	5.15	.000
	Evaluation	197	22.27	.000
Low teaching effectiveness-low grading vs low teaching effectiveness higher grading	Lecture Endorsement	197	24.36	.000
	Evaluation	197	24.30	.000

Discussion

This study involved experimentally manipulating teaching competence against student grading to test their differential effects on lecturer endorsement and potential evaluation by students. As we pointed out earlier, most of existing research around lecturer evaluations by students has been correlational, hence rendering it difficult to empirically tear apart the causal effects of teaching competence versus grading (or indeed any other such confounding factor) on the evaluation scores. In the present study, we employed a quasi-experimental between-subjects design with teaching competence (low vs. high) and student grading (low vs. high) as orthogonally manipulated independent variables to test their interactive effects on students' possible evaluations of lecturers, in the form of lecturer endorsement scores and potential evaluation scores.

Initial, descriptive analysis provided preliminary support for the expected pattern of findings and the specific hypotheses. Indeed, as had been predicted, the high teaching competence-high grading condition received the highest ratings, in terms of both lecturer endorsement and potential evaluations. Also in line with the hypotheses, the low teaching competence-low grading condition received the lowest ratings. Interestingly, the low competence-high grading condition had higher ratings than the high-competence-low grading one, in this way underscoring that the effects of high grading can sometimes trump the effects of teaching competence.

The findings from the main analysis corroborated those from the preliminary analysis. For instance, the high teaching competence-high grading condition was rated higher whereas the low teaching competence-low grading conditions was rated lower than the average of all the other conditions. Similarly, as expected, the low teaching competence-high grading condition was rated higher than the low teaching competence-low grading condition on both dependent measures. Again, as was expected, the high teaching competence-high grading condition also had higher ratings on both measures than the high teaching competence-low grading one.

These findings clearly demonstrate the advantages granted by high grading to lecturers. Specifically, lecturers who score low on teaching competence can gain significantly higher ratings from students through higher grading of students' work, whereas those who score highly on teaching competence can further boost their ratings through high grading. In this whole set up, the biggest losers are the otherwise competent lecturers who "spoil the party" through giving students low ratings, and thus stand to be 'penalized'

by students through low ratings. In sufficient numbers and consistency, such low ratings can have a serious effect of stunting and/or derailing a lecturer's career (see Ngware & Ndirangu, 2005). Plagued with such glaring loopholes, it is thus no wonder that students' evaluations of lecturers are viewed with skepticism by the majority of academics, with the general view being that they are unreliable as an indicator of teaching effectiveness (e.g., Reckers, 1995). This renders the college and university background a place where uncanny strategy reigns, with lecturers bargaining for high ratings through high grading, and students rewarding them with high ratings or penalizing them with low ratings as they deem fit (Crumbley and Reichelt (2009). Lecturers may be driven to engage in other non-standard and/or unethical practices such as deliberately lightening course content, spoon-feeding examination content (e.g., Sacks, 1996; Schneider, 2013; Simpson & Siguaw, 2000), or even 'bribing' students with 'fun activities' and/or snacks, on the day of evaluation (Simpson and Siguaw (2000). All these effects constellate to form a fundamental deflector of teaching effectiveness from accurately predicting students' evaluations of lecturers (Crumbley & Reichelt, 2009; Dev & Qayyum, 2017). Viewed together with other problems typical of the evaluation process and outcomes, the common trend is that there is a shift away from, rather than towards, accurate evaluation of lecturers, creating in its wake problems for lecturers themselves, for students, between students and lecturers, between lecturers and university administration, and for the long-term future of academia in general.

Therefore, at least with regard to grading, there is an urgent need to formulate strategies that can help to tear apart its effects on student evaluations of lecturers from those of teaching effectiveness per se. Any such approaches need to see grading as an inherent confounding variable in the evaluation processes, such that without controlling for its effects, the evaluations themselves should be considered of no major significance. Considering that the evaluations carry a huge potential as a useful tool in fixing any glaring deficiencies within teaching practices and methods (Mohammed & Pandhiani, 2017), and that "good teaching and good learning are linked through students' experiences of what we (lecturers) do..." (Ramsden, 2003, p. 2), there is a need to make the evaluations much more objective, especially in relation to grading. One way of doing it would be to have lecturers rated at different universities from the ones where they teach, by similar sets of students, with more rigorous procedures such as reliability analysis being put into place. Furthermore, research into related issues may need to become more experimental, and less correlational, so that the findings become more robust and less prone to controversy and doubt. This can be better done through combining approaches, methods and ideas from related disciplines, such as Education, Psychology and Sociology.

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APPENDIX
Endorsement of Lecturers Scale

No	Emdorsement	Not to all				Very much
		1	2	3	4	5
1	If this lecturer's module were not a compulsory one, I would be happy about taking it.					
2	If this lecturer's module were compulsory, I would be fascinated about being taught by him/ her.					
3	I believe this lecturer would provide a positive working and learning environment.					
4	Altogether, I suppose that I would be satisfied with attending this lecturer's module.					

Potential Evaluation of Lecturers Item:

Overall, what rating do you suppose you would give this lecturer in terms of teaching effectiveness, on a scale of **-3 (very poor) to three (very good)?**

Very poor						Very good
-3	-2	-1	0	1	2	3

Using Extended Curriculum Programmes to Improve Student Success at Universities

Gideon P. Brits, Irma Eloff, and Surette van Staden

Abstract
This study presents findings from a larger, mixed methods study that focuses on student success in an Academic Development Programme (ADP) at a South African university. Variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains of student success were investigated. A sequential triangulation research design was adopted. Data was collected in three phases: a quantitative, secondary analysis of existing, historical demographic data from students (n=5,560) in an Extended Curriculum Programme (ECP) during an 11–year period (2010–2020), a quantitative survey phase (n=161) and an interview phase (n=15). Data was analysed by means of descriptive statistics and theory-driven, inductive coding. The findings revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from deprived areas were equally successful as students from more affluent backgrounds. While all domains are important, the study indicates that the psychological domain and the personal needs domain are most notable in relation to student success. The study recommends that Higher Education Institutions (HEIs) provide students with sufficient help and support especially on students' mental well-being.

Keywords: student success, Extended Curriculum Programme, higher education, access, psychological wellbeing.

ABOUT THE AUTHORS: GIDEON P. BRITS, EMAIL: GIDEON.BRITS@UP.AC.ZA, AND IRMA ELOFF, EMAIL: IRMA.ELOFF@UP.AC.ZA, UNIVERSITY OF PRETORIA, SOUTH AFRICA; AND SURETTE VAN STADEN, EMAIL: SURETTE.VAN-STADEN@UIBK.AC.AT, UNIVERSITY OF INNSBRUCK, AUSTRIA

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Résumé
Cette étude présente les résultats d'une étude de plus grande envergure, fondée sur des méthodes mixtes, qui se concentre sur la réussite des étudiants dans le cadre d'un programme de développement académique (ADP) dans une université sud-africaine. Les variables relatives aux domaines démographique, institutionnel, économique, cognitif, aux besoins personnels et psychologique de la réussite des étudiants ont été étudiées. Un modèle de recherche par triangulation séquentielle a été adopté. Les données ont été collectées en trois phases : une analyse quantitative secondaire des données démographiques historiques existantes des étudiants (n=5 560) dans un programme de cursus étendu (ECP) pendant une période de 11 ans (2010-2020), une phase d'enquête quantitative (n=161) et une phase d'entretien (n=15). Les données ont été analysées au moyen de statistiques descriptives et d'un codage inductif axé sur la théorie. Les résultats ont révélé que le PEC atténue les différences démographiques et économiques à tel point que les élèves issus de zones défavorisées réussissent aussi bien que les élèves issus de milieux plus aisés. Bien que tous les domaines soient importants, l'étude indique que le domaine psychologique et le domaine des besoins personnels sont les plus remarquables en ce qui concerne la réussite des étudiants. L'étude recommande vivement aux établissements d'enseignement supérieur (EES) de fournir aux étudiants une aide et un soutien suffisants, en mettant l'accent sur le bien-être mental des étudiants.

Mots-clés: Réussite des étudiants, programme d'études élargi, enseignement supérieur, accès, bien-être psychologique.

Introduction

Extended curriculum programmes (ECPs) have been widely used in tertiary institutions to combat the persistent inequities amongst first-time entrant university students (Engelbrecht et al., 2009; Megbowon et al., 2023; Scott, 2016). For example, students who do not meet the minimum admission requirements of the mainstream programmes in the Natural and Agricultural Sciences Faculty (NAS) are considered for admission to the ECP. The programme extends over a period of four years, instead of the normal three years for the mainstream BSc students. The assumption is that allowing more time to complete introductory university courses, may potentially increase student success at the individual level and reduce dropout rates at the institutional level. In the South African context, extended curriculum programmes have been especially prevalent in an emerging democratic context.

Access to Higher Education Institutions (HEIs) is frequently stated as a national priority and an imperative at many research-intensive universities worldwide, including South Africa (Dhunpath & Vithal, 2014; Kelly-Laubscher et al., 2018) Yet, there are various embedded factors that influence access to education, the quality of support during education and the resultant success rates. For instance, student diversity at university has increased significantly worldwide (Barrington, 2004; Bell & Santamaría, 2018) and provides a rich resource to deepen the quality of learning experiences at university. Although often narrowly defined, in terms of race, class, ethnicity, gender, and academic level of preparation (Barrington, 2004; Scott, 2018), student diversity may also include factors such as religious orientation, mental health, personal needs, physical abilities and world views. Alongside increasing student diversity, the increase in student numbers in South Africa is also evident, especially since 1994, with the dawning of the new democracy (Engelbrecht et al., 2009; Matsolo et al., 2018). However, increases in student numbers have not been paralleled by increases in academic staff, thereby compounding the pressures to support student success.

According to Dube et al.(2022) the growing student numbers and enriching diversity at HEIs can partially be attributed to new policy frameworks after 1994, which aimed to enhance access to tertiary education. ECPs have also been implemented in tandem with financial mechanisms such as the establishment of the National Student Financial Aid Scheme (NSFAS) to support students from disadvantaged backgrounds Dube et al. (2022).
However, despite significant expansions of enrolment, including female students , the participation rate in South Africa remains relatively low in comparison with industrialised European countries such as Germany (Scott, 2016). When students enter a tertiary institution, the excitement of university acceptance is often short-lived since the challenges are overwhelming for many of them, resulting in many students dropping out in their first year of study (Moodley & Singh, 2015). According to Scott (2016), students' performance stays alarmingly poor over time, since fewer than 30% of contact students graduate in a regular time. Standard completion time is the minimum time that is required for a student to complete a degree programme and is indicated as n years. About 55% of contact students do graduate within n+2 years. Nearly 50% of the total entrants do not graduate within 10 years (Cloete, 2016). Despite increases in government and associated funding for HE students, high-attrition and unsustainably low graduation rates persist. This reality has distressing consequences for many students, their families and the capacity of HEIs to meet the development needs of South Africa (Mngomezulu et al., 2017).
The attrition of students needs a more innovative and strategic approach

to address the challenge (Moodley & Singh, 2015). According to Bagonza & Kaahwa (2023) another approach to address the challenge of student attrition is high-quality academic programmes. Such programmes need to focus on student retention, graduate destinations and employability after receiving their academic qualification (Bagonza & Kaahwa, 2023).

South African HE is afflicted by the legacies of Apartheid, particularly with regard to throughput and completion rates (Council on Higher Education, 2013). Race, class and gender can be regarded as major issues of social injustices in the global knowledge economy (Wilson-Strydom, 2015). According to Joynt (2023) other significant predictors to student success include prior knowledge, academic aptitude and mathematical ability, as well as personal attributes such as determination and self-efficacy.

Although other stress factors such as financial difficulties and accommodation challenges contribute to student attrition, Gerber (2012) also considers proficiency in the medium of instruction, which in the South African context is mostly English. Since English, in many cases, is the students' second or third language, it challenges their reading and processing skills (Barrett et al., 2012; Gerber, 2012). Even native English speakers have different levels of English proficiency (Beal et al., 2010). Although the challenges of low performance and high attrition are not unique to South Africa, the improvement of success and completion rates must be recognised as essential for the HE landscape and the economic and social well-being of South Africans (Scott, 2016).

In response to these challenges, HEIs in South Africa began introducing Academic Development Programmes (ADPs) to address the challenge of low performance and high attrition. During the early years of democracy, most tertiary institutions started to offer access programmes in science, as part of their academic courses (Engelbrecht & Harding, 2015). Collectively, the access programmes are called ADPs, which can be categorised as either foundation, extended or augmented programmes, or a combination of the three in accordance with the Department of Higher Education and Training (DHET) requirements for its design. According to Engelbrecht et al. (2014), the foundation modules of an ECP of the first academic year of the BSc degree, for instance, are typically distributed over two years. The additional time is used for skill development and academic support. The foundation programme consists of a one-year programme in which students receive academic literacy and science preparation for the BSc programme that begins the following year. For the augmented model, students receive extra tutorials and practical sessions that extend the programme over two year (Engelbrecht et al., 2014).

Unfortunately, the ADPs are costly and labour intensive, requiring input by a specialist teacher. The lecturers must also be experts in their different academic fields (Potgieter et al., 2015). The evolution of ADPs in HEIs became increasingly important in the South African tertiary education over the past three decades. Most South African universities now offer access programmes in some format.

According to Scott (2016), the extended curriculum programmes carry a transformation responsibility. This includes support services to meet the students' performance challenges. The support includes both academic and psychosocial services. The establishment of academic support and later academic development are usually adopted to address racial inequalities and aim to advance equity of access as well as fairness of outcomes for students regardless of their background Scott (2016).

While students have been graduating through extended curriculum programmes, it is, however, challenging to ascertain the factors that contribute to their academic success. There are a multitude and complexity of variables that may impact success.

The institution selected for the current study introduced an ECP in Natural and Agricultural Sciences on one of its campuses. Although the programme was initially called the BSc-four-year-programme, it was later changed to the ECP. The extended programme consists of the following three distinctive streams:

- BSc in Mathematical Sciences (BMAT)
- BSc in Biological and Agricultural Sciences (BBIO)
- BSc in Physical Sciences (BPHY)

After initial implementation, the ECP was later expanded to include Economics and Management Sciences.
This study aims out to investigate student success in the ECP in relation to specific domains. Several historical models were investigated to understand the challenges experienced by HEIs and prospective students through the years. Some of the models included:

- The undergraduate dropout process model (Spady, 1970, 1971)
- The institutional departure model (Tinto, 1975, 1993)
- The student attrition model (Bean, 1980, 1982)
- The student-faculty informal contact model (Pascarella, 1980)
- The non-traditional undergraduate student attrition model (Bean & Metzner, 1985)
- The student retention integrated model (Cabrera et al., 1993)
- The student involvement theory (Astin, 1984)
- Adejo and Connolly's model for predicting student success (Adejo & Connolly, 2017)

For purposes of this study, the Adejo and Connolly model (2017) was chosen for further investigation into the factors for student success. The six domains of the Adejo and Conolly model comprises the majority of the variables that contribute to student success. The six domains are: demographic, economic, cognitive, institutional, personal needs, and psychological. Each domain is interconnected with the other domains, and each domain is regarded as contributing to the performance, success, and graduation of students (Adejo and Connolly, 2017).

In this study, the demographic domain includes variables such as the student's age, gender, ethnic origin, disability, home language, and school. The cognitive domain includes the student's Admission Point Score (APS), as well as the student's final examination (grade 12) marks, with special reference to English and Mathematics. The economic domain includes variables such as income, income distribution status, parental finances and employment status. The institutional domain incorporates the course programme for which the student enrolled, the learning environment, the institutional support, and the course workload. The personal needs domain includes the student's study habits, study time, time management, online activities, and support from academic and administrative staff. The psychological domain includes the student's self-efficacy, self-set goals, commitments and achievements, as well as the student's interests and motivation.

Rationale for the Study

The rationale for the study is to understand the domains which contribute to student success in ECPs in Natural Sciences at a tertiary institution in South Africa. After investigating several historical models concerning student success, the main reasons or factors could be summarised under the Adejo and Connolly model (2017) for predicting student success at HEIs. The current study investigates several variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains of student success. Within each domain, there may be several factors that lead to students' retention and attrition from HEIs.

Research Questions

Which variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains are related to student success in extended curriculum programmes in Natural Sciences at tertiary institutions?

Sub-questions include:

1. To what extent do the demographic, cognitive and economic domains play a role in student success?
2. Which domains play the most significant role in students' academic success?

Methods

For this study, a sequential triangulation design was adopted. Data was collected in three distinct phases: firstly, a quantitative analysis of existing data from 5,560 students during an 11–year period (2010–2020) in an ECP; secondly, a quantitative survey using a Likert-scale questionnaire that was completed by 161 students; thirdly, interviews conducted with 15 students. For Phase I, only some of the domains could be investigated from the university data. Information regarding the personal needs domain and the psychological domain could only be explored during Phase II and Phase III of the study. A questionnaire was used to gather information on student success from a larger population of students than what was possible from the interviews. Data was analysed by means of descriptive statistics and theory-driven, inductive coding. The sequential triangulation design in three phases is adopted to provide a deeper understanding of the different domains and the role each played in student success in the ECP.

Data Collection Instruments

For the first phase, a secondary analysis of existing data for each cohort of students between the years 2010 and 2020 (n=5,560) was conducted. Data were obtained from the Department of Institutional Planning (DIP) at the site of the study, where the ECP commenced in 2008. Data were collected from 2010 onwards for 11 consecutive years. Over a period of 11 years enough data could be collected to present thorough and robust information to underscore the findings. Phase 1 included analysis of demographic data such as race, gender, origin, and school background. Phase 1 also included analysis of cognitive domain aspects such as the student's performance in English and Mathematics in school, as well as the student's Admission Point Score (APS) at the point of university entrance. The economical

domain involved the student's financial position and the school quintile. In the South African context, schools are classified in terms of levels of poverty with quintile 1 schools serving the poorest of the poor, and quintile 5 schools serving the least poor students.

For the second phase of the study a Likert scale questionnaire was developed to understand to what extent the different domains contributed to student success. The questionnaire administered (n=161) consisted of 45 items. The questions were developed and revised by the three authors to ensure that the information gathered could answer the research questions. For the target audience, the questionnaires were sent randomly to students via electronic mail. The questionnaire explores the role of economic, institutional, personal needs, and psychological domains in students' performance and success in the ECP.

For the third phase, semi-structured interviews were conducted with students (n=15). The target audience were students in the ECP between the years 2010 and 2020. The students were selected randomly from the large data list. Some were still at university while others had already entered the job market. The interview questions, which were designed and developed by the three authors, were guided by information that was gathered during the two preceding phases. The primary author conducted the interviews. The purpose of the student interviews was to gather personal information which could not be gathered during phases I and II of the study. Table 1 summarises the mixed methods approach, the data collection and the domains investigated in the various phases.

Table 1: The Three Phases of the Research Design

Phase 1 Quantitative approach using historical data Secondary analysis	**Phase 2** Quantitative approach Questionnaire	**Phase 3** Qualitative approach Interviews
Domains investigated: • Demographic • Cognitive • Economic	Domains investigated: • Economic • Institutional • Personal needs • Psychological	The domains were guided by the emergent themes from Phase 2

The personal needs, psychological and institutional domains could only be investigated during Phase II and III of the research because of the nature of the content. Similarly, data from the demographic domain could only be gathered during Phase I of the study.

Data Analysis

The data analysis was done to answer the research sub-questions. The secondary analysis of the data sourced from the Department of Institutional Planning (DIP) in Phase 1 was done by using the Statistical Package for the Social Sciences (SPSS). With the available data from DIP, the demographic, cognitive and economic domains could be investigated to find valuable information to address the secondary research questions. The SPSS statistical analysis served to show patterns and draw connections between different variables. The data for the domains included the students' race, gender, academic plan or stream, school quintile, home language, final school examination (grade 12) marks for English and Mathematics, and showed how the students performed academically at the end of the first academic year in the ECP. Correlations between different variables could be drawn to get a better understanding of how some variables contributed negatively or positively to student success.

According to Rowley (2014), questionnaires are one of the most widely used means of collecting data, while Radhakrishna (2007) states that questionnaires help to gather, among other things, information on knowledge, attitudes, behaviours, facts and opinions. So, administrating a questionnaire would be essential for the study. For purposes of gathering data through the questionnaire, students were selected randomly from the DIP data. The questions predominantly required fixed responses for easier coding of information. The respondents had to answer questions regarding facts, attitudes, behaviours, beliefs, and experiences in the economic, institutional, personal, and psychological domains.

The information gathered from the 45 questions of the questionnaire indicated the degree to which each of the four domains contributed to student success in the ECP. The information gathered from the questionnaire were used for the interviews of Phase 3.

According to Elliott and Higgins (2012), inductive enquiry means generating new theory and new understandings to identify the research problem from the participants' perspectives. So, the inductive approach

was used for the interviews since the participants' perspectives provided valuable information to address some of the research questions.

Findings

In order to understand the ways in which the variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains are related to student success in ECP in Natural Sciences, the findings are presented in terms of the initial descriptions of the demographic variables of participants in the current study. It is then considered in terms of specific domains.

The Department of Basic Education (DBE) introduced a system to classify schools in South Africa from the poorest and most vulnerable schools (Quintile 1) to the most affluent and privileged schools (Quintile 5). Since the introduction of the school quintile system, all South African public schools are classified within the quintile system (Longueira, 2016). For the purposes of capturing data in the DIP system accurately, apart from the five quintiles, quintiles 6, 7 and 8 were also captured because of the considerable number of students entering the institution from mostly privately operated schools. Quintile 6 schools write the examinations of the Independent Examination Board (IEB); Quintile 7 schools write the Cambridge examinations, and Quintile 8 schools are privately owned schools and students doing home schooling. The findings from the university data show that most students who were active in the programme at the end of the academic year were from Quintile 1 schools, which implies that the purpose of the programme was achieved. The study revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from deprived areas were equally successful as students from more affluent schools. Table 2 presents the School Quintile and Academic Programme Status. The table indicates for each quintile, the number of students who were still active in the ECP at the end of the first academic year, how many discontinued their studies, and how many were dismissed. The numbers and percentages are representative of the total number of students who enrolled for the ECP between the years 2010 to 2020.

