Causal Model of Lecturer Related Variables on Economics Education Students' Academic Achievement in University of Jos

Emmanuel Istifanus Dang & Dr. Augustine Sambo Azi
Department of Social Science Education
Faculty of Education,
University of Jos

Prof. Sayitta Wakjissa
Department of Educational Foundations
Faculty of Education,
University of Jos
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Abstract
This paper investigates the factors influencing the academic achievement of Economics Education students at the University of Jos, where declining graduation rates have raised concerns. Employing a causal-comparative and correlational research design, the study develops and