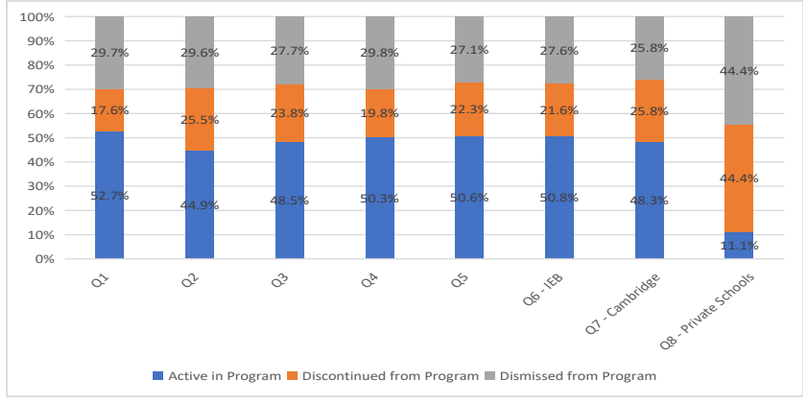
Although not statistically significant, the highest retention rate (52.7%) in the ECP is for students from Quintile 1 schools, which are students from the poorest and most vulnerable communities. Students from Quintile 4, 5 and independent schools also exhibited retention rates above 50%. Students from Quintile 5 schools, the most affluent schools, had a retention rate of 50.6%, Quintile 4 schools had 50.3% and independent schools 50.8%.

Table 2: School Quintile and Academic Programme Status

School Quintile		Active in Programme	Discontinued	Dismissed	Total
Q1	N	147	49	83	279
	% within School quintiles	52.7%	17.6%	29.7%	100.0%
Q2	N	167	95	110	372
	% within School quintiles	44.9%	25.5%	29.6%	100.0%
Q3	N	294	144	168	606
	% within School quintiles	48.5%	23.8%	27.7%	100.0%
Q4	N	312	123	185	620
	% within School quintiles	50.3%	19.8%	29.8%	100.0%
Q5	N	1130	498	604	2232
	% within School quintiles	50.6%	22.3%	27.1%	100.0%
Q6 IEB Schols	N	571	243	310	1124
	% within School quintiles	50.8%	21.6%	27.6%	100.0%
Q7 *Cambridge*	N	43	23	23	89
	% within School quintiles	48.3%	25.8%	25.8%	100.0%
Q8 Private quantiles	N	1	4	4	9
	% withinSchool quintiles	11.1%	44.4%	44.4%	100.0%
Total		**2665**	**1179**	**1487**	
		50.0%	**22.1%**	**27.9%**	

Figure 1 presents the status of the school quintile and academic programme graphically. For all quintiles, except for Quintile 8 schools, most students were active in the ECP after the first academic year.

Figure 1: School Quintile and Academic Programme Status



The university where the study was conducted uses a scoring system to determine if students are eligible for mainstream higher education or if a student must join the ECP. The scoring system is known as the Admission Points Score (APS). For the National Senior Certificate (NSC) attainment at Grade 12, the scoring system is indicated in Table 3.

Table 3: Scoring System for the National Senior Certificate

Percentage Interval for a Grade 12 Subject	Admission Point Score (APS)
80 to 100%	7
70 to 79%	6
60 to 69%	5
50 to 59%	4
40 to 49%	3
30 to 39%	2
0 to 29%	1

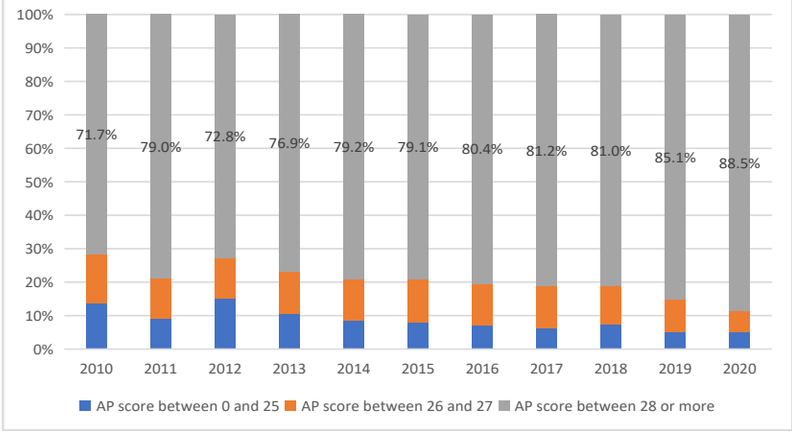
Candidates who do not comply with the minimum admission requirements of programmes in the Natural and Agricultural Sciences may be considered

for admission to the four-year ECP. The minimum admission requirements are:

- A National Senior Certificate
- Mathematics on level 5
- Physical Sciences on level 5
- English or Afrikaans on level 4
- Two other subjects on level 4
- An Admission Points Score (APS) of 32

Figure 2 below indicates that most students entering the ECP had a Grade 12 APS score of more than 28. The pattern of having a Grade 12 APS score of more than 28 increased through the years, from 71.7% in 2010 to 88.5% in 2020. The figure also indicates a decrease in student numbers with an APS lower than 28 towards 2020. It can be hypothesised that the Covid-19 pandemic and national lockdown in South Africa during the year 2020 may have had a considerable influence on matriculation results with students obtaining better Grade 12 final marks, although this notion needs empirical support. In summary, the findings suggest that the higher the student APS, the better the students' performance in the ECP. The GPA mark can be flagged as problematic for most students with a GPA lower than 65%, which was the preferred mark needed to continue successfully. More detailed findings indicate that the higher the students' Grade 12 marks were for Mathematics and English, the better their academic performance and success. In relation to continued studies, the historical data also indicated that there were 183 honours degrees, 82 masters' degrees, and four doctorates completed in subsequent years by students who completed the ECP.

Figure 2: Cohort and Grade 12 AP



Another important aspect from Phase 1 of the study dealt with performance in English and Mathematics in school. There is a strong correlation between Grade 12 Mathematics and performance in HE (Anthony, 2000; Hourigan & O'Donoghue, 2007; Korpershoek et al., 2015; Saha et al., 2024; Tewari, 2014). It can be expected that students would perform better in HE if they obtained better grade 12 marks in Mathematics and English. Table 4 cross- tabulates Grade 12 Mathematics results by percentage categories of performance and student status as being active, discontinued their studies, or having been dismissed after the first year of study in the ECP. Table 4 shows how students' Academic Program Status as active in the ECP increases between a low 29.4% and a high 55.3% as their grade 12 mark in Mathematics increases. Table 4 also shows how the number of dismissed students decreases when the grade 12 Mathematics mark increases. The only different observation is that students with a grade 12 Mathematics mark between 80 and 100% discontinue their studies the most (35.9%). The reason is not clear, but it seems that these students change their study direction before the end of the first academic year or they obtain late admission to a different study direction.

Students with a grade 12 mark between 70 and 79% for Mathematics performed the best with regard to being active in the programme at the end of the first academic year. This tendency corresponds with the number of students who were dismissed at the end of the first academic year.

Since the language of instruction is mainly English (FAL), the marks students receive for grade 12 English plays a significant role in a student's ability to read, to study, to conceptualise and to comprehend academic content (Alt et al., 2014; Barrett et al., 2012; Beal et al., 2010; Korpershoek et al., 2015; Mosqueda, 2010; Saha et al., 2024). Learners from affluent schools may choose between English Home Language (HL) and English First Additional Language (FAL) in secondary school. For many other learners there is no similar option since English is not their mother tongue and they are taught in English FAL. These learners are more likely to be exposed to African languages than to English. English is their second or third language because they speak one of the eleven native languages in South Africa. The argument can be taken further to the fact that perhaps English is poorly taught in some schools, especially the lower quintile schools. These learners lack a solid foundation in the early grades. The failing standard of basic education in South Africa has been highlighted by the Progress in International Reading Literacy Study (PIRLS) across the 2006, 2011, 2016 and 2021 cycles (Mthimkhulu et al., 2024). PIRLS reflects the reading comprehension of Grade 4 learners as tested across all eleven official languages. Table 4 indicates students' Academic Program Status at the end of the first

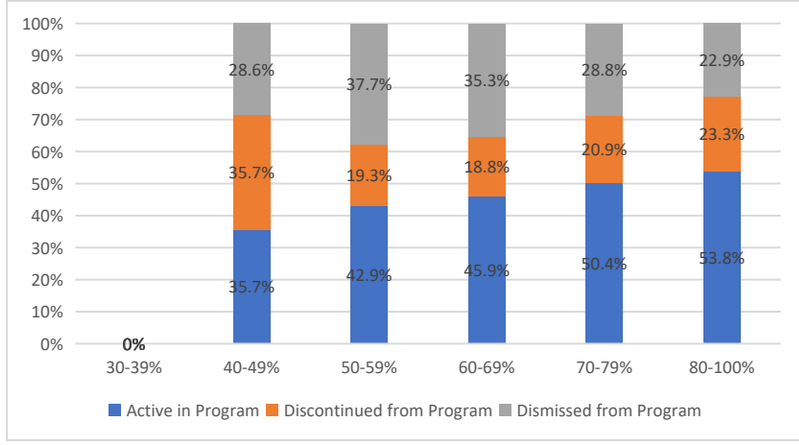
academic year in the ECP and how it corresponds to their Grade 12 marks for Mathematics.

Table 4: Grade 12 Mathematics and Academic Program Status

Grade 12 Mathematics		Academic Program Status		
		Active in Program	Discontinued	Dismissed
0-29%	N	0	0	2
	% within Grade 12 Mathematics	0.0%	0.0%	100.0%
30-39%	N	5	2	10
	% within Grade 12 Mathematics	29.4%	11.8%	58.8%
40-49%	N	73	35	140
	% within Grade 12 Mathematics	29.4%	14.1%	56.5%
50-59%	N	987	361	709
	% within Grade 12 Mathematics	48.0%	17.5%	34.5%
60-69%	N	959	403	465
	% within Grade 12 Mathematics	52.5%	22.1%	25.5%
70-79%	N	508	249	162
	% within Grade 12 Mathematics	55.3%	27.1%	17.6%
80-100%	N	174	124	47
	% within Grade 12 Mathematics	50.4%	35.9%	13.6%

English is also poorly taught in those schools where teachers also do not have English as a home language (Modisaotsile, 2012; Moses, 2023; Saha et al., 2024). Figure 3 presents Grade 12 English FAL and their Academic Program Status at the end of the first academic year and shows how students' performance in Grade 12 English First Additional Language compares to their Academic Program Status at the end of their first academic year in the ECP.

Figure 3: Grade 12 English First Additional Language and Academic Program Status



From Figure 3 it can be seen that the higher the Grade 12 English FAL mark is, the better students perform in the ECP. Students with an English FAL mark between 80% and 100% are the most successful when active in the ECP at the end of the first academic year. The percentage of students who are dismissed at the end of the academic year also decreases respectively as their English FAL mark increases.

Phase 2 focused on gathering questionnaire data on the economic, institutional, personal needs and psychological domains. The economic domain elaborated on the students' financial position when entering HE. A favourable financial position implies that the student could pay university fees and had enough money for accommodation, food, clothes, and transport. Those who did not stay in residences close to the campus needed money for transport. The results show that fewer than half of students' parents (45%) were in a financial position to pay for their children's university studies. Therefore, students relied heavily on study bursaries. Of the students who participated in the questionnaire, 61.8% believed they had enough money for daily necessities such as food, clothes, and transport. From Question 26, it seems that the financial position of students had no significant negative effect on their studies (70.8%). Therefore, it seems that

the financial situation of students was not a determining factor for success of ECP students in this study.

The institutional domain is one of the six domains of Adejo and Connolly's model (2017) that explores the reasons for students' success. The institutional domain comprises factors such as the learning environment, campus facilities, institutional support, course workload, and the structure of the course programme. In most cases, students responded overwhelmingly positively to the questions regarding their experiences of the campus. Students were mostly positive regarding communication via the use of the university online platform, the official means of communication between students, academic staff, and administration staff (96%). Students were also positive regarding the use of study guides for administrative matters and the provision of learning objectives when preparing for formative and summative assessments (96%). Students also had a positive experience regarding their lecturers and effective teaching and learning during lectures (91%). The infrastructure, lecture halls, laboratories, and library were also regarded positively by 88.6% of the students. The overall structure of the ECP on the specific university campus was regarded positively by 83.1% of the students.

The personal needs domain shows that students' accommodation was regarded as an important need, as indicated by 78.1% of the students. The fact that almost 80% of the students indicated that their accommodation fees were paid up to date may be because of the NSFAS government funds they received. Unfortunately, funds for student accommodation were not always enough and many students suffered because of insufficient funds for day-to-day living expenses. Students who did not stay in residences near the university had to travel long distances between home and campus. Only 27.6% of students claimed that their upbringing (home and school) had an undesirable effect on their readiness for HE. Almost a third of the students (30.5%) stated that they did not have enough money for books and stationery. Some students indicated that they had to study in groups with only one textbook shared among them. When preparing for summative assessments, this arrangement could potentially be detrimental to their academic success.

When students enter higher education for the first time, it can be overwhelming. Students need information regarding many aspects of their respective studies. Frequently, it is information they did not gather before entering HE. Question 2 deals with one of the important questions students usually have that relates to subject choices (78.4% of the students). More than two thirds of the students (64.4%) regarded proper study methods

and time management as important and contributing to their academic success. The lower percentage of 64.4% that relates to study methods and time management is indicative that many students had gathered at least some of this information already when they were in school, but subject choices are not well advised.

For the psychological domain, most students attributed their success to self-motivation, hard work, and diligence. Although some students felt they were initially less equipped academically, and therefore doubted their ability, they were of the view that their hard work contributed to their academic success.

In summary, when comparing all the questions of the four parts (domains), the highest average (76.6%) of the students responded positively to the items of the institutional domain. In general, students were mostly satisfied with the ECP format, the infrastructure on the campus, the help and support from lecturers and tutors, and the different forms of communication they received. For the personal needs domain, an average of 73.3% students agreed with the questions related to having enough money for accommodation, food, textbooks and stationery to achieve their goals. For the information support domain, 71.4% of students responded positively to questions related to time management, study methods, motivation, and subject choices. The economic domain seems to have the lowest level of agreement with the questions. Only an average of 59.2% students indicated having home financial support for their studies. Since they rely on study bursaries such as NSFAS, over half of the students had parents who were not in a position to pay their fees. All those students rely on study bursaries from different departments to assist them financially.

The findings from the interviews in phase 3 indicate that the psychological domain and the personal needs domain are most notable in relation to student success. The dominance of these themes was evident both in terms of the frequency with which it was discussed, and the number of sub-themes that emerged. The role of the demographic, cognitive, economic, and institutional domains occurred, but presented as more muted. Table 5 provides a summary of the key themes and sub-themes as captured from the semi-structured interviews.

Table 5: Participants' Responses to discussions on Student Success

Domain	Aspects that Could Lead to Success	Aspects that Could Lead to Being Unsuccessful
Demographic domain	• Learning experience • established in school • Family background	• Being a first-generation • student • Schools do not prepare • students properly for • Higher Education
Cognitive domain	• Hard work • Academic potential • Academic integration	• Erroneous (perceived career options • High course workload
Institutional domain	• Learning environment • Approachable lecturers • Assistance from advisors • Integration with staff and the faculty	• Erroneous (perceived) career options • High course workload
Economic domain	• Financial attitude	• Lack of financial support • Lower school quintile
• Personal needs domain	• Support from home • Consultations • Proper study methods • Study groups • Healthy relationships • Motivation from parents, lecturers, and fellow students • Healthy competition • Online activities	• Procrastination • Ineffective time management • Absenteeism
• Psychological domain	• Self-motivation • Self-efficacy • Goal setting • Self-set achievements • Expectations • Career aspirations	• Anxiety • Stress • Lack of confidence • Continuous health issues

Some students claimed the fact that they were first-generation students contributed to being unsuccessful. Furthermore, participants were of the view that the school did not prepare them well for the university.

Another crucial factor was the language-of-instruction barrier. Participants expressed the views that since English was the language of instruction at the university, and not their home language, they faced learning challenges. Although 71.4% of students reported in the questionnaires adequate time management skills, study methods, motivation, and subject choices, many interview participants indicated that they could not always manage their time effectively, which resulted in their falling behind with their course workload. The assistance from academic staff and student advisors was commendable. Students that performed satisfactorily claimed that joining study groups was helpful (peer-to-peer support); having healthy relationships as well as encouragement by parents, lecturers, and fellow students also made a positive contribution.

On a psychological level, many students experienced anxiety and stress to such an elevated extent that they had to seek professional help and were taking medication. Many successful students attributed their success to self-motivation, goal setting, self-set achievements and career aspirations and expectations.

Discussion

In the study, domains of student success were investigated to explain, student success in an ECP at a South African university. Initially, the assumption was that first-generation students and students from lower quintile schools may potentially be more likely to be academically unsuccessful at the university. This argument is generally assumed in the literature with special reference to academic achievement of first-generation students (Cook, 2024; Moses, 2023; Veldman et al., 2023). The investigation revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from Quintile 1 and 2 schools situated in disadvantaged areas were equally successful as students from Quintile 5 schools originating from more advantaged backgrounds .

According to Mngomezulu et al. (2017) and Van Dyk and White (2019), the economic domain plays a key role when students experience financial challenges, which may lead to discontinuation of studies. However, many students make use of governmental subsidies such as the National Student Financial Aid Scheme (NSFAS). The findings from the study indicate that for those students, the economic domain plays a less vital role in the successful completion of the programme.

Although slightly more muted, the institutional domain also played an important role for students, as it provided an environment conducive

to proper teaching and learning (Megbowon et al., 2023). The findings indicate that the ECP provided students with approachable lecturers and tutors when they needed academic help in the different learning areas. Students also received sufficient assistance from the student advisors when they experienced personal and psychological challenges.

According to Wang et al. (2023) a student's psychological well-being plays an important role when joining an HEI. Data from the interviews demonstrate that the personal needs domain and the psychological domain are the two most notable domains related to student success. The second and third phases of the study indicate that students need adequate, reliable study methods that can be applied to the different study areas. Students also need to know how to apply proper time management to their daily routines so that they do not fall behind with academic work (Ignacio, 2024; MacCann et al., 2012). Many students reported experiencing high levels of stress and anxiety to such an extent that they need professional help. According to participants, the lecturers in collaboration with the student advisors, played a significant role in assisting students with the necessary academic support they needed.

Many students attributed their academic success partly to the joining of study groups where they motivate, assist, and help each other. Peer-to-peer support is acknowledged with specific reference to motivation (Kaakinen et al., 2023). In addition, the support and motivation from parents and family also presented as supportive factors for student success (Bhagwan & Rowkith, 2023; Mohale, 2023; Wang et al., 2023). Participants indicated that self-motivation and goal setting kept students focused and gave them hope for the future when they experienced academic challenges.

Conclusion

The findings from the current study indicate how large numbers of students from across the range of quintile schools have been retained in tertiary education through the implementation of ECPs. Students who may initially be excluded from mainstream higher education are offered opportunities to gain access and complete a tertiary qualification. The findings also indicate that variables within the personal needs domain and the psychological domain may provide fruitful pivot points for support interventions to ensure student success – especially when situated within a supportive campus environment.

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Impact of Informal Human Resource Practices on Employee Outcomes in Private Tertiary Education Institutions

Sibonginkosi Saruchera and Liiza Gie

Abstract
This article examines the impact of informal human resource practices on academic turnover, performance deterioration, absenteeism, and a decline in employee development in private tertiary education institutions. It proposes a formal human resource management model for private tertiary education institutions based on a mixed-methods approach, through which the researcher concurrently collected quantitative data using a questionnaire and qualitative data using structured interviews. Combined purposive sampling and stratified sampling produced 171 academic questionnaire responses and eight human resources business partners' online interviews. The study found that career development and growth, working conditions and work-life balance, performance management and recognition, recruitment and selection, employee training and development, and remuneration contributed to the key challenges faced by private tertiary education institutions. Adopting a formal human resource management model may enhance academic performance, employee development, reduce absenteeism, and retain academic staff while improving their institutional reputation as both an employer and a preferred choice for students.

Keywords: Human resource practices, tertiary education institutions, academic turnover, performance deterioration, absenteeism, employee development.

ABOUT THE AUTHORS: Sibonginkosi Saruchera (Email: sibongimpofu@gmail.com) and Liiza Gie (Email: GieL@cput.ac.za), Cape Peninsula University of Technology.

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Résumé
Cette étude examine l'impact des pratiques informelles en matière de ressources humaines sur la rotation des enseignants, la détérioration des performances , l'absentéisme et le déclin du développementla carrière des employés dans les établissements privés d'enseignement supérieur. Elle propose un modèle formel de gestion des ressources humaines pour les établissements privés d'enseignement supérieur, basé sur une approche mixte, grâce à laquelle le chercheur a recueilli simultanément des données quantitatives à l'aide d'un questionnaire et des données qualitatives à l'aide d'entretiens structurés. L'échantillonnage raisonné et l'échantillonnage stratifié ont permis d'obtenir 171 réponses à des questionnaires universitaires et huit entretiens en ligne avec des partenaires en ressources humaines. L'étude a révélé que le développement et l'évolution de carrière, les conditions de travail et l'équilibre entre vie professionnelle et vie privée, la gestion des performances et la reconnaissance, le recrutement et la sélection, la formation et le progrès statutairedéveloppement des employés, ainsi que la rémunération ont contribué aux principaux défis auxquels sont confrontés les établissements privés d'enseignement supérieur. L'adoption d'un modèle formel de gestion des ressources humaines peut améliorer les performances académiques, le progrèsdéveloppement des employés, réduire l'absentéisme et retenir le personnel académique tout en améliorant la réputation de l'établissement en tant qu'employeur et choix préféré des étudiants.

Mots-clés : Pratiques en matière de ressources humaines ; établissements d'enseignement supérieur ; rotation du personnel académique ; détérioration des performances ; absentéisme ; développement du personnel.

Introduction

Namibia's tertiary education system comprises public and private institutions. Public institutions include the University of Namibia (UNAM), Namibia University of Technology (NUST), Vocational Training Centres (VTC), and the Namibia College of Open Learning (NAMCOL). Meanwhile, private tertiary education institutions (PTEIs) in Namibia, including the ones under study, are family-owned. Family-owned businesses are prevalent across various sectors globally, and this trend extends to educational institutions in emerging economies where privatisation is more prominent (Mustafa et al., 2018). Family ownership in such institutions may influence decision-making, governance, and sustainability strategies, though further research is needed to explore its specific impact on the education sector (Muntahanah et al., 2021). A factor of concern is human resource (HR) practices in family-owned private tertiary institutions, emphasising reliance

on informal HR practices, often leading to improper job placements, as observed by Steijvers et al., (2017).

Private institutions often adopt informal HR practices due to limited financial and administrative resources, which can hinder the establishment of formal HR systems. This is evident in smaller institutions or those in developing economies, where resource constraints prioritise operational survival over formalised HR processes (Coetzer, Kock & Wallo, 2017). The selected PTEIs in Namibia, being self-sustained, face challenges of academic turnover potentially linked to these informal practices. Accordingly, the study aims to investigate the informal HR practices triggering academic turnover and then propose a tailored formal Human Resources Management (HRM) model for PTEIs with the aim of mitigating turnover, enhancing academic performance, encouraging employee development, and reducing absenteeism.

Literature Review

Human resource practices encompass institutional activities and policies designed to enhance employees' commitment, motivation, and retention, ultimately contributing to the institution's goal achievement and competitive advantage (Maurya & Chatterjee, 2018). These practices must align with the legal requirements of the country in which the institution operates (Mathi & Malathi, 2013). Establishing documented policies, rules, and regulations is essential for formal HR practices to aid decision-making and institutional recognition (Nguyen & Bryant, 2004; Hashim et al., 2016).

Scholars like Nguyen and Bryant (2004), Hashim et al. (2016), Steijvers et al. (2017) and Dundon and Wilkinson (2018) classify HR practices as formal or informal. Informal HR practices are those HRM activities that lack formal structure, standardisation, or documentation, violate employment laws, and lack training budgets (Nguyen & Bryant, 2004; Hashim et al., 2016; Dundon & Wilkinson, 2018). Consequently, employees may not receive formal employment contracts, and performance appraisals may be used primarily for monitoring rather than for development. Additionally, training is not based on needs analysis, and owners may be unwilling to offer market-based salaries and benefits (Bassanini et al., 2013; Hashim et al., 2016).

Notably, larger institutions tend to adopt formal HR practices, while family businesses, prevalent among PTEIs, often opt for informal HR practices (Hann, 2012; Horváthová et al., 2020). The latter may result in challenges,

such as poor working conditions and work-life balance, leading to issues like absenteeism, low productivity, and employee turnover (Singh et al., 2016; Garba & Jacob, 2021).

Employee Turnover

Research indicates that the issue of employee turnover in Namibian higher education institutions (HEIs) dates back to 2010, with studies primarily focused on public universities (Deloitte, 2015; Amushila & Bussin, 2021). Specifically, there is a lack of literature on employee turnover in PTEIs in Namibia, although these institutions also face the challenge, which is evident in their annual reports. Academic turnover in Namibian HEIs has been linked to factors such as limited career growth, insufficient non-monetary incentives, traditional HR practices causing job dissatisfaction, informal performance management, limited training opportunities, job insecurity, scarce job resources, poor employee relations, low remuneration, and undervaluation (Amushila & Bussin, 2021; Naris & Ukpere, 2010; Pieters et al., 2022; Baporikar & Smith, 2019). These factors may cause stress, frustration, and anxiety (Qin et al., 2021). To address turnover, Mabaso & Dlamini (2018) suggest paying salaries based on market value, or even higher, and adopting a total reward system. Additionally, having a comprehensive employment relations policy was highlighted as crucial for enhancing HR practices related to employee relations and involvement (Meyer, 2011). It is important to note that policy helps to promote consistency in the implementation of HR practices.

Performance Deterioration

The growth and development of HEIs, including selected private tertiary education institutions (PTEIs) in Namibia, depend on employee performance (Shirbagi & Aryamanesh, 2017; Delbari et al., 2021).
Employee performance is the effort invested to complete tasks according to organisational procedures (Inuwa, 2016). Academic performance is influenced by recruitment and selection processes, which affect job compatibility and the likelihood of resignation (Lee et al., 2018). To address this, effective recruitment strategies, including sound policies, job specifications, descriptions, and equity statements, are essential (Meyer, 2011; O'Brien et al., 2016).

Performance management measures may contribute to dissatisfaction and subsequent performance deterioration and turnover, as seen in Namibian universities (Naris & Ukpere, 2010; Amushila & Bussin, 2021). HR practices in Namibian HEIs reportedly lack the capacity to address performance issues, resulting in limited skills, negative impacts on employee development and academic performance, and an absence of a

conducive learning culture (Coetzer et al., 2017; Baporikar & Smith, 2019; Barnes et al., 2021). To address these challenges, HEIs should adopt a performance appraisal system that minimizes subjectivity, prejudice, and the halo effect, identifying strengths and weaknesses while promoting consistent recognition (Saraih et al., 2017; Ramchandani & Aggarwal, 2018; Bansal et al., 2018).

Studies reveal that HEIs in Europe and South Africa also grapple with poorly implemented performance management, impacting teaching activities (Krausert, 2017; Tanveer et al., 2018). In this regard, Okeke-Uzodike and Gamede (2021) and Miller (2019) propose implementing a workload management system (WMS) that encompasses academic responsibilities, that is, administration, teaching, research, teaching and learning, research supervision, community engagement and academic citizenship, aiming to enhance performance across all areas without compromising others. It is important to note that as PTEIs work to manage workloads, there will be cost implications. Therefore, this study proposes formal HRM practices tailored to align with the commercial realities of PTEIs, ensuring both effectiveness and financial sustainability.

Absenteeism

Absenteeism has a negative effect on organisational performance, organisational costs, and employee productivity (Onikoyi et al., 2015; Singh et al., 2016). The research conducted by Kamati (2020) at a Namibian higher education institution that had a 28% rate of absenteeism from 2014 to 2016 noted the causes of absenteeism as job stress, inequalities in rewards, problems with relocation issues and employee personal problems. It can also be a result of employee dissatisfaction that can be caused by the informal implementation of the HR practice for employee relations and involvement (Samwel, 2018; Tewari & Kumar, 2019). Furthermore, the academics in HEIs in Namibia were experiencing job stress because of the institutional demands, and this has resulted in absenteeism and a high rate of turnover in these institutions (Kamati, 2020; Simushi, 2020). Given this, it is important for PTEIs to have effective wellness programmes, as suggested by Helvaci et al., (2017), to combat absenteeism. Research indicates that while absenteeism has been extensively studied in higher education institutions, there is limited focus on private tertiary institutions.

Employee Development

Employee development can be conducted in a formal setting or 'on-the-job' (Tam & Gray, 2016). Employee development methods include formal education, 'on-the-job' training and experience, professional relationships, assessment of personality, skills and abilities that help employees' professional growth and self-directed learning (Dachner et al., 2019). Even though employee development is imperative in the workplace, some public and private institutions experience problems in fostering employee development (Coetzer et al., 2017). Employee development in HEIs has been hindered by individual, departmental, institutional and external challenges (Barnes et al., 2021). However, this study focuses on institutional and departmental HR practices. Departmental HR practices include workload allocation, role transition and understaffing, career management policies and support systems, performance review and feedback, financial resources and role conflict, lack of a learning culture (Barnes et al., 2021), lack of knowledge needed to facilitate learning and development and proper feedback structures (Coetzer et al., 2017). Consequently, there will be talent stagnation and limited opportunities for promotion, leading to attrition in PTEIs (Azeez, 2017). It is important to note that the obstacles hindering employee development in the literatures cited are not in the Namibia context. This study, therefore, focuses on the obstacles hindering employee development within the context of selected PTEIs, specifically in Namibia.

Methods

This study adopted mixed methods research (convergent parallel design) that integrated both quantitative and qualitative data. The convergent parallel design aims to compare the statistical results with the qualitative findings for validation purposes (Shoonenboom & Johnson, 2017), and to consolidate interrelated results from both methods, thus giving a complete understanding of the phenomenon (Creswell & Clark, 2011). It assists in improving the quality of the study as it blends the different advantages and non-overlapping disadvantages of the quantitative method with those of the qualitative method (Patton, 1990, cited by Creswell & Clark, 2011).

Furthermore, the study used structural equation modelling (SEM) to verify the HR practices that have a direct or indirect relationship with employee turnover, absenteeism, employee development and performance deterioration.

The study employed a mixed-methods approach, utilising a survey questionnaire and structured interviews to collect data from participants in three selected private tertiary education institutions (PTEIs). The questionnaire, based on Labaw's framework (1980) as cited by Gendall (1998), consisted of two sections: one gathering demographic information and the other exploring HR practices through closed-ended questions on a 4-point Likert scale and open-ended questions for participant reflections. Distribution was done online using SurveyMonkey; the target sample was

176. Of these, 171 questionnaires were completed, representing a 95.5% response rate. The three PTEIs contributed different proportions of responses: PTEI-1 contributed 103 (60,23%), PTEI-2 contributed (14.04%), and PTEI-3 contributed 44 (25.73%) completed questionnaires. The number of completed questionnaires was determined by the number of academic staff in a PTEI. The sample size was guided by the Krejcie and Morgan (1970) table while adopting the purposive sampling method.

The study identified a prevalence of generations X and Y (92.4%) among academic staff. Most had Master's degrees (42.1%), while 9.94% held Doctoral degrees, making this qualification unique in the selected PTEIs.

Structured interviews were conducted to complement the survey data and provide deeper insights into HR practices. These interviews were designed to maintain consistency in questioning (Stuckey, 2013), using an interview guide aligned with the research objectives and literature review. Interviews were conducted via the Zoom platform based on the availability of participants from the three PTEIs. Most of the interviewees were from PTEI-1, with a representation of four interviewees, whereas PTEI-2 and PTEI-3 had a representation of two interviewees each. Among the interviewees holding HR positions in these institutions, only 12.5% do not have HR qualifications, indicating a highly qualified HR workforce within these institutions.

Cronbach's alpha coefficient was used to assess the reliability of the questionnaire. The results indicated strong reliability for most HR domains:

- Performance management and recognition ($\alpha = 0.724$),
- Working conditions and work-life balance ($\alpha = 0.844$),
- Career development and growth ($\alpha = 0.707$),
- Employee relations and involvement ($\alpha = 0.842$), and
- Absenteeism ($\alpha = 0.844$).

However, the remuneration domain had a lower reliability score ($\alpha = 0.5097$), thus suggesting that the questions in this domain may not have adequately captured the relationship between remuneration and employee turnover. Internal consistency was also checked by comparing responses to ensure that they were consistent across different participants, as recommended by Saunders et al., (2007).

The study adopted Guba's construct for trustworthiness to ensure the validity of qualitative data. First, to ensure credibility, member checking was conducted. After the interviews, summaries were shared with the participants to verify the accuracy of the captured data. Second, for

transferability, detailed descriptions of the research context, participants, and findings were provided to allow readers to judge the applicability of the results to other settings. Third, for dependability, an audit trail was maintained, documenting all the research steps, from data collection to analysis. This audit trail includes notes on decisions made during the research process, changes in the research plan, and reflections on the data. Lastly, to ensure confirmability, researcher bias was minimised through triangulation (Shenton, 2004; Stahl & King, 2020).

Quantitative data were analysed using STATA version 17, while qualitative data were processed and coded using ATLAS. ti 22. This combination of tools enabled a robust analysis of both data types, thereby ensuring that the findings reflected a comprehensive understanding of informal HR practices and their impact on key employee outcomes.

Results

This section presents both qualitative and quantitative findings. The quantitative results will include descriptive summaries, factor loadings, and reliability coefficients of various HR practices, such as performance management and recognition, career development and growth, working conditions and work-life balance, labour relations and involvement, and remuneration (Table 1). These results will also identify the HR practices that predict performance deterioration, employee development, absenteeism, and employee turnover. In contrast, the qualitative results will provide narrative insights related to these HR practices.

The findings, as presented in Table 1, reveal significant issues in the implementation of performance management and recognition practices within private tertiary education institutions (PTEIs). To analyse participants responses, the category, “disagree was determined by combining the percentages of participants who selected “strongly disagree” and “disagree.” Similarly, the “agreed” category was calculated by summing up the percentages of participants who chose “strongly agree” and agree”. Most participants (71.3%) disagreed that their PTEIs have a formal policy to ensure the equitable distribution of academic workload, and 78.9% felt that they do not receive adequate recognition for good work performance. Additionally, 66.7% of respondents believed that their PTEIs do not value their employees. Despite these challenges, 62.6% and 73.1% of respondents acknowledged the existence of a performance management policy and the provision of training for evaluators and employees, respectively.

Table 1: Descriptive Statistics, Factor Loadings, and Reliability of Performance Management and Recognition Items

Performance management and recognition	Strongly disagree (%)	Dis-agree (%)	Agree (%)	Strongly agree (%)	Median (IQR)	Factor loading	Cron-bach's Alpha
The institution has a formal policy on academic workload to ensure equitable distribution of academic activities amongst lecturers.	24.56	46.78	22.81	5.85	2(3-3)	0.853	0.591
The institution has a performance management policy.	7.6	29.82	43.86	18.71	2(2-2)	0.712	0.635
The institution provides training for evaluators and employees.	8.77	18.13	70.18	2.92	3(2-3)	0.288	0.755
Employees receive recognition for good work performance.	16.37	62.57	16.96	4.09	2(2-2)	0.324	0.734
The institution values its employees.	14.04	52.63	33.33	0	2(2-3)	0751	0.644
Employees are provided with all the job resources that are required to complete their work.	5.26	38.01	49.71	7.02	3(2-3)	0441	0.719

Source: Authors' compilation

Qualitative data supports these quantitative findings, indicating that HR practices for performance management and recognition are not effectively fulfilling their purpose of enhancing employee performance and satisfaction. Seven out of eight interviewees highlighted inconsistencies in the recognition system, with one respondent noting that monetary rewards were discontinued due to financial strain following COVID-19.

Additionally, the data reveal that performance management practices in these PTEIs are often driven by external or administrative motives rather than a genuine commitment to enhancing employee performance. Six out of eight respondents indicated that appraisals were primarily used for promotions or to meet regulatory requirements, such as those set by the Namibia Qualifications Authority (NQA). For instance, Respondent 2 noted, *"Since last year, we have started performance appraisals for promotions. In previous years, we used them to award bonuses to those who earned 65%, but now the university is undergoing a financial crisis, and bonuses are no longer available." Similarly, Respondent 6 stated, "Performance management is a requirement for NQA, so it is supposed to be done every year," while Respondent 8 confirmed, "Since I have been in this office,performance appraisals are filed to meet the requirements for the NQA."*

Furthermore, all respondents agreed that the current performance appraisal system lacks a clear methodology, further diminishing its effectiveness. Although the system is implemented annually, inconsistencies in its execution and structure were evident across responses. Respondent 1 explained, "We have a performance management system which we use yearly. The supervisors manage this, and the performance appraisals come to the HR department in September–October. The supervisor is the only one that appraises the staff." Similarly, Respondent 5 noted, "*We have a performance tool, and it applies to everyone. Lecturers are evaluated by their supervisors in their departments based on their performance as per their job description every year in November." However, a contrasting approach was described by Respondent 8, who stated, "We usually do that every end of November each year, where the students appraise employees, [through an] appraisal committee that consists of the supervisor and a quality assurance officer.*"

The existing HR practices for performance management and recognition are contributing to a decline in employee motivation and job satisfaction, leading to performance deterioration within the PTEIs. This is due to lack of a feedback mechanism, poor recognition and rewards systems, and an unclear appraisal process, highlighting the need for formal HR practices.

Table 2: Descriptive Statistics, Factor Loadings, and Reliability of Career Development and Growth Items

Career development and growth	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	Median (IQR)	Factor loading	Cronbach's Alpha
The institution applies a career development policy that enables employees' career growth.	14.04	57.31	21.05	7.6	2(2-3)	0.504	0.674
The career progression pathway is clear within the institution.	30.99	45.03	15.2	8.77	2(1-2)	0.395	0.689
The institution provides a policy for promotion.	9.36	52.63	32.75	5.26	2(2-3)	0.522	0.679
The institution rewards additional qualifications.	53.22	36.84	8.19	1.75	1(1-2)	0.325	0.711
The institution sponsors its employees for formal learning and development.	14.62	50.29	31.58	3.51	2(2-3)	0.715	0.636
The institution has a training and development policy that promotes employee development.	24.56	50.29	16.37	8.77	2(2-3)	0.616	0.646
The institution has a learning culture.	2.92	30.99	61.4	4.68	3(2-3)	0.381	0.698
I am not motivated to learn.	11.11	66.67	21.64	0.58	2(2-2)	0.071	0.741

Source: Authors' compilation

The findings, as presented in Table 2, reveal gaps in the career development and growth policies within the selected private tertiary education institutions. To analyse respondents responses, the category, "disagree" was determined by combining the percentages of participants who selected "strongly disagree" and "disagree." Similarly, the "agreed" category was calculated by summing up the percentages of respondents who chose "strongly agree" and agree". Respondents expressed dissatisfaction with the existing career development and growth HR practices. They highlighted the lack of clear pathways for career progression, inadequate promotion policies, and insufficient support for formal learning and development. Specifically, 71.4% of respondents disagreed that their private tertiary education institutions (PTEIs) have a career development policy that fosters career growth, and 76.02% felt that career progression pathways are unclear. Additionally, 90.1% strongly disagreed that their PTEI rewards employees for obtaining additional qualifications, indicating a widespread perception that their professional development efforts are not valued.

Despite these challenges qualitative data offered a deeper and more detailed perspective, showing that some PTEIs do offer supports such as study assistance for qualifications provided by the institution and in-house training aligned with current industry trends. For instance, PTEI-2 and PTEI-3 offer full financial support for relevant qualifications, while PTEI-1 requires academics to pay 40% of the costs. Moreover, some respondents indicate that there are opportunities for lecturers to publish in institutional journals and attend conferences, although often without financial sponsorship.

These responses indicates that while some efforts are made to support career development, these initiatives are limited and may not fully meet the needs or expectations of academics. For example, is 42.1% of the sample population who have acquired masters and doctorate degrees will not benefit from this career development and growth policy.

The findings presented in Table 3 highlight challenges faced by academics in private tertiary education institutions (PTEIs) regarding work-life balance, job security, and workload. To analyse respondents responses, the category "disagree" was determined by combining the percentages of participants who selected "strongly disagree" and "disagree." Similarly, the "agreed" category was calculated by summing the percentages of respondents who chose "strongly agree" and "agree".

Table 3: Descriptive Statistics, Factor Loadings, and Reliability for the Working Conditions and Work-life Balance Items

Working Conditions and Work-life Balance	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	Median (IQR)	Factor loading	Cronbach's Alpha
To meet my job requirements, I often work longer hours than stated in my contract of employment.	1.75	12.28	52.05	33.92	3(3-4)	0.819	0.802
I frequently work during weekends to complete my weekly tasks.	5.26	9.36	61.4	23.98	3(3-3)	0.611	0.833
My job does not negatively impact my family life.	23.39	45.61	12.28	18.71	2(2-3)	0.386	0.856
The institution cares about its employee welfare.	9.36	45.61	42.11	2.92	2(2-3)	0.631	0.826
I can accrue leave days and use them when there is a need.	9.94	70.76	16.96	2.34	2(2-2)	0.613	0.828
Employees are provided with assistance on work-related issues.	5.26	14.62	78.36	1.75	3(3-3)	0.692	0.822

Source: Authors' compilation

The majority of respondents (85.97%) reported working longer hours than stipulated in their employment contracts, and 85.4% frequently work on weekends to complete their tasks. This excessive workload, combined with insufficient support for balancing work and personal life, is further evidenced by the fact that 69% of respondents acknowledged a negative impact on their family life. Additionally, 55% of respondents felt that their PTEIs do not adequately care for employee welfare, and 80.7% disagreed

that they could accrue and use leave days when needed, thereby exacerbating the strain on academics' well-being.

The qualitative data supports these findings, with interviewees emphasising a lack of job security as a key reason for staff turnover among expatriate employees who face uncertainty regarding contract renewals. Six out of eight respondents specifically pointed to job insecurity as a critical concern, noting that all lecturers are employed on fixed five-year contracts with no pathway to permanent employment. As Respondent 1 explained, "The lecturers are leaving our institutions for better opportunities and job security. Everyone is employed on a 5-year contract no one is permanent." This concern was echoed by Respondent 8, who added, "There is no job security, especially for expatriates, as renewal of the contract is based on the non-availability of a Namibian with the same qualification.

Moreover, a heavy workload was cited by five out of eight respondents as a significant factor leading to staff turnover and absenteeism, as it hinders their ability to meet professional development goals.
Restrictive leave policies emerged as an HR practice contributing to absenteeism. The allocation of only five leave days during the year, coupled with a 19-day break at the end of the year, was seen as insufficient by academics, leading to their frequent use of sick leave to cope with the demands of their workload.

The findings in Table 4 indicate a generally positive outlook on certain aspects of labour relations within private tertiary education institutions. To analyse respondents' responses, the category, "disagree" was determined by combining the percentages of participants who selected "strongly disagree" and "disagree." Similarly, the "agreed" category was calculated by summing the percentages of respondents who chose "strongly agree" and "agree". Most of the respondents acknowledged good working relations (56.1%), the presence of written procedures for managing disciplinary cases (60.8%), and grievance resolution (64.9%). Additionally, 87.1% agreed that employees receive written job descriptions at the start of their employment, and 52.6% concurred with the performance objectives set by management.

Table 4: Descriptive Statistics, Factor Loadings, and Reliability for Labour Relations and Involvements Items

Employee relations and involvement	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	Median (IQR)	Factor loading	Cronbach's Alpha
Generally, employees enjoy good working relations within the institution.	9.94	33.92	53.8	2.34	3(2-3)	0.206	0.783
The institution has a written procedure for managing disciplinary cases.	1.75	37.43	43.86	16.96	3(2-3)	0.748	0.687
The institution has a written procedure for resolving grievances.	5.85	29.24	55.56	9.36	3(2-3)	0.664	0.714
The performance evaluation is fair and consistent.	12.87	53.8	29.82	3.51	2(23)	0.742	0.677
Top management communicates the vision, mission and values of the institution to employees.	14.04	49.71	31.58	4.68	2(2-3)	0.487	0.737
Employees agree on performance objectives set by management.	9.36	38.01	43.27	9.36	3(2-3)	0.592	0.715
Employees are given written job descriptions on the commencement of employment.	4.68	8.19	81.29	5.85	3(3-3)	0.117	0.791

Source: Authors' compilation

However, the qualitative data reveals significant gaps in the implementation of HR practices, particularly in the monitoring and management of absenteeism. At PTEI-1, the reliance on Sage payroll software, which only tracks authorized leave, leaves the institution without an effective mechanism to monitor unauthorized absenteeism. In contrast, PTEI-2 and PTEI-3 employ a manual logging system where staff sign in and out, but this method lacks the robustness and accuracy of more advanced technological solutions, as indicated by some respondents:

> We have a Sage payroll where we note all the leave taken through their supervisors. (Respondent 1).
> Lecturers clock in when they arrive showing the time of arrival and clock out when leaving showing the time they left. (Respondent 5).
> Signing in of all lecturers when they come to work and sign out when leaving. (Respondent 7).

Furthermore, PTEI-3 has taken an additional step by employing a quality assurance officer to physically monitor lecturer attendance in classrooms, demonstrating a more proactive approach to ensuring adherence to schedules leading to micro-management: "We have employed a quality assurance officer who conducts a physical check of attendance of lecturers for classes." (Respondent 8)

Despite these efforts, none of the institutions had a formal absenteeism policy in place at the time of the study, and 50% of the interviewees highlighted the reliance on manual systems, which are prone to errors and inefficiencies.

These findings reflect the need for PTEIs to develop and implement formal HR practices for management of absenteeism. Without such improvements, the institutions may struggle to maintain consistent labour relations, potentially impacting employee satisfaction and leading to turnover, performance deterioration and absenteeism.

Recruitment and Selection

The aim of examining the recruitment and selection HR practices in PTEIs was to understand their methods for attracting and screening qualified individuals since recruitment impacts employee turnover. This data helped to determine the impact of these practices on the challenges faced by selected private tertiary education institutions. The data collected revealed a range of HR practices related to recruitment and selection. These practices

include advertising job openings on their websites, noticeboards, and newspapers, and conducting interviews and induction processes, which all the respondents consistently highlighted. Especially, PTEI-1 is the only institution that includes a non-discrimination disclosure in its job advertisements.

However, the findings indicated that PTEI-2 and PTEI-3 HR practitioners use "headhunting" as a recruitment method, as reflected by 4 out of 8 respondents. This approach is typically adopted when there is limited time to follow formal recruitment procedures, resulting in deviations from established policies. As Respondent 5 noted, *"There are times when we do headhunting due to limited time. Sometimes we do not interview the candidates—they just start work immediately." Similarly, Respondent 7 stated, "There are times when we do headhunting, and we need to fill the position immediately, and the recruitment and selection process is ignored."*

The data from the selected PTEIs exposed various positive HR practices associated with recruitment and selection. However, the data indicated that PTEI-2 and PTEI-3 HR staff use "headhunting" as a recruitment method. PTEI-1 included the non-discrimination disclosure in its job advertisements. These facts showed that the selected PTEIs implement informal recruitment and selection HR practices.

The findings presented in Table 5 indicate a dissatisfaction with the compensation and benefits offered by private tertiary education institutions, which has implications for employee retention, performance, absenteeism and employee development. To analyse respondents responses, the category, "disagree" was determined by combining the percentages of participants who selected "strongly disagree" and "disagree." Similarly, the "agreed" category was calculated by summing the percentages of respondents who chose "strongly agree" and "agree". Most of the respondents (82.5%) disagreed that they were fairly rewarded compared to similar jobs outside their institutions, and 77.2% noted the absence of fringe benefits such as housing or transport allowances. Furthermore, 85.8% of respondents reported that their institutions do not participate in annual salary negotiations, suggesting a lack of engagement with employees on issues of compensation.

Table 5: Descriptive Statistics, Factor Loadings, and Reliability of the Remuneration's Items

Remuneration	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	Median (IQR)	Factor loading	Cronbach's Alpha
I am fairly rewarded compared to similar jobs outside my organisation.	36.26	46.2	16.37	1.17	2(1-2)	0.271	0.537
The institution provides fringe benefits (housing allowances, transport allowances)	30.99	46.2	22.81	0	2(1-2)	0.395	0.511
Salaries are always paid on time.	10.53	25.15	38.01	26.32	3(2-4)	0.679	0.252
The institution participates in annual salary negotiations with employees.	28.65	56.14	12.87	2.34	2(1-2)	0.397	0.461
Salaries are paid during the vacation period.	2.34	11.11	65.5	21.05	3(3-3_	0.401	0.461

Source: Authors' compilation

Qualitative data corroborates these findings by showing that low salaries are a major driver of turnover among academic staff. Many academics are compelled to supplement their income by seeking part-time jobs, which not only contribute to absenteeism but also lead to fatigue, stress, and a decline in job performance. Six out of eight respondents explicitly mentioned that the low remuneration offered by PTEIs pushes academic staff to leave for better-paying jobs, particularly in public universities where salaries are higher.

These findings suggest the need for selected private tertiary education institutions to review their compensation practices. Without such changes, selected private tertiary education institutions risk increasing employee turnover, performance deterioration, absenteeism, and a decline in employee development.

Table 6: HR Practices That Cause Performance Deterioration, Employee Development, Gaps, Absenteeism and Employee Turnover

Outcome variables	Predictors	Coefficient (95%CI)	P-value
Performance deterioration	Performance management and recognition	0.003(-0.009 to 0.016)	0.547
	Career development and growth	-0.028(-0.069 to 0.011)	0.164
	Remuneration	0.002(-0.006 to 0.011)	0.602
	Working conditions and work-life balance	-0.005(-0.016 to 0.006)	0.366
	Employee relations and involvement	0.002(-0.014 to 0.017)	0.851
Employee development	Performance management and recognition	0.133(0.088 to 0.178)	<0.001***
	Career development and growth	0.215(0.068 to 0.362)	0.004***
	Remuneration	0.005(-0.024 to 0.038)	0.72
	Working conditions and work-life balance	0.097(0.057 to 0.137)	<0.001***
	Employee relations and involvement	0.053(-0.004 t0 0.110)	0.071
Absenteeism	Performance management and recognition	0.361(0.211 to 0.512)	<0.001***
	Career development and growth	1.676(1.186 to 2.167)	<0.001***
	Remuneration	-0.023(-0.127 to 0.069)	0.562
	Working conditions and work-life balance	0.173(0.039 to 0.307)	0.012**
	Employee relations and involvement	-0.273(-0.464 to-0.082)	0.005***
Employee turnover	Absenteeism	0.005(-0.009 to 0.02	0.453
	Performance deterioration	0.239(0.096 to 0.384)	0.001***
	Employee development	-0.006(-0.051 to 0.039)	0.794
	Performance management and recognition	0.004(-0.01 to 0.019)	0.547
	Career development and growth	-0.012(-0.056 to 0.033)	0.600
	Remuneration	0.003(-0.005 to 0.012)	0.431
	Working conditions and work-life balance	0.014(0.003 to 0.025)	0.012**
	Employee relations and involvement	-0.001(-0.012 to 0.015)	0.991
	Job satisfaction	-0.375(-0.723 to-0.027)	0.043**

Source: Authors' compilation

As indicated in Table 6, no factors were significantly associated with performance deterioration since all the predictors were not significant, with a p-value>0.05. However, the qualitative findings revealed that the HR practice for performance management contributed to performance deterioration in the participating PTEIs. Respondents mentioned practices such as lack of feedback mechanism and performance appraisal method, poor recognition and rewards system, and lack of motivation.

The predictors of employee development in selected Windhoek PTEIs were identified in Table 6 as performance management and recognition with a p-value of 0,001, career development and growth with a p-value of 0,004, working conditions and work-life balance with a p-value of 0,001. In this regard, the results showed that there was informal implementation of the HR practices of working conditions and WLB but that it was linked to work policies that were not promoting employee development. The findings also show that formal mentoring was only implemented for Namibians with limited experience. Areas of employee development were determined by trending skills in the environment and suggestions from academic staff. The HR practice for leadership was also hindering employee development in these selected Windhoek PTEIs because of lack of financial resources and commitment from the PTEIs. Furthermore, employee development in these PTEIs was limited to face-to-face facilitation conducted by peers.

According to the findings, presented on Table 6 the factors contributing to absenteeism in selected Windhoek PTEIs were: performance management and recognition with a p-value of 0,001, working conditions and WLB with a p-value of 0,012, employee relations and involvement with a p-value of 0,005, career development and growth with a p-value of 0,001. Quantitative and qualitative findings converged on the results of job dissatisfaction, employee relations, working conditions and work-life balance. Hence, other HR practices included were significantly represented either in qualitative or quantitative findings. Additionally, the qualitative findings revealed that the participating PTEIs lacked an effective formal monitoring system for absenteeism.

According to the data in Table 6, academic turnover in selected private tertiary education institutions was triggered by performance deterioration with a p-value of 0.001, working conditions and work-life balance with a p-value of 0.012, job satisfaction with a p-value of 0,043, remuneration (low salaries) was indicated by 73% of the respondents. Recruitment and selection practices were highlighted by 50% (4 out of 8) of the interviewees, with specific mention of methods such as headhunting and the inclusion of non-discrimination disclosures in job advertisements. Headhunting was

noted as a strategy used by some institutions to quickly fill positions, often bypassing formal selection procedures. Meanwhile, non-discrimination disclosures, although less common, reflect a commitment to equity and diversity in hiring practices, particularly in one institution that adheres to the Affirmative Action Act. The results of the working conditions and work-life HR practices (excessive workload and job security) obtained from the quantitative findings converge with the qualitative findings. The other HR practices were significantly represented either in qualitative or quantitative findings.

Discussion: Formal HRM Practices Model for Private Tertiary Education Institutions

This study aimed to propose a formal HRM practices model that PTEIs could adopt to improve employee retention. Therefore, the model used findings generated from quantitative and qualitative analysis, as suggested by Shafique and Mahmood (2010). It is worth emphasising that most of these perceptions and experiences aligned with the quantitative analysis. This model will assist these institutions in comprehending why the HR practices they are currently implementing fail to yield positive outcomes – an intervention that is needed and the tentative outcome.

The formal HRM practices model from this study (Figure 1) was based on the systems theory model that comprises three phases: inputs, transformations, and outputs. Within this framework, the selected PTEIs in Namibia faced challenges such as academic turnover, absenteeism, performance deterioration, and a decline in employee development. These challenges stemmed from the informal implementation of HR practices. The development of a formal HRM practices model for PTEIs helped to identify the informal HR practices.

Model Presentation

First, the input phase shows the informal HR practices implemented in selected PTEIs that are currently causing academic turnover, performance deterioration, absenteeism, and reduced employee development. Second, the transformation phase outlines the interventions that PTEIs need to implement to shift from informal HR practices to formal HR practices within each specific area currently governed by informal HR practices. This will be guided by the HR strategy of these institutions. Lastly, the output phase will provide the outcomes of implementing formal HR practices in selected PTEIs.

Inputs

The input phase shows the informal HR practices implemented in selected PTEIs that have triggered employee turnover, performance deterioration, absenteeism and shunned employee development. The informal HR practices include performance management and recognition, career development and growth, working conditions and work-life balance, employee relations and involvement, recruitment and selection, and remuneration.

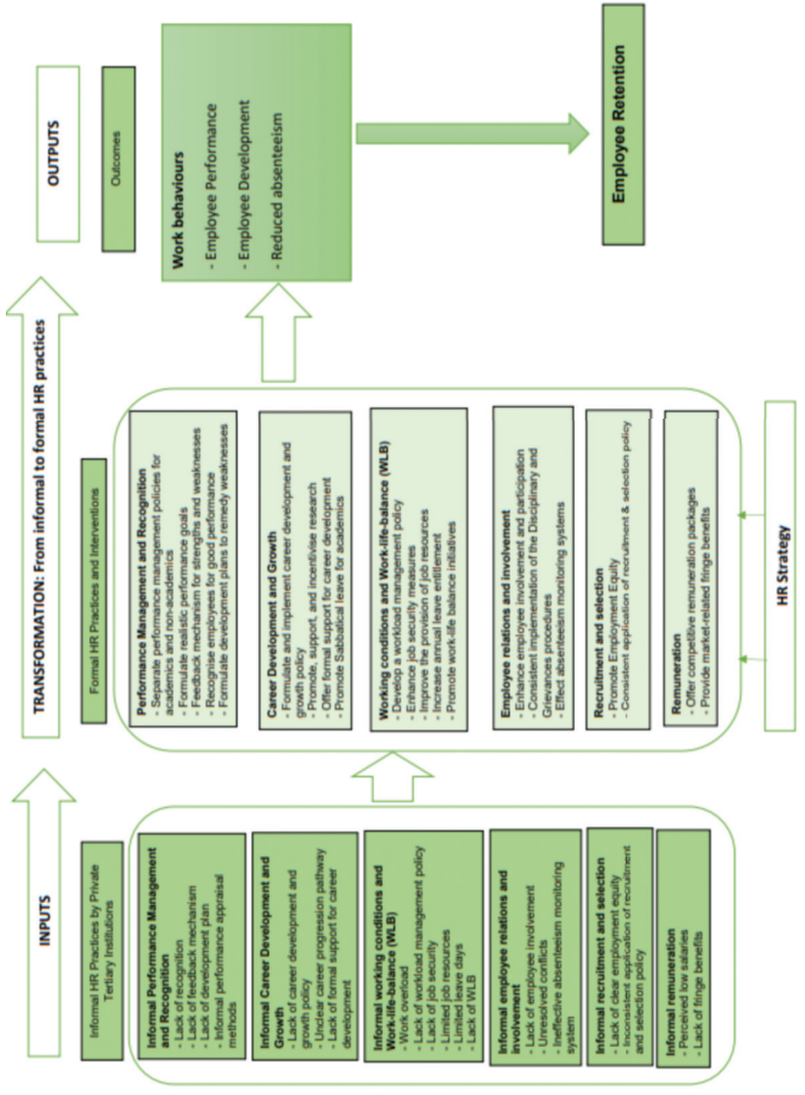
The selected PTEIs should have HR practices that support academic performance in the workplace. However, the study found that the HR practice for employee performance and recognition was causing performance deterioration, as highlighted by all the interviewees. The HR practice was informally implemented because the performance appraisal system for selected PTEIs lacked recognition as employees were not rewarded for good performance, as reflected by 78.9% of the participants and the interviewees who noted an inconsistency recognition that shows a lack of standardisation. When employees are rewarded for good performance, they are motivated to continue working hard and improving their performance (Delbari et al., 2021). Moreover, the performance appraisal system seeks to identify the strengths and weaknesses of employees (Ramchandani & Aggarwal, 2018). Academic staff need to be aware of their strengths and weaknesses. However, in selected PTEIs, the strengths and weaknesses of academic staff are not communicated to employees, thereby significantly reducing employee involvement. Given this, the appraisal system in selected PTEIs becomes ineffective, serving only as a monitoring mechanism, but not promoting and motivating employees for high performance. There is no development plan for employees to help them overcome their weaknesses, thereby leading to performance deterioration. The study results tend to agree with those of the study conducted by Amushila and Bussin (2021).

There is a performance management policy, and the academic staff are appraised annually. However, selected PTEIs do not have a clear appraisal system, as this affects the impact of the HR practice on employee performance and recognition, resulting in employee performance deterioration. Performance deterioration increases the likelihood of the employees leaving the selected PTEIs (Le, 2020). This was supported at 1% with a p-value of 0.001, suggesting that when an employee's performance deteriorates, there is a high chance of the staff leaving the PTEIs, thus resulting in employee turnover. On the other hand, the informal HR practice of performance management and recognition also has a negative impact on absenteeism as it was supported at 1% with a p-value of 0.001, implying that when employees perceive informal performance management and

recognition practices, they are more likely to absent themselves from duty. Employee development was supported at 1% with a p-value of 0.001, indicating that when employees perceive effective informal performance management practices and receive recognition for their work, it positively impacts their employee development within the organisation. In this regard, informal HR performance management yields a negative outcome, making it important to transform it into a formal HR practice.

Second, PTEIs should have a policy for employee progression and support of academic staff in their career. However, this study found that selected PTEIs have no career development policy, as reflected by 71.4% of the participants. This shows a lack of clear path of progression for academic staff, thus leading to employee turnover (Maurya & Chatterjee, 2018). Without a structured career development policy, inconsistencies in implementing this HR practice are inevitable. In addition, the selected PTEIs have limited financial resources, which prevents them from providing financial support for formal training programs or funding the publication of papers in reputable journals. They only offer financial support for formal career development conducted in their institutions, but with limited programmes. As a result, 42.1% of the respondents are unable to receive financial support for formal training. This situation may lead to talent stagnation and limited promotion opportunities for academics in PTEIs, resulting in increased attrition within these organizations (Azeez, 2017). It is of paramount importance to correct this situation, as the study also found that informal career development and growth have a negative impact on absenteeism and employee development. Absenteeism was reported at 1% with a p-value of 0.001, showing that informal career development and growth increase the likelihood of the employees being absent from duty. Employee development was supported at 1% with a p-value of 0,004, suggesting that when employees have opportunities for career development and growth, it positively influences their overall development within the institution.

Third, working conditions and work-life balance are determined by the practices of institutions. Employees prefer a conducive working environment, whilst a poor working environment can lead to absenteeism, low productivity and employee turnover (Singh et al., 2016; Garba & Jacob, 2021). Poor working conditions are caused by the informal implementation of the working conditions and work-life balance, resulting in outcomes highlighted by the literature cited in this study. This agrees with the study's findings that informal working conditions and work-life balance significantly influence employee turnover, absenteeism and employee development.



Employee turnover was supported at 5% with a p-value of 0.012, suggesting that as informal working conditions and work-life balance increase, the likelihood of employee turnover also increases. Absenteeism was supported at 5% with a p-value of 0.012, implying that when employees perceive unfavourable working conditions and a lack of work-life balance, they are more likely to absent themselves from work. Employee development was

supported at 1% with a p-value of 0.001, implying that favourable working conditions and a healthy work-life balance contribute to employees' development within the organisation. Therefore, informal working conditions and work-life contribute to the declining employee development in selected PTEIs.

The factors that contributed to the informal implementation of the HR practice of working conditions and work-life balance in selected PTEIs included work overload, lack of job security and limited job resources. First, work overload in selected PTEIs has caused 85.4% of the participants in selected PTEIs to work during weekends, resulting in a lack of work-life balance in selected PTEIs. The lack of work-life balance among employees triggers stress, fatigue, and burnout, which are made worse by limited leave days available during the year (Kamati,2020). Academics were entitled to five leave days during the year, and 19 were available at the end of the year. This left academics with limited time to rest, attend to the family and focus on career development needs. This makes it important for selected PTEIs to review their leave policy for academic staff within the university. Second, employees experiencing job insecurity are likely to have stress, frustration and anxiety (Qin et al., 2021). This is because of the fear of losing a job, which affects financial stability and future career prospects and negatively impacts employees' mental well-being. Due to the need for stability, employees will always be searching for stable jobs, and this has caused employee turnover, performance deterioration, absenteeism and reduced employee development.

Fourth, employee relations and involvement promote employee performance in an institution (Samwel, 2018; Tewari & Kumar, 2019). This can be accomplished by the implementation of a comprehensive employment relations policy (Meyer, 2011).

Nevertheless, the study found that the selected PTEIs have a formal disciplinary and grievance management procedure and a job description that helps academics know what is expected of them. However, there is a lack of participation on issues that concern them in selected PTEIs; for example, 63.8% of the respondents were not aware of the institution's vision and mission, which makes employees unaware of these institutions' main goals. Employees have unsolved conflicts due to the informal implementation of the grievance procedure. The selected PTEIs are experiencing absenteeism because of an ineffective absenteeism monitoring system. The current absenteeism monitoring system in two of the selected PTEIs has led to micro-management of academic staff in these institutions, which can affect job satisfaction, resulting in employee turnover. The informal HR practices

(lack of employee involvement on issues that concern them, unsolved conflict and ineffective absenteeism management system) identified by this study affect employee relations and involvement in the work (Samwel, 2018; Tewari & Kumar, 2019). Thus, it is imperative to discontinue the practice of informal employee relations and involvement in selected PTEIs due to its potential negative impact on absenteeism, as supported by the statistical findings of this study. Absenteeism was supported at 1% with a p-value of 0.005, suggesting that higher levels of informal employee relations and involvement are associated with increased absenteeism.

Fifth, recruitment and selection should be made using a sound recruitment and selection policy, job specifications, and job descriptions to attract the best candidates for the vacant posts in the institution (Mihu et al, 2023). Therefore, selected PTEIs should follow the recruitment and selection process, as this will enable the institution to hire the right candidate. With regard to this, the study found that the selected PTEIs follow the standard recruitment and selection policy. Conversely, two out of three PTEIs' job advertisements do not include the employment equity statement. This is against the Namibian affirmative action as it requires institutions to demonstrate their commitment to non-discrimination practice. The exclusion of this statement led to a perception of discrimination in selected PTEIs' policies potentially affecting employee morale, thereby triggering employee turnover.

Furthermore, the selected PTEIs lacked consistency in recruitment and selection when they did "head hunting", leading to employee misplacement. The study suggests that this may be a reason for academic staff leaving these institutions when they feel there is a job misfit, as they will not be able to meet the performance requirements of the job. The informal recruitment and selection process has resulted in PTEIs hiring a limited number of employees without using the standard interview process. While institutions may be eager to promptly fill vacant positions to avoid disadvantaging students, compromising the selection process results in job misfits, leading to employee resignation (Lee et al., 2018) and underperformance, particularly when inexperienced candidates are selected.

Sixth, to retain employees, the organisation should pay salaries based on the market rates or even more than what is offered in the market and practice a total reward system (Mabaso & Dlamini, 2018). The HR practices for total reward compensation have been used by organisations that are facing problems of employee turnover to address the problem (Mabaso & Dlamini, 2018). This research study found that 73% of the respondents in selected PTEIs perceived their salaries as low. This may be due to the

fact that they earn lower salaries compared to others doing the same job. Furthermore, the salary does not include fringe benefits, which are typically associated with academic staff positions, such as medical aid, pension contributions and gratuity for expatriates. As a result, academic staff leave these institutions for greener pastures, thereby increasing the rate of employee turnover in selected PTEIs.

Considering the outcomes of the informal implementation of HR practices, selected PTEIs need to transform the implementation of HR practices.

Transformation

The transformation phase of this model will change informal HR practices to formal ones, see Figure 1. The informal HR practice for performance management and recognition was described as informal because it lacked recognition, a feedback mechanism, a development plan linked to employee weakness, and a formal performance appraisal method. Therefore, to transform informal performance management into a formal HR practice, the PTEIs need to formally recognise employees for good performance. PTEIs can implement peer-to-peer recognition, personal thank-you notes, team celebrations, and public announcements to recognise their academics (Chapman & White, 2019; Kezar & Elrod, 2020). The recognition should be consistent and formal as this will motivate employees to achieve performance (Saraih et al., 2017; Bansal et al., 2018). There is a need for selected PTEIs to adopt a performance appraisal system that will reduce subjectivity, prejudice and halo effect in the performance evaluation process (Ramchandani & Aggarwal, 2018). The system will highlight the strengths and weaknesses of an employee, making the process effective. The feedback must be communicated to the employees so they can see how they are performing (Saraih et al., 2017; Bansal et al., 2018). The weaknesses this process will identify should be used to formulate a development plan to improve academic performance. This will raise employee performance, promote employee development and deter absenteeism. The study found that enhanced performance increases employees' likelihood of staying in selected PTEIs.

The informal HR practice for career development and growth was classified as informal due to its deficiency in providing a formal career development and growth policy, which resulted in an unclear career development progression pathway for employees. The selected PTEIs also lacked formal support for career development. The informal HR practice for career development and growth resulted in employee turnover, absenteeism and a decline in employee development. Given this fact, for the selected PTEIs to remain competitive, these institutions need to start implementing formal

HR practices for career development and growth. The transformation must commence with formulating and implementing the career development and growth policy. The formal career development and growth policy must support the academic staff's career journey. It should establish a clear progression path, outlining advancement opportunities within the institution. It must provide formal support for career development through mentorship, access to online courses and webinars. Additionally, partnerships with external institutions can be explored to offer discounted degrees or professional development opportunities, ensuring continuous learning and skills development in a cost-effective and financially sustainable manner.

Furthermore, the formal policy should promote, support and incentivise research activities among academic staff. This can be made possible by implementing performance-based bonuses, instead of direct grants. PTEIs could offer performance-based bonuses or stipends for faculty who publish in reputable journals or secure collaborative research projects. They could also facilitate research partnerships with public institutions or industry to access research funding and collaborative opportunities. This can help PTEIs to leverage external resources and minimise their financial burden. Also introducing small, competitive and even modest internal research grants funded by PTEI profits can provide essential support for research activities.

Additionally, cultivating a research culture in selected PTEIs can enhance academic excellence and the institution's reputation. Moreover, the policy should consider the importance of work-life balance. PTEIs need to encourage faculty to apply for externally funded sabbatical opportunities such as fellowships or grants from research councils, which do not require PTEI financial support (Bass et al., 2020). It is important to note that sabbaticals enable academic staff to participate in academic exchange programmes. By so doing, they can gain new skills and knowledge that can benefit the selected PTEIs. Formal career development and growth will not only retain academic staff but also reduce absenteeism and increase employee development, thereby avoiding performance deterioration. The HR practice for working conditions and work-life balance has been described as informal due to work overload experienced by academic staff, lack of workload management policy, lack of job security, limited job resources, limited leave days and lack of work-life balance in selected PTEIs. Selected PTEIs must implement formal HR practices for improving working conditions and work-life balance. To improve the working conditions and work-life balance, the selected PTEIs should explore cost-effective strategies to optimise workload allocation, enhance job security,

increase annual leave entitlement, improve the provision of job resources, and promote work-life balance. This could involve reallocating existing resources, leveraging technology to improve efficiency, and seeking external partnerships or funding opportunities to support these initiatives while ensuring long-term sustainability. The study hence proposes a workload management system (WMS) that caters to all the activities that are done by academics, that is, administration, teaching, research, teaching and learning, research supervision, community engagement and academic citizenship (Miller, 2019; Okeke-Uzodike & Gamede, 2021). The percentage for each component should be realistic and enable the selected PTEIs to remedy the workload that is carried by academic staff.

Moreover, the WMS will ensure fair and balanced task distribution among academic staff, prevent fatigue and burnout, and remove a perception of unfair distribution of workload, which is currently perceived by 71.3% of the respondents. Improving job security will instil stability and commitment among academic staff in selected PTEIs. By offering long fixed contracts, academic staff may have opportunities for professional growth, which will motivate the employees to stay long in these institutions (Maurya & Chatterjee, 2018). The management of leave days plays an important role in promoting work-life balance. The study suggests that selected PTEIs should use 50% of their term breaks for academic staff to meet their personal family and professional needs, as this will increase the number of leave days that can be used by academic staff during the year. In addition, providing adequate resources enables employees to meet the required performance standard.

The HR practice for employee relations and involvement was classified as informal mainly due to lack of employee participation, employees with unsolved conflicts and the ineffective absenteeism monitoring system. Employee relations and involvement help maintain a positive relationship between the employer and the employees and make teamwork possible. Therefore, the study proposes consistently implementing disciplinary and grievance procedures, fair performance evaluation processes, enhancing employee participation and establishing an effective absenteeism monitoring system within selected PTEIs to improve employee relations and involvement. Consistent implementation of disciplinary and grievance procedure enables selected PTEIs to foster a transparent and fair environment where all employees are treated equally. The perception of all employees feeling equally treated enables employees to communicate their grievances and cooperate in solving them because the employees trust the system. Employee participation can be enhanced by creating good communication channels within the institutions. Management

should ensure that information concerning academic staff, such as vision, mission, values, and institutional policies, is effectively communicated to them. There is a need to encourage two-way communication as this will enable management to be aware of the academic staff's opinions and ideas and create a sense of ownership among the academic staff. Furthermore, implementing an absence monitoring system can help maintain attendance without creating a sense of micromanagement among academic staff. This transformation to formal HR practice of employee relations and involvement helps foster a healthy employee relationship between the employer and the employees, thereby helping to combat the challenges that selected PTEIs face.

The HR practice for recruitment and selection was classified as informal mainly due to a lack of clear employment equity and inconsistent application of the recruitment and selection policy. Given this fact, the study suggests that selected PTEIs should promote employment equity in their institutions. This can be achieved by including the employment equity statement in their job advertisement. As highlighted by O'Brien et al. (2016), the employment equity statement on job advertisements shows no discrimination in the institutions' policies. In addition, the recruitment and selection methods should not be compromised even when the PTEIs have used "headhunting" as a recruitment method; for posts that need immediate placement, online interviews can be conducted. The dangers of not conducting an interview cause job misfit that leads to poor performance, absenteeism and employee turnover.

The HR practice for remuneration in selected PTEIs can be described as informal, not merely because of the perceived low salaries but due to the lack of fringe benefits as indicated by 77.2% of the respondents. Additionally, 85.8% of respondents indicated a lack of employee engagement in remuneration discussions, which further highlights the informality of the system. At PTEI-2, for instance, academic staff are not compensated during vacation periods, further underscoring the irregular and inconsistent nature of remuneration practices. This lack of formalisation, coupled with non-competitive remuneration, has contributed to high turnover as academic staff leave PTEIs in search of better opportunities.

The study recommends that selected PTEIs adopt a more structured approach to remuneration by offering competitive market-based salary packages. Additionally, PTEIs should provide market-related fringe benefits such as medical aid, pension, and housing allowances, given the high cost of living in Windhoek. These benefits could be shared between the employer and employee to alleviate the financial burden on institutions. By

formalising remuneration practices and offering competitive salaries and benefits, PTEIs can reduce turnover, minimise absenteeism caused by staff seeking secondary employment, and ultimately enhance staff retention and performance.

The HR strategy of the selected PTEIs guides the transformation from the informal to the formal HR practice. The HR strategy is a strategic plan developed and implemented by an institution to manage its employees effectively. It guides the HR professionals in the development and implementation of policies that will be used by institutions in the management of employees, aligning them with the organisational goals and contributing to their long-term success. The developed policies outline the guidelines and principles governing HR practices. However, this study found that PTEIs' HR strategy only focuses on recruiting highly qualified candidates and maintaining a conducive working environment that can retain staff. The strategy has limited HR practices that can retain employees, resulting in selected PTEIs having negative work behaviours because of informal implementation. The selected PTEIs need to develop an HR strategy that will encompass HR practices that will retain academic staff. They will then create policies that will promote the implementation of formal HR practices, and this will lead to a positive outcome.

Outputs

The outputs in the last phase of the formal HRM practices model for PTEIs result from the transformation phase, where HR practices have been transformed from informal to formal HR practices. The formal HR practice will enable the PTEIs to develop work behaviours such as improved employee development, reduced absenteeism, and improved employee performance. The transformation phase of the formal HRM practices model for PTEIs has resulted in an output of work behaviours that address the problems currently faced by selected PTEIs. PTEIs should consider adopting this model as a potential approach to enhance their HR practice.

The arrow linking work behaviours (improved performance, reduced absenteeism and increased employee development) to employee retention proposes that if selected PTEIs promote formal HR practices that create positive work behaviours, they are likely to retain academic staff in their institution.

Conclusion

Retaining academic staff is a key challenge for private tertiary institutions, particularly in the competitive 21st-century educational landscape. The implementation of formal HR practices can significantly enhance the retention of academic staff. Therefore, the study has proposed a formal HRM practices model to retain academic staff. This will enable the selected PTEIs to change from their current informal HR practices to more formal HR practices. Such a change will create positive work behaviours, that is, improved performance, reduced absenteeism, and increased employee development, thereby retaining academic staff in these institutions. This initiative will benefit both the institution and its stakeholders.

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The GX Framework for Evaluating Student Leadership Development Programmes in South African Universities

Gugulethu Morris Xaba

Abstract
This article presents a framework for evaluating Student Leadership Development Programmes (SLDPs) in South African universities. The researcher conducted a comprehensive literature review of various models and frameworks used for assessing leadership development programs, interviewed 27 student affairs professionals, and distributed a questionnaire, receiving responses from 227 student participants across six South African universities. There is a widespread belief that SLDPs offered by universities foster critical thinking, lifelong learning, and self-directed work habits, thereby contributing positively to the holistic development of students. However, mere participation in these programs does not guarantee that students will achieve the intended learning outcomes. Hence, there is a pressing need to evaluate whether student participants actually realize these outcomes. Given the lack of empirical research supporting the effective implementation of SLDPs in South Africa, this article aims to assess the effectiveness of SLDPs across various universities and propose a suitable framework for future evaluations. The proposed framework comprises four dimensions designed to enhance the effectiveness of Student Leadership Development Programmes in South African universities.

Keywords: student leadership development programmes, student affairs professionals, programme evaluation, design, communication, usability, impact, framework, South Africa, higher education

ABOUT THE AUTHOR: GUGULETHU MORRIS XABA, D- Tech Organisational Leadership, email: guguxaba@yahoo.com, Tshwane University of Technology

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Résumé
Cette étude présente un cadre d'évaluation des programmes de développement du leadership étudiant (SLDP) dans les universités sud-africaines. Le chercheur a procédé à une analyse documentaire complète des différents modèles et cadres utilisés pour évaluer les programmes de développement du leadership, interrogé 27 professionnels des affaires étudiantes et distribué un questionnaire. Au total les réponses de 227 étudiants participants affiliés à six universités sud-africaines ont été reçues. Il est généralement admis que les programmes de développement du leadership proposés par les universités favorisent la pensée critique, l'apprentissage tout au long de la vie et les habitudes de travail autonome, contribuant ainsi de manière positive au développement holistique des étudiants. Cependant, la simple participation à ces programmes ne garantit pas que les étudiants obtiennent les résultats d'apprentissage escomptés. Il est donc urgent d'évaluer si les étudiants participants obtiennent réellement ces résultats. En Afrique du Sud, il n'existe pas de recherche empirique sur l'efficacité de la facilitation des SLDP. Par conséquent, l'objectif de cette étude était d'évaluer l'efficacité des SLDP dans diverses universités et de proposer un cadre approprié pour les évaluations futures. Le cadre proposé comprend quatre dimensions conçues pour améliorer l'efficacité des programmes de développement du leadership étudiant dans les universités sud-africaines.

Mots-clés : Programmes de développement du leadership étudiant, professionnels des affaires étudiantes, évaluation des programmes, conception, communication, facilité d'utilisation, impact, cadre, Afrique du Sud, enseignement supérieur.

Introduction

It is vital to cultivate leadership skills for the future (Tabb & Montesi, 2000). However, those investing in leadership development must recognize that it is not enough to be ready to provide rigorous leadership training; the intervention itself must also ensure the readiness of the context in which those leaders will serve (Avolio, 2016).

There is widespread belief that Student Leadership Development Programmes (SLDPs) offered by universities—such as those targeting Student Representative Councils (SRCs), Residence Committees (RCs), Student Faculty Councils (SFCs), and various student clubs and societies—are instrumental in shaping critical thinkers, lifelong learners, and self-driven individuals who contribute positively to the holistic development of students (Hine, 2014; Mandew, 2003; Magolda, 2005). These programmes

employ diverse pedagogical approaches to leadership development, including experiential learning opportunities such as seminars, workshops, mentoring, guest speakers, service and volunteer placements, leadership courses, outdoor education, and conferences (Haber, 2006).

While many researchers support these conclusions, they caution that mere participation in SLDPs does not guarantee learning. Therefore, it is essential to evaluate whether students who participate in these programmes actually achieve the intended learning outcomes (Guthrie & Jones, 2012; Brooks, Vorreyer, & Gambino, 2011). Hence, it is crucial that the services and programmes offered to students are grounded in applied research (Mandew, 2003 ; McRee, & Haber-Curran, 2016).

Adding empirical outcome data to leadership development programmes could assist scholars in determining which programmes are most effective and which may need modification, thereby allowing successful programmes to be replicated in the future 'Powless et al. (2017)'. Accordingly, the researcher has created a framework that student affairs professionals from different universities can use to evaluate the effectiveness of their Student Leadership Development Programmes.

Literature Review

The literature review covers four areas: (1) Higher Education in South Africa, (2) Student Affairs, (3) A Case for Evaluating Student Leadership Development Programmes, and (4) Models for Evaluating Leadership Development Programmes.

Higher Education Landscape in South Africa

The South African post-schooling system is categorized into four sectors: public and private Higher Education Institutions (HEIs), Technical and Vocational Education and Training (TVET) colleges, Community Education and Training (CET) colleges, and private colleges (Department of Higher Education and Training [DHET], 2017). The DHET oversees this system, which provides education and training for those who have completed school, those who did not finish schooling, and those who never attended school (DHET, 2013). The public higher education sector consists of 26 universities, categorized into 11 traditional universities, nine comprehensive universities, and six universities of technology (DHET, 2017). This study focuses on the student affairs divisions responsible for delivering Student Leadership Development Programmes (SLDPs) at six South African public universities. South African universities enjoy institutional autonomy by law and design.

This autonomy allows them to adopt and implement frameworks that best suit their unique contexts and operational environments. Consequently, while the proposed framework offers valuable insights for SLDPs, it is essential to recognise that institutions may continue to use established frameworks that have proven successful in their settings. Given the historical, diverse, and complex nature of South African universities, a one-size-fits-all approach may not be feasible unless uniformly supported by government funding, which has been declining. Therefore, this frameworkshould be seen as one of several options available for universities to enhance student leadership development.

Student Affairs

Student Affairs, also known as Student Support or Student Services, is a department or division within higher education institutions that provides services and support to enhance student development during their academic experience (NASPA, 2012). Brooks et al. (2011) argue that the division of student affairs is a complex organization with various units, each playing a unique role in meeting student needs and fostering a vibrant campus life. Pansiri and Sinkamba (2017) suggest that Student Affairs Departments have grown significantly over the years, evolving from a discourse with little academic relevance to one that contributes to student attraction, retention, and graduation. Schreiber (2014) notes that student affairs divisions in developing countries are not as professionalized as those in developed nations, a sentiment echoed by Ciobanu (2013), who points out that while student affairs is well-defined in some countries, it remains an emergent field in others.

In contrast to the United States, where student affairs is a formal academic discipline, South Africa has yet to reach this level of professionalization (Mandew, 2003). Selznick (2013) highlights that student affairs professionals in Africa play vital roles in the daily lives of students, yet Speckman et al. (2014) lament the lack of homegrown student affairs literature and resources in South Africa.

A Case for Evaluating Student Leadership Development Programmes

Programme evaluation is crucial for the continued success of leadership development programmes (Purser & Kennedy, 2011). Nishishiba and Kecskes (2012) argue that dynamic curricula require systematic review and ongoing evaluation to improve outcomes. In a context of limited resources and increasing public accountability, Dugan et al. (2011) emphasize that leadership educators must ensure that leadership programmes have a

demonstrable impact. Powless et al. (2017) agree that adding empirical outcome data to leadership development programmes can help identify effective programmes and guide necessary modifications for future replication. Brooks et al. (2011) also stress the importance of determining whether students who participate in SLDPs have achieved measurable learning and development.

Several studies have evaluated leadership development programmes. Taylor (2016) assessed the effectiveness of the "Girls on the Move Leadership Development Programme" and found a range of positive outcomes. Bunting (2017) developed an evaluation tool for the Outdoor Leadership Development Series at the University of Wyoming, demonstrating the importance of feedback for continuous improvement. Powless et al. (2017) examined how peer leadership and self-efficacy were affected by participation in a multi-tier leadership development programme. They concluded that strict attendance policies increase the likelihood of programme success.

Although many studies focus on students' motivation and perceived benefits of SLDPs (Dial, 2006; Reed, 2001; Robinson, 2009; Baccei, 2015; Immerman, 2008), fewer emphasize evaluating the actual impact of these programmes. Avolio (2010) suggests that organisational leaders must assess whether they are investing in the most optimal training processes, considering both training costs and outcomes.

Models for Evaluating Leadership Development Programmes

The researcher reviewed eight models used to assess leadership development programmes to develop a framework suitable for South African universities. Table 1 provides an overview of these models:

Several studies have applied these models in various contexts. For example, Wu et al. (2015) used Kirkpatrick's model to evaluate ICT professional development for teachers in Shanghai. Anh et al. (2016) explored training evaluation practices among hotel managers using Kirkpatrick's and Phillips' models. Similarly, Carlfjord et al. (2017) used the Kirkpatrick model to evaluate training at Linköping University in Sweden.

Keeling (2010) investigated the influence of CAS standards on academic advising programmes, while Young and Janosik (2007) measured learning outcomes in CAS-compliant students compared to non-compliant peers. Fullmer (2009) conducted a systematic assessment of a programme using CAS standards and SWOT analysis at Lincoln University, Pennsylvania.

Table 1. Models for evaluating Leadership Development Programmes

Model	Description
Kirkpatrick's Model (KPM)	Organised around four levels of impact: Reaction, Learning, Behaviour, and Results; widely used for evaluating social, business, health, or education interventions.
Council for Advancement of Standards in Higher Education (CAS)	Develops standards to enhance the quality of students' learning experiences in higher education; self-assessment and improvement.
Utilisation Focused Developmental Evaluation (UFDE)	An approach that emphasises evaluation usefulness to intendedusers.
Ready, Willing, and Able Model (RWA)	Evaluates leadership capacity based on three constructs: leadership self-efficacy (Ready), motivation to lead (Willing), and leadership skill (Able).
Evolutionary Evaluation (EE)	Considers complex factors in larger systems within which a programme is embedded, providing a foundation for planning and evaluation.
Programme Theory (PT)	Provides a roadmap describing the sequence of events connecting the need for a programme to its desired results.
Success Case Method (SCM)	Identifies best practices and evaluates the success of an intervention by discovering what is working or not.
Leadership Audit Model (LAM)	Systematic process for identifying experiences that help students develop leadership abilities.

Keeling (2010) investigated the influence of CAS standards on academic advising programmes, while Young and Janosik (2007) measured learning outcomes in CAS-compliant students compared to non-compliant peers. Fullmer (2009) conducted a systematic assessment of a programme using CAS standards and SWOT analysis at Lincoln University, Pennsylvania. Rehman et al. (2017) used UFDE to evaluate a medical curriculum at Bahria University Medical & Dental College. Armstrong (2009) applied UFDE to evaluate a mental health programme for youth. Ramírez et al. (2015) explored the combination of UFDE with Developmental Evaluation through practical experience.

Collins and Rosch (2018) used the RWA model to study racial diversity's effect on leadership programme outcomes. Keating, Rosch, and Burgoon (2014) examined undergraduate students' leadership capacity changes through participation in a leadership theory course. Grohmann and Kauffeld (2013) utilized EE to develop a time-efficient training evaluation questionnaire, while Urban et al. (2017) followed EE to evaluate the Inspire>Aspire programme. Hendricks and Louw-Potgieter (2012) applied PT to evaluate the plausibility of an induction programmes intended outcomes.

Beets and Goodman (2012) used SCM to investigate the application of knowledge and skills from an executive coaching programme, while Mbada (2013) employed SCM to evaluate the effectiveness of an HIV/AIDS schools programme in South Africa. In South Africa, Programme Theory and SCM are commonly used for evaluating workplace-based interventions, while CAS and RWA models are frequently used in student development, particularly in the USA. This study highlights the need for a context-specific framework to evaluate SLDPs in South African universities.

Study Objectives

The purpose of this study is to evaluate the Student Leadership Development Programmes (SLDPs) offered by various universities in South Africa and use the outcomes to develop a suitable framework for evaluating SLDPs.

The specific objectives of this study are as follows:

a. Objective 1: To evaluate the existing design, presentation, and evaluation practices of the SLDPs currently offered by universities in South Africa.
b. Objective 2: To gain insights from student affairs professionals who deliver these SLDPs regarding their experience with design, presentation, evaluation, and reporting mechanisms related to the SLDPs.
c. Objective 3: To measure students' perceptions of the SLDPs in terms of value and impact.
d. Objective 4: To develop a framework for evaluating SLDPs for South African universities.

Research Design

This study utilised a mixed-methods research design. The researcher followed a convergent/concurrent strategy, where both quantitative and qualitative data were collected simultaneously and then compared. This study is primarily qualitative, with quantitative data supplementing the qualitative findings.

To address objectives 1 and 2, a qualitative research approach was employed, providing the researcher with the opportunity to understand participants through their own descriptions of the world, as suggested by Mouton (2001). For objective 3, a quantitative research approach was used. This component was descriptive and cross-sectional, utilizing a survey design to provide a numeric description of participants' opinions (Salleh et al., 2017). To address objective 4, a qualitative approach was again employed, using focus groups. This objective was addressed at the end of the study, after the analysis of documents, interview data, and questionnaire responses. The focus group was used to test the new framework for evaluating SLDPs for completeness and suitability.

Population and Sampling

The study collected data from 20 student affairs professionals through interviews, 217 students through an online structured questionnaire, and 33 programme documents provided by the six participating universities. The student affairs professionals were purposively selected due to their critical role in designing, presenting, evaluating, and communicating SLDPs. Data collection for these professionals was guided by the saturation point, which was reached after the 20th interview.

A purposive sampling method was also used to select a panel of six experts to serve as soundboards in testing the plausibility and suitability of the new Framework for Evaluating Student Leadership Development Programmes (FE_SLDPs).

The researcher, being a student affairs professional, was able to make informed decisions about the most relevant student groupings to participate in the study. Only students who completed the full duration of their SLDPs were considered; those who dropped out were excluded. To select the participating universities, cluster sampling was used. This approach divided the universities into three clusters: traditional universities, universities of technology, and comprehensive universities (McMillan & Schumacher, 2010).

Data Analysis

Data from interviews and focus groups were analyzed using Tesch's (1992) method of qualitative analysis, as described by Creswell (2009). The

recorded information was transcribed verbatim and analysed according to themes and categories, which were then coded. Tesch's systematic approach involves eight key principles:

a. Familiarization: Reading transcripts multiple times to gain a comprehensive understanding of the data.
b. Coding: Identifying and labeling significant units of meaning within the text, such as key phrases or concepts.
c. Categorization: Grouping related codes into broader themes.
d. Association: Exploring connections between categories to identify overarching patterns or relationships.
e. Systematization: Creating a visual representation of the categories and their relationships using a thematic map.
f. Definition of Categories: Ensuring clarity and consistency in the interpretation of themes.
g. Interpretation: Drawing conclusions based on the identified themes and patterns.
h. Validation: Ensuring the credibility and trustworthiness of the findings through member checking and triangulation.

Data collected through the survey questionnaire were captured on an Excel spreadsheet and imported into the Statistical Package for the Social Sciences (SPSS) for analysis. Factor analysis was conducted to reduce the number of variables to be analysed (Field, 2013). The data were then analysed using descriptive statistics, with frequency tables used to profile and interpret the data.

The Gugulethu Xaba (GX) Framework for evaluation of Student Leadership Development Programmes in South African universities

After reviewing the literature on developmental education, specifically models and frameworks used in both business and student affairs for evaluating leadership development programmes, the researcher consolidated the findings into a single framework named "The Gugulethu Xaba (GX) Framework for the Evaluation of Student Leadership Programmes in South African Universities" (see Figure 1).

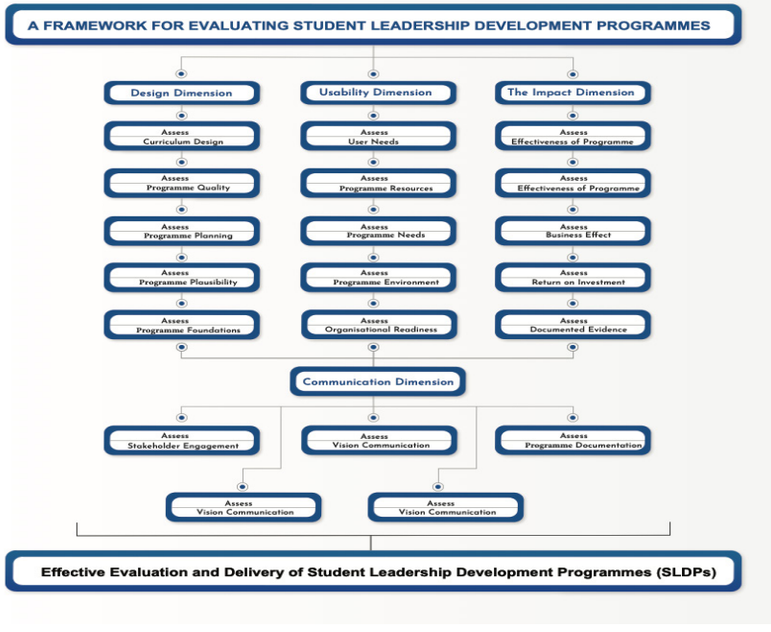
Student affairs professionals, including those responsible for presenting and evaluating SLDPs at various universities, can utilise this framework to enhance the programmes they offer. The GX Framework provides evidence that the programmes contribute to the improvement of students' leadership capacity. The GX Framework consists of four key dimensions that should

be considered when evaluating the effectiveness of SLDPs:

a. Design Dimension
b. Usability Dimension
c. Impact Dimension
d. Communication Dimension

The next section describes each dimension of the framework in detail Figure 1 presents a diagrammatic representation of the GX Framework.

Figure 1: The GX Framework for Evaluating SLDPs



Source: Xaba

Description of the GX Framework Dimensions

Design Dimension

The design dimension evaluates whether SLDPs are properly designed to achieve their intended objectives and desired results. According to the GX Framework, programme designers should assess the following aspects:

a. *Assess curriculum design:* Evaluate the content, environment, and methods used for programme delivery.

b. *Assess programme quality*: Determine whether the programme is achieving its objectives, based on solid evidence and adherence to policies and standards.
c. *Assess programme planning*: Conduct a needs assessment, link the programme to specific goals, determine the organisational capacities required for success, document the plan, and monitor implementation periodically.
d. *Assess programme plausibility:* Evaluate whether the programme has met its original goals and identify any necessary improvements.
e. *Assess programme foundations:* Ensure that the programme is grounded in appropriate student development theories and models, and that its goals align with the university's mission, strategic plan, and funders' expectations.

Usability Dimension

The usability dimension evaluates the usefulness of the SLDP and whether it meets the needs of its users, including students and student affairs professionals. The GX Framework suggests the following assessments:

a. *Assess user needs:* Understand the needs of both student participants and student leadership educators, including what methods yield the best response.
b. *Assess programme resources:* Identify whether all resources needed for successful programme implementation are available and establish checklists or inventories of requirements.
c. *Assess programme needs:* Identify and prioritise the resources required for programme success, including budgeting and programme spending.
d. *Assess programme environment:* Evaluate whether the SLDP's learning environment is suitable for both students and student affairs professionals, considering factors such as new knowledge, technology, and current student language.
e. *Assess organisational readiness*: Determine if the student affairs unit is prepared to offer SLDPs, ensuring proper approval, licenses, and team readiness through readiness checklists and pretesting.

Impact Dimension

The impact dimension evaluates the effect of the SLDPs on student participants. The GX Framework recommends assessing the following elements:

a. *Assess leadership capacity:* Determine whether the programme can measure leadership outcomes through changes in student behavior and productivity.
b. *Assess response to institutional needs:* Evaluate whether the SLDP

contributes to the university's strategic objectives and the academic mission of teaching, learning, and community engagement.
c. *Assess business effect:* Ensure that the programme is designed to produce both immediate and long-term changes in student leadership capacity.
d. *Assess return on investment:* Demonstrate the tangible benefits of investing in SLDPs through documented outcomes.
e. *Assess documented evidence:* Review whether SLDP results are documented and archived according to required standards, and whether students perceive the programmes benefits.

Communication Dimension

The communication dimension evaluates the effectiveness of communication between stakeholders throughout the SLDP lifecycle. This dimension influences all other dimensions. According to the GX Framework, programme designers should assess the following areas:

a. *Assess stakeholder engagement:* Evaluate whether there is a relationship management plan for all stakeholders, formal platforms for consultation, and sufficient resources for stakeholder engagement.
b. *Assess programme reporting:* Check that reporting standards are set, including the type of reports required by stakeholders and whether the reports address key areas and demonstrate programme impact.
c. *Assess vision communication:* Ensure that all stakeholders understand the vision for the SLDP and that university leadership communicates expectations to programme presenters. Verify that presenters are qualified and able to deliver the programme effectively.
d. Assess programme documentation: Confirm that all programmes are properly documented, with supportive tools such as standard operating procedure (SOP) manuals to ensure consistency and scalability.
e.Assess feedback and reflection: Ensure that feedback from students is gathered and used to assess programme effectiveness. This involves creating opportunities for participants to give feedback and using their input to improve future SLDPs.

Findings of the Study on the Four Dimensions of the GX Framework

Design Dimension

The findings reveal that the design dimension of SLDPs across the South African universities studied encompasses several key aspects outlined in the GX Framework. Participants unanimously agreed on the importance of a well-structured curriculum, clear objectives, and measurable outcomes

for SLDPs. Students prefer to be informed about their programmes from the outset, rather than taking a passive role. Effective curriculum design should balance contact and virtual sessions, providing opportunities for students to practice their learning, such as through community service.

However, document analysis indicated weaknesses in the way some universities documented their programmes, thereby compromising overall quality. This inconsistency raises concerns about whether these programmes are achieving their intended objectives. Although most participants reported engaging in structured planning—such as annual planning meetings and pre-implementation sessions—some relied on desktop planning approved by line management, without broad stakeholder involvement. Only a few institutions involved students and other stakeholders in the planning process, highlighting a gap in comprehensive programme planning.

Concerning programme plausibility, many participants expressed uncertainty about whether their programmes had fully attained their original objectives, pointing to a lack of systematic evaluation to determine the need for improvements. Additionally, most participants indicated that their SLDPs lacked a grounding in specific student development theories. While universities claimed to base their programmes on strategic objectives and graduate attributes, many participants were unfamiliar with relevant theories, despite their experience in student affairs. This lack of theoretical grounding raises concerns about alignment with the universities' missions and strategic plans.

Usability Dimension

The findings on the usability dimension emphasise the importance of understanding student needs and aspirations to design effective SLDPs. All participants agreed that it is essential for facilitators to understand students' expectations and motivations prior to the commencement of activities. Aligning programme design with these aspirations enhances student participation and engagement.

Participants identified a significant gap in programme resources, with all participants perceiving their SLDPs as underfunded and lacking necessary resources. They unanimously suggested that increased funding would improve both student enrolment and programme delivery quality. Diversifying delivery methods was highlighted as crucial, but current methods are limited due to financial constraints. Budgeting and programme spending were critical areas needing attention to ensure programme viability and the achievement of intended outcomes. Prioritizing resources

emerged as essential for addressing concrete needs and achieving programme objectives effectively.

Participants also indicated that learning environments should be adaptable to the changing preferences of students, incorporating modern methods and technologies to enhance leadership development. The assessment of organisational readiness revealed that many units were not adequately prepared for SLDP implementation. Recruiting skilled facilitators and securing necessary approvals were identified as key areas requiring attention to ensure successful programme delivery.

Overall, while participants recognised the importance of user needs and resource availability in SLDP usability, addressing challenges related to funding, learning environments, and organisational preparedness is critical for improving programme effectiveness.

Impact Dimension

The findings related to the impact dimension suggest that participants generally perceived SLDPs as impactful, although assessments often relied on anecdotal evidence rather than systematic measurement. Some participants noted that students who participated in SLDPs became more active in campus life, taking on leadership roles in student governance and societies. However, there was a lack of structured evaluation to assess behavioural changes and leadership outcomes.

While participants believed their programmes contributed to the universities' strategic objectives, there was little documentation to confirm alignment with institutional goals. The reliance on anecdotal feedback hindered a clear assessment of how SLDPs met institutional needs. Although participants recognised the importance of identifying desired leadership changes in students, there was a notable gap in programme design that allowed for measuring both immediate and long-term impacts. Many expressed a desire for more structured evaluation processes to assess the effectiveness of SLDPs.

Challenges in demonstrating the tangible benefits of SLDPs were also reported. Most participants lacked formal systems for evaluating outcomes, relying instead on informal feedback. This limitation prevented them from quantifying the return on investment in SLDPs. Additionally, while documenting programme results was acknowledged as important, significant gaps were identified in standards for documentation, including

the use of evaluation forms and student portfolios. Addressing these challenges is vital for improving accountability and enhancing the impact of SLDPs.

Communication Dimension

The findings on the communication dimension highlight both strengths and weaknesses in the communication practices within SLDPs across South African universities. Some institutions had established stakeholder engagement channels, but these varied widely in effectiveness and consistency. Many stakeholders reported insufficient feedback mechanisms and the absence of structured relationship management plans, resulting in missed opportunities for meaningful collaboration. Participants emphasised the need for formal platforms to consult stakeholders, identify their needs and concerns, and allocate resources for effective engagement.

Significant variability in programme reporting was observed, with some departments providing detailed reports while others delivered vague and insufficient information. This inconsistency highlights the need for clearer reporting standards that demonstrate SLDP impact and document lessons learned. Establishing such guidelines would ensure that stakeholders receive comprehensive updates on programme progress and outcomes.

A gap between university leadership and programme facilitators regarding the strategic vision of SLDPs was also identified. Participants expressed a desire for improved communication about the university's overarching goals, suggesting that more frequent workshops or training sessions are needed to align programme initiatives with institutional objectives.

Inconsistencies in programme documentation were also observed. Some SLDPs followed standard operating procedures (SOPs), while others lacked current documentation. Participants suggested that better organisation of training materials and supportive tools would improve programme effectiveness. Moreover, mechanisms for feedback and reflection were insufficient. While some participants acknowledged the importance of collecting student feedback, gaps existed in how this feedback was processed and used for programme improvement. Addressing these gaps is crucial for enhancing SLDP effectiveness. Overall, while some communication practices are in place, significant challenges remain in stakeholder engagement, reporting consistency, strategic alignment, documentation, and feedback mechanisms. Improving these areas will maximise the success and impact of SLDPs in South African universities.

Addressing Gaps in Existing Evaluation Models: The Case for the GX Framework

This section critically evaluates existing evaluation models, highlighting their gaps and advocating for the relevance of the GX Framework.

Kirkpatrick's Model

The Kirkpatrick Model is one of the most widely used frameworks for evaluating various programmes. Its four-level evaluation system—reaction, learning, behaviour, and results—provides a foundational structure for measuring the impact of training or development initiatives. However, the Kirkpatrick Model primarily focuses on outcome measurement, overlooking the contextual nuances of student leadership development in a university setting. Specifically, it fails to consider the complex socio-cultural and institutional dynamics prevalent in South African universities.

The GX Framework addresses these gaps through its design dimension, which evaluates not only the quality of programme outcomes but also the curriculum design, programme planning, and alignment with organisational objectives. This ensures that SLDPs are impactful and tailored to the specific strategic goals of the university, which is critical in contexts where leadership development is linked to broader educational missions.

Council for the Advancement of Standards [CAS] in Higher Education

CAS standards are recognised in student affairs and higher education but were primarily developed for institutions in the United States. This U.S.-centric nature poses challenges for adapting these standards to the South African context, where socioeconomic factors and the higher education landscape differ significantly. The impact dimension of the GX Framework explicitly addresses this gap by incorporating institutional needs and aligning SLDP outcomes with university strategic objectives. It ensures that SLDPs are evaluated in relation to the broader educational and societal goals of South African universities, making the GX Framework more suitable for this context than CAS standards.

Utilisation-Focused Developmental Evaluation (UFE)

Utilisation-Focused Developmental Evaluation (UFE) emphasises the usefulness of evaluations for intended users, concentrating on real-time feedback and adaptability. While this model encourages responsiveness, it lacks a structured approach to systematically evaluate the design, implementation, and stakeholder communication aspects of SLDPs.

The usability dimension of the GX Framework offers a more comprehensive assessment of programme relevance and user experience. By evaluating user needs, programme resources, and organisational readiness, the GX Framework ensures that SLDPs are designed and implemented in a manner that meets the requirements of both student participants and leadership educators. This systematic approach extends beyond UFE's focus on utilisation, providing a robust evaluation of both programme design and practical application.

Ready, Willing, and Able (RWA) Model

The RWA model assesses leadership development based on three constructs: self-efficacy (Ready), motivation (Willing), and leadership skills (Able). While these constructs are useful, they do not provide a comprehensive framework for evaluating the structural and institutional dimensions of leadership development programmes.

The design dimension of the GX Framework ensures that SLDPs are evaluated for their curriculum quality and alignment with organisational missions, while the impact dimension guarantees measurable outcomes beyond self-efficacy or motivation alone. The GX Framework allows for a deeper analysis of whether the programme fulfils its educational and leadership objectives within a specific institutional context, addressing the RWA model's limitations in complex university environments.

Evolutionary Evaluation

Evolutionary Evaluation (EE) is an adaptable approach that considers the broader systems within which programmes are embedded. However, it lacks specific mechanisms for evaluating stakeholder communication and feedback, which are critical for understanding how leadership development programmes are perceived and improved over time.

The communication dimension in the GX Framework addresses these deficiencies by ensuring that all stakeholders are actively engaged throughout the programme lifecycle. The GX Framework emphasises stakeholder consultation, feedback mechanisms, and continuous reflection, ensuring that SLDPs remain responsive to both student needs and institutional requirements. This focus on communication strengthens the evaluation process, allowing leadership programmes to evolve in alignment with institutional and student expectations.

Programme Theory

Programme theory provides a logical framework for evaluating programme implementation and intended outcomes. However, it lacks a detailed

approach for assessing the real-time usability and practical constraints of leadership development programmes. The usability dimension of the GX Framework bridges this gap by evaluating programme resources, needs, and environmental suitability. This ensures that SLDPs are not only theoretically sound but also practical and effective in real-world execution. Furthermore, the communication dimension ensures that ongoing stakeholder engagement and feedback are integral to the evaluation process, an aspect not emphasised in Programme Theory.

Success Case Method

The Success Case Method (SCM) focuses on identifying and documenting success stories to motivate future participants and improve programme delivery. However, it does not provide a comprehensive, multi-dimensional approach to evaluating programme design, implementation, or stakeholder communication.

The GX Framework's impact dimension addresses this gap by ensuring that leadership outcomes are evaluated holistically, including behavioural change, institutional response, return on investment, and documentedevidence. This offers a broader and more systematic evaluationthan SCM, which primarily emphasises isolated success cases.

Leadership Audit Model

The Leadership Audit Model systematically identifies the experiences through which students develop leadership abilities. However, it does not comprehensively assess programme design, usability, or stakeholder communication. The GX Framework addresses these gaps through its four integrated dimensions, particularly its emphasis on communication and usability. These dimensions ensure that SLDPs are not only designed effectively but are also continuously refined through feedback from both students and educators, ensuring that programmes remain responsive and adaptable to changing needs.

Conclusions

This study recommends that South African universities adopt the GX Framework for their Student Leadership Development Programmes (SLDPs) to effectively address gaps in measuring impact. The GX Framework offers a comprehensive, contextually relevant, and multi-dimensional approach to evaluating SLDPs. By bridging deficiencies in existing models, it ensures that SLDPs are well-designed, practical, and aligned with institutional goals while being responsive to student needs and capable of demonstrating tangible impacts. Its four dimensions—design,

usability, impact, and communication—create a robust evaluation system essential for enhancing leadership capacity within the unique context of South African higher education. Thus, the GX Framework is proposed as a superior model for evaluating SLDPs, offering valuable insights and guidelines for future programme development.

The design dimension is crucial for establishing a standard format and guidelines, ensuring consistency in training material development. As Hanza (2012) emphasises, foundational decisions regarding content, delivery methods, time allocation, and assessment tools must precede any training design. Furthermore, a well-designed SLDP fosters a common language within the sector. Seemiller and Murray (2013) assert that utilising student leadership competencies as learning outcomes facilitates the translation of curricular and co-curricular programmes into academic contexts.

The usability dimension embraces student-cantered principles, reflecting the missions of many South African universities. Davis (2014) suggests that leadership development planners should engage professionals and senior leaders in the planning process, alongside external providers to ensure active input from organisational sponsors.

The impact dimension is significant for two primary reasons. First, South African universities are legally required to conduct institutional audits, which include evaluations of student affairs services (Council for Higher Education, n.d.). Second, demonstrating the impact of SLDPs can help secure funding in a challenging financial landscape. Naidoo and McKay (2018) highlight that universities face competing priorities and funding shortfalls, necessitating strong evidence of return on investment (Bhuyan, 2016). Such data can substantiate funding requests and lead to organisational benefits such as increased output, time savings, and improved quality control.
The communication dimension is essential for reporting progress and engaging stakeholders throughout the SLDP lifecycle. Haskins and Shaffer (2009) emphasise that comprehensive communication plans should facilitate two-way dialogue between participants and facilitators, promoting a supportive environment for development activities. Stufflebeam and Shinkfield (2007) also note that effective communication is critical for ensuring that evaluation findings are used appropriately and that feedbackis integrated throughout the project lifecycle.

Moreover, there is a pressing need to systematically integrate student affairs theories and models into SLDPs. Universities should mandate grounding

these programmes in relevant theoretical frameworks, as advocated by Long (2012), who emphasises the importance of theoretical foundations in the design of educational experiences. Partnerships with U.S. universities could enhance staff development in student affairs, fostering local benchmarking exercises to facilitate resource sharing and knowledge transfer. Mosier and Schwarzmueller (2002) affirm that benchmarking is effective for improving services and navigating rapid changes in student affairs through the identification of best practices.

Future research should address the concept of recognition within SLDPs. Recognising student achievements can foster motivation and a sense of belonging, enhancing the overall effectiveness of such programmes. Subsequent studies should explore methods to integrate recognition into the framework for evaluating SLDPs. Additionally, conducting structured pilot studies over one or two years is vital for testing and refining the proposed framework. Such studies will provide valuable insights into the practical application of the framework across diverse university contexts and ensure that it remains responsive to the needs of students and institutions alike.

While this study focuses on SLDPs within South African universities, the insights and findings are equally pertinent across the African continent, highlighting the potential for collaboration and shared learning among institutions to foster stronger relationships and enhance leadership development initiatives throughout the region

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The Untold Struggles of Lecturers in Ghana's Colleges of Education: Stresses, Burn Out and Emotional Illness

Clement Owusu-Cole, Nasir Yaqub Entsie, Simon Mawulorm Agyemang, James Divine Danyoh, Ernest Sarpong Akore, Joseph Serebour Asante, and Margaret Darkoa

Abstract

This study examined the impact of stress and burnout on the well-being of lecturers within Ghana's evolving Colleges of Education (CoEs). The transformation of CoEs from traditional teacher training institutions to degree-awarding entities has shifted demands and expectations, posing challenges to lecturers' physical and mental health. Addressing a critical gap in research, this study focused on this specific context. The research design employed a cross-sectional descriptive approach to capture the dynamic relationships over time. Using the multistage sampling technique, a structured questionnaire was used to collect data from 610 lecturers encompassing various disciplines and experience levels across 13 CoEs, The quantitative analysis revealed significant positive correlations between stress, burnout, and lecturers' physical health ($r = .368$, $p = .012$; $r = .382$, $p = .009$). The shift in CoE demands, including increased workload and technology integration, contribute to back pain, tiredness, and breathing difficulties. Burnout's emotional exhaustion and reduced accomplishment also impact lecturers' mental health, resulting in anxiety, depression, and concentration difficulties ($r = .373$, $p = .001$; $r = .376$, $p = .013$).

ABOUT THE AUTHORS: ENTSIE NASIR YAQUB (Email: nentsie@ucc.edu.gh), University of Cape Coast, Ghana; CLEMENT OWUSU-COLE, SIMON AGYEMANG, JAMES DIVINE DANYO, ERNEST AKORE SARPONG, JOSEPH SEREBOUR ASANTE and MARGARET DARKOA, Presbyterian College of Education, Ghana

Entsie, N. Y., Owusu-Cole, C., Agyemang, S., Danyo, J. D., Sarpong, E. A., Asante, J. S., & Darkoa, M. (2025). The Untold Struggles of Lecturers in Ghana's Colleges of Education: Stresses, Burn Out and Emotional Illness. *International Journal of African Higher Education, 11*(2), 145-171. https://doi.org/10.6017/ijahe.v11i2.17667

These findings underscore the interconnectedness of stress, burnout, physical health, and mental health. The study highlights the need for holistic interventions, including stress management and mental health support, to enhance educators' well-being and maintain the quality of educational services within CoEs. The research contributes by addressing the dearth of context-specific data and extending theoretical frameworks. It emphasises the urgency of fostering a supportive environment amidst CoE transformation. This study informs educational institutions' efforts to prioritise lecturers' well-being in the changing educational landscape.

Keywords: student leadership development programmes, student affairs professionals, programme evaluation, design, communication, usability, impact, framework, South Africa, higher education.

Résumé
Cette étude s'est penchée sur l'impact du stress et de l'épuisement professionnel sur le bien-être des Professeur au sein des Colleges of Education (CoEs) en pleine évolution au Ghana. La transformation de ces établissements, qui sont passés du statut d'institutions traditionnelles de formation des enseignants à celui d'entités délivrant des diplômes, a modifié les exigences et les attentes, posant des défis à la santé physique et mentale des Professeur. Cette étude se concentre sur ce contexte spécifique afin de combler une lacune importante dans la recherche. Le modèle de recherche utilise une approche longitudinale de cohorte pour saisir les relations dynamiques au fil du temps. L'analyse quantitative révèle des corrélations positives significatives entre le stress, l'épuisement professionnel et la santé physique des Professeur (r = 0,368, p = 0,012 ; r = 0,382, p = 0,009). L'évolution des exigences du CdE, y compris l'augmentation de la charge de travail et l'intégration de la technologie, contribue aux maux de dos, à la fatigue et aux difficultés respiratoires. L'épuisement émotionnel et la réduction de l'accomplissement liés au burnout ont également un impact sur la santé mentale des Professeur, entraînant anxiété, dépression et difficultés de concentration (r = 0,373, p = 0,001 ; r = 0,376, p = 0,013). Ces résultats soulignent l'interconnexion du stress, de l'épuisement professionnel, de la santé physique et de la santé mentale. L'étude met en évidence la nécessité d'interventions holistiques, y compris la gestion du stress et le soutien à la santé mentale, pour améliorer le bien-être des éducateurs et maintenir la qualité des services éducatifs au sein des centres d'excellence. La recherche contribue à combler le manque de données spécifiques au contexte et à étendre les cadres théoriques. Elle souligne l'urgence de favoriser un environnement favorable dans le contexte de la transformation des centres d'excellence. Cette étude éclaire les efforts déployés par les établissements d'enseignement pour donner la priorité au bien-être des Professeur dans un paysage éducatif en pleine mutation.

Mots clés : Burnout, Ghana, caché, impact, contrainte, stress, Professeur, bien-être Collèges d'enseignement.

Introduction

The educational landscape in Ghana has undergone significant changes over the years, marked notably by the transformation of Colleges of Education (CoEs) from their traditional role as teacher training institutions into degree-awarding entities. This shift in status has not only redefined the responsibilities and expectations of lecturers within these institutions but has also introduced a host of challenges that potentially impact their overall well-being. As CoEs adapt to their new roles, it becomes imperative to understand the effects of stress and burnout on lecturers' health and functioning.

Lecturer well-being has become a critical topic of global discussion. Seminal studies such as Johnson et al. (2011) have highlighted the alarming prevalence of burnout among teachers and its profound personal and professional repercussions. These findings are further corroborated by a recent study by Owusu-Cole et al. (in press), which investigated the prevalence and sources of stress and burnout among lecturers in Ghana's Colleges of Education (CoEs). Their study revealed moderate to neutral stress levels and identified key stressors, including challenges related to workload management, family responsibilities, inadequate infrastructure, financial constraints, and health issues. Aligned with the Job Demands-Resources (JD-R) model, these findings underscore the complex interplay between job demands, available resources, and lecturers' well-being in CoEs. The results provide a foundational understanding of the broader shifts in the educational landscape contributing to stress and burnout, forming a critical context for this article. Additionally, Montgomery and Rupp's (2005) comprehensive longitudinal research established a robust link between teacher stress and various physical health issues. Together, these global and contextual perspectives highlight the urgent need to examine the relationships between stress, burnout, and both physical and mental health within the unique setting of CoE lecturers in Ghana.

However, within the specific Ghanaian context, there exists a noticeable gap in research that directly addresses the implications of stress and burnout among lecturers within CoEs. While studies such as Opoku et al. (2019) have explored the factors contributing to work-related stress among

educators in the country, a targeted investigation into the effects of stress and burnout within the distinctive dynamics of CoEs remains conspicuously absent from scholarly discourse. Notably, although stress and burnout in education have been widely examined globally, the transformation of CoEs into degree-awarding institutions has introduced new and unique stressors that have not been adequately addressed. These stressors particularly the shift in academic expectations, infrastructure deficits, and the increased workload resulting from year-round academic engagement present evolving challenges that warrant further investigation. The unique pressures faced by CoE lecturers, including the blurring of boundaries between work and rest, necessitate revisiting the field to capture emerging issues that were not prevalent in earlier studies. Thus, by investigating the impact of stress, burnout, physical health, and mental well-being within this context, the study offers insight into the challenges lecturers face in adapting to new academic demands and expectations.

The transformation of CoEs has presented distinct challenges that merit focused attention. Infrastructure deficits, for instance, have led to continuous academic engagement without the traditional inter-semester breaks, effectively eroding the separation between work and rest. This situation has the potential to exacerbate stress and burnout levels among lecturers. A recent study by Adu-Gyamfi et al. (2020) underscored the urgency for interventions to address these challenges, highlighting the pressing need for research that unpacks the implications of such changes on lecturers' well-being. Drawing from the Ghanaian context, the work of Boateng and Asumeng (2013) provides empirical evidence affirming the correlation between work-related stress and psychological distress among educators. This local evidence accentuates the importance of extending these investigations to the realm of CoEs, scrutinising not only the relationship between stress, burnout, and mental well-being, but also exploring their potential consequences on physical health.

In response to this critical gap, the current study makes a distinctive contribution by narrowing its focus to the specific context of CoEs in Ghana. These lecturers, facing novel demands due to the transformation of their roles, are navigating uncharted territories in terms of work dynamics. By specifically examining the implications of this institutional transformation, this study explores stress and burnout in a new light, beyond the traditional frameworks of teacher well-being studies. Through a cross-sectional descriptive design incorporating retrospective questions, including open-ended items that prompt participants to reflect on past experiences, the study examines the connections between stress, burnout, physical health conditions, and the mental well-being

of lecturers in CoEs. This integrated examination provides a holistic understanding of how these factors interact and influence one another, contributing to a more comprehensive model of educator well-being. The objectives of this study are therefore designed to fill critical gaps in research within Ghana's evolving CoE landscape. Firstly, it assesses CoE lecturers' self-reported physical health and well-being indicators, addressing the scarcity of research in this area. Secondly, it uncovers potential connections between stress, burnout, and physical health indicators among lecturers, in light of the changing CoE dynamics. Thirdly, it delves into lecturers' self-reported mental health, including symptoms of anxiety and depression, an increasingly pertinent issue in the current CoE context. Lastly, the study examines the link between perceived stress, burnout, and lecturers' mental health status, illuminating the potential implications for their overall well-being. These objectives collectively contribute to a comprehensive understanding of lecturers' well-being within Ghana's shifting CoE environment.

Hypotheses

H01: There is no significant correlation between the prevalence of stress and burnout among lecturers in CoEs and their self-reported physical health conditions and well-being indicators.

H02: The perceived level of stress and burnout among lecturers in CoEs is not significantly related to their self-reported mental health status, including symptoms of anxiety, depression, and overall psychological well-being.

Theoretical and Conceptual Framework

The Conservation of Resources (COR) theory, developed by Hobfoll (1989), forms the theoretical foundation for this study, offering a robust lens through which to examine the relationships among stress, burnout, and well-being within Ghana's CoEs. At its core, the COR theory posits that individuals strive to acquire, maintain, and protect resources essential for their well-being. Stress and burnout are conceptualised within this framework as processes that deplete these critical resources. When individuals perceive a threat to their resources, experience their loss, or lack sufficient resources to meet demands, they encounter stress, which, if prolonged, may lead to burnout. These resource-depleting processes profoundly impact physical and mental health, thus linking stress and burnout directly to overall well-being.

Within the specific context of CoEs, the COR theory provides valuable insights into how resource deficits, exacerbated by systemic challenges

such as role transformations, infrastructure inadequacies, and shifting institutional expectations, heighten stress and burnout among lecturers. These evolving conditions reflect significant resource challenges for lecturers, who must adapt to new roles and responsibilities while coping with inadequate institutional support. The COR theory also illuminates how physical health mediates the relationship between resource depletion and well-being. For instance, the physiological strain associated with sustained stress and burnout often manifests in physical health conditions, which further erode lecturers' overall well-being. Additionally, the theory emphasises the impact of external contextual factors, such as institutional and environmental challenges, on resource availability and stress responses. This feature makes the COR theory particularly relevant to the dynamic and often resource-constrained environment of CoEs undergoing transformation.

Building on the theoretical foundation provided by the COR theory, the conceptual framework operationalises key constructs to explore their interconnections. Stress is viewed as lecturers' perceived strain on resources in response to job demands, while burnout is understood as the cumulative effect of prolonged resource depletion, resulting in emotional and physical exhaustion. These variables represent critical elements in understanding how resource dynamics unfold in the CoE context. Physical health conditions are posited as a mediating factor, capturing the physiological consequences of resource depletion and their subsequent impact on well-being. This mediating role adds depth to the conceptualisation of the relationships among stress, burnout, and well-being by highlighting the indirect pathways through which resource loss affects lecturers' lives.

Well-being, as the dependent variable, is conceptualised holistically to encompass physical, mental, and emotional dimensions. To avoid redundancy and tautology, stress and burnout are excluded from the direct conceptualisation of mental well-being. Instead, mental well-being focuses on broader constructs such as symptoms of anxiety, depression, and emotional resilience, providing a distinct and comprehensive view of lecturers' overall well-being. This refined approach ensures that the study maintains conceptual clarity while addressing the ways in which stress and burnout influence individuals.

The framework also incorporates moderating variables to capture the complexity of the CoE environment. Role transformation, reflecting the evolving responsibilities and expectations placed on lecturers, serves as a moderating factor that may amplify or mitigate the effects of stress and burnout on well-being. Similarly, infrastructure deficits, representing the

chronic challenges within the CoE environment, are conceptualised as another moderating variable. These deficits, such as inadequate facilities and resources, have the potential to intensify the adverse effects of stress and burnout, further compromising lecturers' well-being. By integrating these moderating variables, the framework recognises the unique contextual factors that shape resource dynamics and their influence on well-being.

By anchoring the framework in the COR theory and extending it through a conceptual model, the study provides a comprehensive understanding of the interplay among stress, burnout, physical health, and overall well-being in the dynamic context of Ghana's CoEs.

Literature

Impact of Work Stress and Burnout on Mental and Physical Health

Work stress and burnout remain pervasive challenges in various professional domains, particularly in education, where the stakes are often high, and resources are limited. These phenomena significantly affect both mental and physical health, necessitating a comprehensive understanding of their dynamics and implications to inform effective interventions.

Work Stress and Mental Health

Work stress arises from the demands of professional responsibilities that exceed an individual's coping capacity (Cohen, 1988). These demands, such as excessive workload, role ambiguity, and interpersonal conflicts, contribute to chronic mental health challenges, including anxiety, depression, and emotional exhaustion (Bianchi & Schonfeld, 2020). Longitudinal studies, such as those by Hakanen et al. (2018a), underscore the bidirectional relationship between work stress and mental health, wherein persistent stress exacerbates psychological vulnerabilities, which in turn impair stress management capabilities.

In education, stress is particularly acute due to factors like long hours, resource shortages, and the emotional toll of nurturing student development (World Health Organization, 2019). Studies in Ghana echo global findings, with research by Asante and Adu-Mireku (2016) and Ansong et al., (2020) linking workplace stress among educators to heightened symptoms of depression and anxiety. Moreover, post-COVID-19 digitalization has compounded stress levels, as educators grapple with hybrid teaching models and increased administrative demands (Bakker & de Vries, 2021; Montgomery & Rupp, 2022).

Burnout and its Psychological Consequences

Burnout, often a culmination of prolonged work stress, is characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment (Maslach et al., 2001). It has profound implications for mental health, including heightened risks of depression, anxiety disorders, and substance abuse (Halbesleben & Buckley, 2004). Research by Kyriacou & Sutcliffe (2017) and Fares et al. (2019) highlights burnout's role in exacerbating emotional exhaustion and its cyclical impact on mental health challenges.

For Ghanaian educators, local studies reveal that burnout is often fuelled by systemic issues like delayed salary adjustments, stagnated promotions, and inadequate professional development opportunities (Acheampong et al., 2022; Adu-Gyamfi & Debrah, 2023). These challenges amplify psychological strain and hinder effective performance, further entrenching mental health issues within the profession.

Physical Health Impacts of Work Stress and Burnout

The physiological toll of work stress and burnout is significant, with chronic stress activating the hypothalamic-pituitary-adrenal (HPA) axis and elevating cortisol levels, leading to conditions such as hypertension, cardiovascular disease, and metabolic disorders (Chrousos, 2009). Chandola et al. (2008) and Dimsdale (2008) identify workplace stress as a critical predictor of cardiovascular morbidity and systemic inflammation, which are precursors to various chronic illnesses.

Burnout exacerbates these effects through sustained emotional exhaustion, which depletes energy reserves and compromises immune function (Maslach et al., 2001). Ahola et al. (2019a) provide evidence linking burnout to musculoskeletal disorders, while Shirom et al. (2005) associate it with adverse cardiovascular outcomes. Emerging research, such as Teng et al. (2022), highlights biomarkers like elevated C-reactive protein (CRP) and interleukin-6 (IL-6) in individuals with severe burnout, demonstrating its systemic inflammatory effects.

Mental and Physical Health Interconnections

The interplay between mental and physical health in the context of work stress and burnout is profound. For instance, mental health challenges like depression and anxiety often manifest in physical symptoms such as chronic pain, fatigue, and sleep disturbances (Slavich & Irwin, 2014). Conversely, the physical strain induced by stress and burnout can aggravate mental health conditions, creating a cyclical burden on individuals. Melamed et al. (2006) highlight a dose-response relationship, showing that increased

burnout severity correlates with higher risks of type 2 diabetes and other chronic illnesses.

In education, these interconnections are particularly evident. Studies by West et al. (2016) and Sackey et al., (2018) reveal that teachers experiencing burnout report a higher prevalence of both physical ailments and mental health challenges, leading to absenteeism, reduced productivity, and workforce attrition.

In summary, the dual impact of work stress and burnout on mental and physical health underscores the urgency of targeted interventions. The evidence suggests that sustained occupational stress disrupts psychological well-being and physiological homeostasis, creating cascading effects that impair individual performance and organizational outcomes. For educators and other high-risk groups, addressing these issues requires systemic reforms, resource allocation, and supportive measures tailored to mitigate stress and foster resilience.

Methods

Research Design

The study adopts a cross-sectional descriptive design, which is appropriate for assessing the current state of lecturers' physical and mental health, stress, and burnout. This design allows for data collection at a single point in time, offering a snapshot of participants' experiences without the need for longitudinal tracking. By using self-reported data, the study effectively captures lecturers' well-being indicators and facilitates an examination of the relationships between stress, burnout, and health in the context of the evolving CoE environment in Ghana.

Although the study does not track changes over time, it includes retrospective questions, including open-ended ones that prompt participants to reflect on past experiences, thereby providing a degree of qualitative data. This approach provides insights into temporal changes in stress and burnout without requiring a cohort study framework, a common feature in longitudinal research (Cohen et al., 2011). Such a design is well-suited for understanding the current health status of CoE lecturers and exploring how past stress experiences may have shaped their present well-being (Babbie, 2021).

The cross-sectional design aligns with the study's objectives by enabling a direct assessment of physical and mental health indicators, as well as

the potential links between stress, burnout, and mental health symptoms (Schaufeli & Taris, 2014). This design also allows for a comprehensive view of lecturers' well-being within a single study period, capturing both their current status and past experiences, which is crucial given the evolving demands within Ghana's CoE system (Hakanen et al., 2019). In this regard, the design is methodologically sound and efficient, addressing the research questions without the complexities of a longitudinal study.

Population

The study targets 2,013 teacher educators from 46 CoEs in Ghana. This diverse group of tutors is responsible for training future basic school teachers across various disciplines. By including educators from the affiliated universities, the study ensures a comprehensive exploration of the relationship between stress and burnout on tutors' well-being (Mentally and physically). The diverse composition of the population is presented in Table 1.

Table 1: Distribution of the CoEs According to their Affiliated University

Affiliated University	Population	Affiliated Colleges Used
University of Cape Coast (UCC)	14	$^{14}/_{46}$ x13 = 3.957 = 4
University of Education (UEW)	14	$^{14}/_{46}$ x13 = 3.957 = 4
University of Ghana (UG)	7	$^{7}/_{46}$ x13 = 1.978 = 2
University of Development Studies (UDS)	6	$^{6}/_{46}$ x13 = 1.696 = 2
Kwame Nkrumah University of Science and Technology (KNUST)	5	$^{5}/_{46}$ x13 = 1.413 = 1
Total	46	13

Sample and Sampling Technique

A multistage sampling technique determined the study's sample size of 622 (30.9% of population), based on a 95% confidence level and 2.5% margin of error for a population of 2013 (Research Advisors, 2006). The final sample of 610 respondents, comprising 30.3% of the target population, is considered robust for analysis. Research supports that a sample representing 30% of the population is sufficient for generalizability

in educational research (Cohen, 2013; Krejcie & Morgan, 1970). The sampling process began with stratified selection of 13 Colleges of Education (CoEs) from a total of 46 to ensure regional and institutional diversity, as shown in Table 1. Within each CoE, participants were randomly selected from different departments to ensure coverage across various subject areas, enhancing the study's comprehensiveness and reliability. This sequential approach minimized bias and ensured that educators from a wide range of disciplines were included. Despite challenges in data collection, the sample size was maintained, ensuring robust data for analysis. The socio-demographic characteristics of the sample are presented in Table 2.

Table 2: Socio-demographic Characteristics of the Sample

Socio-demographic	Category	Percentage (%)	Sample (n)
Gender	Female	28.6	175
	Male	71.4	435
Academic Qualification	PhD	4.5	27
	MPhil	60.9	371
	M.ED/MA/MSc	34.6	211
Length of Service	5-10 years	40.5	247
	11-15 years	23.2	142
	16-20 years	11.4	70
	21-25 years	12.1	74
	26-30 years	8.8	54
	31-35 years	4	25
Area of Specialization	English	14.7	87
	Mathematics	13.9	85
	Science	11.1	68
	Ghanaian Language	5.8	36
	Social studies	9.5	58
	Religious studies	7.5	46
	Vocational skills	7.2	44
	Physical Education	3.9	25
	Education	17.5	107
	Info. & Com. Tech. (ICT)	8.9	54

n = 610

Instrument

The study employed a structured questionnaire as the primary data collection tool. Developed by a team of experts, the questionnaire

comprised sections addressing stress, burnout, well-being, and contextual factors affecting lecturers in CoEs. It utilised a Likert-type scale to capture quantitative responses, measuring both the current health status of lecturers and retrospective reflections on past experiences. The instrument underwent pilot testing with expert reviews and tutor feedback, ensuring construct validity. Reliability was confirmed through a Cronbach's alpha coefficient of 0.73, demonstrating the instrument's internal consistency. The questionnaire was administered to participants from 13 CoEs, achieving a remarkable return rate of 98.07% (610 responses).

Data analysis Procedure

The study employed a mixed-methods data analysis strategy, addressing research objectives comprehensively. Individual lecturers within CoEs served as units of analysis. Quantitative analysis, utilising mean and standard deviation, assessed physical and mental health, while Pearson Correlation explored relationships among Stress, Burnout, and Health indicators. Justified for providing a holistic view and quantifying variable interplay, these methods employed robust statistical tools (Smith, 2010; Jones, 2015). Qualitative analysis, conducted through content analysis of semi-structured interviews, added depth to quantitative findings. Data quality was ensured through rigorous data editing, error identification and rectification, and thematic categorization through coding (Brown & Johnson, 2018; García, 2013). Stringent data entry procedures, including dual-entry and thorough comparisons, minimised transcription errors (Smith, 2021; Thompson & Johnson, 2017). Ongoing training and supervision further enhanced accuracy (Williams et al., 2019). Integration of quantitative and qualitative analyses ensured a thorough exploration of the stress, burnout, and well-being relationship among CoE lecturers.

Limitations

In conducting this study, several limitations were identified that must be considered. First, although a Cohort Longitudinal design would have been ideal for examining the dynamic relationships over time, the high attrition rate within the CoEs made its implementation impractical. As a result, a cross-sectional descriptive design was chosen, which, while limiting the ability to track changes over time, was supplemented with retrospective open-ended questions to allow participants to reflect on their past experiences, providing some qualitative insights alongside the quantitative data. Second, the study's focus on educators within CoEs, while offering valuable insights, limits the generalisability of the findings to broader educational contexts, as it was specifically designed around the CoE environment. Third, although a multistage sampling technique was employed to ensure diversity, the risk of sampling bias remained, though

this was mitigated through rigorous random selection procedures. While quantitative methods offer rigour, they may overlook subtleties or introduce response biases, which were addressed by incorporating qualitative interviews, providing a more comprehensive understanding of lecturers' well-being. Lastly, the study did not include detailed prevalence data on stress and burnout levels, as these were addressed in a related publication in press. However, the identified prevalence levels and primary stressors informed the study's focus on exploring the correlations between stress, burnout, and the physical and mental health of lecturers in the evolving CoE context.

Results and Discussions

Hypothesis 1

$H_0$1: There is no significant correlation between the prevalence of stress and burnout among lecturers in CoEs and their self-reported physical health conditions and well-being indicators.

H_A1: There is a significant positive correlation between the prevalence of stress and burnout among tutors in CoEs and their self-reported physical health conditions and well-being indicators.

The study's first hypothesis explores the relationship between stress, burnout, and lecturers' self-reported physical health and well-being in CoEs. The null hypothesis (H_{01}) suggests no significant correlation, implying that the prevalence of stress and burnout does not affect lecturers' physical health or well-being. In contrast, the alternative hypothesis (H_{a1}) posits a significant positive correlation, indicating that higher levels of stress and burnout are associated with adverse physical health conditions and diminished well-being. This hypothesis aligns with existing literature highlighting the detrimental effects of stress and burnout on educators' health and overall quality of life, forming the basis for statistical analysis in this study. Table 3 provides a summary of the results.

Table 3: Bivariate Correlation between Stress, Burnout and Physical Health of Lecturers

		Stress	Burnout
Physical Health	Pearson Correlation	.368**	.382**
	Sig. (1-tailed)	.012	.009
	N	622	622

*p< 0.01 level (2-tailed)

In testing the hypothesis, a preliminary analysis was conducted to determine the mean and standard deviation of the physical health status of lecturers. The results revealing the physical health status of lecturers in CoEs in Ghana provide a deeper understanding of the toll that stress and burnout take on educators in the context of tertiary education transformation. The reported physical health issues such as back pain/ backache (2.78, .80), tiredness/weariness (2.84, .82), breathing difficulties (2.59, .99), high blood pressure (2.57, .85), neck and arm ache (2.67, .77), speech disorder (2.47, .89), and weight gain/loss of weight (2.69, .89) resonate with the increasing demands and evolving landscape of CoEs. The correlational analysis revealed significant positive relationships between lecturers' physical health and their stress and burnout levels. Stress demonstrated a moderate positive correlation with physical health ($r = .368$, $p = .012$), while burnout exhibited a slightly stronger correlation ($r = .382$, $p = .009$). These findings indicate that higher levels of stress and burnout among lecturers in CoEs are associated with a greater prevalence of self-reported physical health challenges. This result underscores the toll that heightened academic and administrative demands exert on lecturers amidst the transition to degree-awarding institutions. Physical health complaints such as back pain, tiredness, breathing difficulties, and high blood pressure were prominent among lecturers, reflecting the multifaceted strain posed by their professional responsibilities. Lecturers attributed these conditions to extended hours of lecturing, prolonged sitting during lesson preparations, and handling administrative duties.

Moreover, the positive correlation between physical health and burnout aligns with the theoretical framework of the stressor-strain model, which posits that prolonged exposure to stressors results in both psychological and physical strain (Lee & Ashforth, 2016). Emotional exhaustion, a core component of burnout, contributes to chronic fatigue and diminished personal accomplishment, thereby impairing lecturers' physical well-being (Maslach et al., 2017). This dynamic creates a self-perpetuating cycle where physical health challenges exacerbate stress and burnout, further impacting educators' effectiveness in their roles.

From a practical standpoint, the correlations emphasise the necessity of addressing stress and burnout within CoEs to safeguard lecturers' well-being and maintain educational quality. The interconnectedness of stress, burnout, and physical health observed here resonates with global findings (Ahola et al., 2019b; Bianchi & Schonfeld, 2020; Opoku et al., 2016), reiterating the multidimensional ramifications of these factors in educational settings.

Regression Analysis on Physical Health

Table 4: Model Summary for Predicting Physical Health

Model	R	R2	Adjusted R^2	Std. Error of the Estimate
1	.383	.147	.145	.46012
2	.401	.161	.157	.45673

Table 5: Coefficients for Predicting Physical Health

Model	Predictor	B	Std, Error	β	t	p
1	Constant	1.455	.132		11.013	.000
	Stress Scale	.386	.042	.383	0.241	.000
2	Constant	1.949	.215		9.062	.000
	Stress Scale	.435	.045	.431	9.716	.000
	Burnout Scale	.241	.083	-.129	-2.901	.004

Building on the correlational findings, a hierarchical multiple regression analysis was conducted to further examine the extent to which stress and burnout predict physical health outcomes among lecturers in Ghana's Colleges of Education (CoEs). As indicated in Table 4, Model 1 demonstrates that stress alone explains approximately 14.5% of the variance in physical health (Adjusted $R^2 = .145$), with a statistically significant beta coefficient ($\beta = .383$, $p < .001$). This initial model highlights the strong predictive power of stress on lecturers' physical health conditions. The relatively high t-value ($t = 9.162$) supports the strength of this relationship, suggesting that as stress levels increase, lecturers are more likely to report physical health challenges.

Model 2, which incorporates burnout alongside stress, marginally improves the model's predictive capacity, increasing the adjusted R^2 to .157. This modest improvement of $\Delta R^2 = .014$ underscores the additional explanatory power gained by including burnout in the model. As shown in Table 5, stress remains a significant and strong predictor ($\beta = .431$, $p < .001$), while burnout exhibits a statistically significant but negative relationship with physical health ($\beta = -.129$, $p = .004$). The negative beta coefficient for burnout suggests that higher levels of burnout are associated with deteriorating physical health, even after controlling for stress levels. The regression coefficients presented in Table 5 further elucidate these relationships. In Model 1, the unstandardised coefficient (B = .386) for

stress indicates that for every one-unit increase in stress, physical health scores increase by approximately 0.39 units, reflecting greater physical health difficulties. In Model 2, stress maintains a higher coefficient (B = .435), reaffirming its dominant role. Conversely, burnout's coefficient (B = –.241) indicates its distinct and detrimental effect, as it compounds the adverse outcomes associated with stress.

Together, the findings from both regression models (Table 4 and Table 5) underscore the dual impact of stress and burnout on physical health. While stress alone is a strong predictor, the addition of burnout provides a more nuanced understanding of the physical manifestations of emotional exhaustion. This reinforces the multifaceted nature of health outcomes among lecturers and supports the theoretical positioning of burnout as a distinct, compounding factor in the Conservation of Resources (COR) framework. These quantitative findings are further substantiated by the qualitative insights drawn from the open-ended responses. Lecturers repeatedly described how the accumulation of professional responsibilities, institutional changes associated with tertiarisation, and the pressure to meet new academic standards collectively eroded their physical well-being. Specific complaints included chronic fatigue, migraines, and stress-induced ailments which are symptoms that align with the physiological consequences of sustained stress and burnout as outlined in the COR theory.

The findings are also consistent with broader literature that links burnout to psychosomatic symptoms among educators. Emotional exhaustion, when unchecked, often leads to somatic complaints, which in turn affect professional performance, classroom presence, and interpersonal relationships with students. Lecturers experiencing high levels of burnout frequently reported decreased confidence, reduced motivation, and diminished creative engagement as factors that compromise lesson delivery and learning outcomes. The implications of these results are significant. The fact that stress and burnout together account for a meaningful portion of variance in physical health (Adjusted R^2 = .157) highlights the urgent need for systemic interventions aimed at improving lecturer well-being. Given the transformative shifts occurring in Ghana's CoEs, it is essential that institutional leaders acknowledge the physiological toll of these changes on faculty. Interventions such as workload restructuring, strategic stress management programmes, peer support mechanisms, and targeted health promotion initiatives are not mere add-ons but essential components of institutional sustainability. By integrating both quantitative and qualitative perspectives, and grounding the analysis in a robust theoretical model, this study contributes meaningfully to the discourse on educator well-being.

It offers a comprehensive understanding of how occupational stressors translate into tangible health consequences, thereby reaffirming the necessity of proactive strategies to safeguard the human resources pivotal to Ghana's teacher education system.

Hypothesis 2

H02: The perceived level of stress and burnout among tutors in Colleges of Education is not significantly related to their self-reported mental health status, including symptoms of anxiety, depression, and overall psychological well-being.

HA2: The perceived level of stress and burnout among tutors in Colleges of Education is significantly related to their self-reported mental health status, including symptoms of anxiety, depression, and overall psychological well-being.

The second hypothesis examined the relationship between stress, burnout, and mental health among tutors in Colleges of Education (CoEs). The null hypothesis (H02) posited no significant relationship between stress and burnout and tutors' mental health, while the alternative hypothesis (HA2) proposed a significant relationship. A summary analysis of the results is presented in Table 6.

Table 6: Bivariate Correlation between Stress, Burnout and Mental Health of Lecturers

Variable	M	SD	1	2	3
Mental Health	2.67	2.67	-	-	-
Stress	2.94	2.94	.373** (.001)	-	-
Burnout	2.91	2.91	376** (.013)	376** (.013)	-

N = 622

Key: M = Mean, SD = Standard Deviation. Values in parentheses are p-values [p < .01 (2-tailed)].

Mental health measured as composite score from 7 indicators as follows: *Nervousness and Anxiety: M = 2.86, SD = 0.95; Lack of Appetite: M = 2.74, SD = 0.84; Mood Swings: M = 2.71, SD = 0.78; Concentration Difficulties: M = 2.67, SD = 0.94; Sleep Disorders: M = 2.65, SD = 0.87; Depressive Mood: M = 2.56, SD = 0.91; and Nightmares: M = 2.48, SD = 0.96.*

A preliminary analysis provided insights into the mental health status of lecturers in Colleges of Education (CoEs), shedding light on the impact of stress and burnout in the context of the transformation of tertiary

education. The findings revealed that mental health issues were prevalent among lecturers, with nervousness and anxiety being highly reported (M = 2.86, SD = .95). Other notable challenges included a lack of appetite (M = 2.74, SD = .84), mood swings (M = 2.71, SD = .78), concentration difficulties (M = 2.67, SD = .94), sleep disorders (M = 2.65, SD = .87), and depressive moods (M = 2.56, SD = .91). Among the symptoms, nightmares were the least reported (M = 2.48, SD = .96). These findings offer a nuanced understanding of the psychological toll on lecturers in CoEs amidst their evolving academic roles.

The correlation analysis revealed significant positive associations between lecturers' mental health and their reported levels of stress ($r = .373$, $p = .001$) and burnout ($r = .376$, $p = .013$). These results illuminate the intricate interplay between stress, burnout, and mental well-being within CoEs, emphasising the profound implications for educators' health and professional capacity. The transition of CoEs into degree-awarding institutions, accompanied by heightened academic expectations, has notably intensified stress levels. Lecturers are required to adapt their teaching methodologies, curriculum designs, and assessment strategies to align with tertiary education standards, introducing unprecedented stressors. For example, interviews with lecturers highlighted the pressures to publish research, engage in scholarly activities, and balance extensive teaching commitments, all of which contribute to elevated stress and burnout. The interconnectedness of stress, burnout, and mental health becomes evident in the manifestations of emotional exhaustion and reduced personal accomplishment among lecturers. The prevalence of symptoms such as a lack of appetite, mood swings, sleep disorders, and depressive moods underscores the pervasive impact of burnout on mental well-being. These findings align with prior research by Kyriacou and Sutcliffe (2017) and Hakanen et al. (2018b), which highlighted the holistic effects of burnout on educators, influencing both their professional and personal lives. Notably, the evolving demands associated with tertiary education in CoEs exacerbate these challenges, creating a distinct environment that heightens lecturers' vulnerability to stress-related mental health issues.

The mental health challenges of lecturers have far-reaching implications for the teaching and learning process. Anxiety and nervousness impair their ability to create engaging and interactive learning environments, directly affecting students' academic experiences. Similarly, mood swings and depressive moods compromise lecturers' emotional availability, reducing their responsiveness to students' needs and diminishing their overall effectiveness as educators. Concentration difficulties, a common symptom of burnout, hinder lecturers' ability to design curricula,

assess student performance, and provide constructive feedback, further impacting the quality of education delivered in CoEs. The results also align with the stressor-strain model, which posits that prolonged exposure to stressors such as increased academic demands results in psychological strain, adversely affecting mental well-being (Kyriacou & Sutcliffe, 2017). The bidirectional relationship identified in this study suggests a self-perpetuating cycle: stress and burnout contribute to declining mental health, which in turn exacerbates stress and burnout. This cyclical pattern underscores the urgent need for targeted interventions to break the cycle and mitigate the mental health burdens on lecturers. In the context of transitioning CoEs, the findings emphasise the necessity of institutional support systems. Mental health resources, such as counselling services, peer support groups, and stress management workshops, are crucial for helping lecturers navigate the pressures of tertiary education. Additionally, tailored professional development programmes that equip lecturers with skills to balance academic and research demands can help alleviate stress. Recognising and addressing these challenges is not only vital for safeguarding lecturers' well-being but also critical for maintaining the quality of education in CoEs. This study makes a significant contribution to the understanding of mental health in educational settings, contextualising the discussion within the unique landscape of CoEs in Ghana. By integrating quantitative findings with some qualitative insights, it underscores the multifaceted nature of mental health challenges faced by lecturers. The findings further reinforce the importance of mental well-being as an essential component of educational reform, especially in transitional contexts like the tertiarisation of CoEs. The correlation results highlight the profound influence of stress and burnout on lecturers' mental health, shedding light on the critical need for proactive measures to address these issues. As CoEs continue to evolve into degree-awarding institutions, prioritising the mental well-being of educators will be pivotal in ensuring their sustained ability to meet academic demands and deliver quality education. These findings provide a foundation for future research and institutional reforms aimed at supporting lecturers in navigating the complexities of tertiary education.

The regression analysis presented in Tables 7 and 8 provides a comprehensive understanding of the extent to which stress and burnout predict mental health outcomes among lecturers in Ghana's CoEs. The model summary in Table 7 reveals that stress alone accounts for approximately 15.7% of the variance in mental health (Adjusted $R^2 = .157$), underscoring its significant explanatory power.

Regression Analysis on Mental Health

Table 7: Model Summary for Predicting Mental Health

Model	R	R2	Adjusted R^2	Std. Error of the Estimate
1	.398	.159	.157	.36208
2	.417	.174	.170	.35678

Table 8: Coefficients for Predicting Mental Health

Model	Predictor	B	Std, Error	β	t	p
1	Constant	1.736	.124		13.968	.000
	Stress Scale	.342	.037	.398	9.162	.000
2	Constant	2.023	.167		12.112	.000
	Stress Scale	.376	.038	.438	9.895	.000
	Burnout Scale	-.158	.062	-.105	-2.548	.011

With the inclusion of burnout as an additional predictor in Model 2, the explained variance increases marginally to 17.0% (Adjusted $R^2 = .170$). This incremental gain, albeit modest, points to the additive, though comparatively limited effect of burnout in shaping mental health challenges within the collegiate educational context.

Table 8 further elucidates the contributions of each predictor. In Model 1, stress emerges as a strong predictor of mental health outcomes, with a standardised beta coefficient of $\beta = .398$ ($p < .001$). Its predictive strength intensifies in Model 2 ($\beta = .438$, $p < .001$), even in the presence of burnout, confirming the dominant role stress plays in eroding lecturers' psychological well-being. By contrast, burnout assumes a statistically significant yet less impactful role ($\beta = -.105$, $p = .011$), suggesting that although burnout is relevant, its influence is more gradual and indirect compared to the acute, high-pressure implications of stress. These findings resonate with the theoretical premises of the Job Demands-Resources (JD-R) model (Demerouti et al., 2001), which posits that excessive job demands such as persistent stress and emotional overload diminish employees' mental and emotional capacities. The results reinforce the model's assertion by empirically demonstrating that lecturers experiencing high levels of stress are significantly more prone to adverse mental health outcomes. The heightened beta value for stress in Model 2 further implies that even when accounting for the overlapping effects of burnout, stress retains its primacy as a mental health risk factor. This corroborates the conclusions of Bakker et al. (2014), who found stress to be a principal antecedent to anxiety,

depression, and psychological exhaustion among educators operating in high-demand environments.

Although burnout contributes less substantially in this model, its role should not be underestimated. The negative beta coefficient reported in Table 8 signifies the corrosive nature of burnout, a condition characterised not by immediate psychological collapse but by a slow, cumulative depletion of emotional resilience. Hakanen et al. (2018b) provide a relevant lens here, describing burnout as a protracted process marked by emotional exhaustion, depersonalisation, and a gradual disengagement from work-related meaning. Thus, burnout may not be the initial disruptor of mental health, but it acts as a reinforcing agent that deepens distress over time, particularly in contexts of sustained institutional stressors. The correlation coefficients previously reported in Table 6 (stress: $r = .373$; burnout: $r = .376$; $p < .01$) laid the groundwork for these regression analyses by confirming that both variables bear significant bivariate relationships with mental health. However, the regression models in Tables 7 and 8 refine this understanding by delineating the unique and relative predictive strengths of each construct. This layered statistical approach lends credibility and analytical depth to the findings, enabling more precise identification of high-priority intervention points. From an institutional perspective, these insights have profound implications for policy and practice within CoEs. The substantial predictive power of stress ($\beta = .438$) signals the need for immediate, targeted interventions—including the implementation of structured workload redistribution frameworks, enhanced access to psychosocial support services, and the promotion of collegial, supportive work environments. Conversely, addressing burnout calls for strategic, long-term investments in institutional culture: improving professional autonomy, expanding mentorship opportunities, and reducing the bureaucratic demands that often constrain lecturer engagement and morale.

In summary, the results as shown in Tables 7 and 8 function as more than statistical summaries to offer a diagnostic lens into the psychosocial landscape of tertiary educators in Ghana. Stress stands out as an acute and pressing threat to mental health, while burnout represents a more insidious, long-range adversary. Together, these findings provide a comprehensive framework for understanding the complex interplay of job-related stressors and psychological outcomes. The evidence calls for a dual-pronged institutional response that simultaneously addresses the immediate triggers of stress and mitigates the slow-burning effects of professional exhaustion. In doing so, CoEs can create more sustainable and mentally supportive environments, fostering not only lecturer well-being

but also the long-term quality and resilience of Ghana's teacher education system.

Conclusions

1. The results indicate significant positive correlations between stress, burnout, and lecturers' self-reported physical health conditions. These findings reveal that the heightened demands associated with the transition to degree-awarding institutions have adverse physical health implications, such as chronic fatigue, musculoskeletal issues, and other stress-related ailments. Such physical health challenges not only compromise lecturers' well-being but also detract from their ability to deliver high-quality education.
2. The study establishes a clear link between stress, burnout, and mental health challenges, including heightened levels of anxiety, depression, and diminished psychological resilience. This underscores the emotional burden lecturers bear in adapting to increased workloads, academic pressures, and institutional changes. The findings highlight the bidirectional nature of stress and mental health, where psychological distress exacerbates burnout, further compromising lecturers' ability to cope with occupational demands.
3. The cascading effects of stress and burnout on lecturers' physical and mental health inevitably influence their teaching effectiveness and engagement with students. This poses a critical risk to the quality of educational services within CoEs, potentially affecting student outcomes and undermining the broader objectives of tertiary education transformation.
4. The study underscores that stress and burnout among lecturers are not solely individual challenges but are deeply rooted in systemic issues, such as insufficient institutional support, unclear policies during the tertiarisation process, and increased administrative burdens. Addressing these systemic factors is pivotal for sustainable well-being initiatives.
5. The findings underscore the necessity of comprehensive, multi-faceted interventions to mitigate the adverse effects of stress and burnout. Such interventions should encompass stress management programmes, workplace wellness initiatives, access to counselling and mental health services, and structural reforms to reduce unnecessary workloads. Prioritising these measures is essential to safeguard lecturers' well-being and sustain the quality of educational delivery in CoEs.
6. The transformation of CoEs into degree-awarding institutions is a commendable step towards enhancing tertiary education. However, the findings stress the importance of balancing these transformative goals with the well-being of lecturers. Institutional stakeholders must ensure

that policies and practices supporting this transformation are accompanied by robust measures to alleviate stress and burnout

Policy Implications

1. CoEs must establish robust support systems, including access to mental health services, stress management programmes, and peer support groups. Policies should mandate the integration of workplace wellness programmes as part of institutional priorities to promote educators' well-being.
2. Policymakers should develop frameworks to balance academic and administrative responsibilities, ensuring that tutors' workloads are manageable. Streamlined processes for academic reporting and administrative tasks are critical in alleviating burnout.
3. Policies should focus on equipping tutors with skills and resources to adapt to evolving educational demands. Continuous professional development initiatives, alongside adequate teaching and learning resources, will mitigate stress caused by institutional transformations.
4. Management of the CoEs with oversight responsibilities from the affiliate bodies should prioritise educators' physical and mental health in their strategic plans, ensuring budgetary allocations for health interventions. Policy directives should mandate regular health assessments for tutors.
5. Effective implementation of well-being policies requires collaboration among Government agencies like the Ghana Tertiary Education Commission (GTEC), Affiliate Universities, CoE Management, and Educators' unions. A participatory approach ensures the development of interventions that address the real needs of lecturers while aligning with institutional goals.
6. Policies must include mechanisms for regularly monitoring lecturers' stress and health levels, with findings used to inform targeted interventions. Data-driven strategies ensure the continuous relevance and effectiveness of well-being initiatives.

Contribution to Research

Beyond merely justifying the necessity of this study, as elucidated in the introductory section of this paper, its findings contribute significantly and uniquely to the existing body of knowledge. Given the transformation of Colleges of Education (CoEs), the insights generated from this research offer critical guidance for the design of targeted interventions and support systems that are responsive to the evolving educational landscape. These include tailored professional development initiatives and mental health programmes specifically structured to address the emerging and contextual needs of lecturers.

Moreover, the study's exploration of the correlations among stress, burnout, and both physical and mental health provides robust empirical evidence that not only supports but also extends existing theoretical frameworks such as the stressor-strain model. By illustrating the bidirectional relationships between these variables, the research deepens our understanding of how stress and burnout interact to intensify both physical and psychological health challenges among educators.

From a practical standpoint, the findings underscore the urgent need to implement systemic interventions that support lecturers' overall well-being, particularly as they grapple with the heightened academic and administrative demands brought about by the tertiarisation process. The emphasis on holistic support—encompassing mental health resources, workload management strategies, and institutional responsiveness—offers actionable insights for educational policymakers and institutional leaders striving to foster healthier work environments within CoEs.

Importantly, the implications of this study extend beyond academic staff to impact the student experience. The well-being of lecturers, manifested through manageable stress levels and reduced burnout, is inextricably linked to the quality of teaching and learning. The findings thus reinforce the imperative to prioritise lecturer well-being as a foundational element in the pursuit of improved educational outcomes, ultimately contributing to the creation of a more effective and supportive academic environment for all stakeholders.

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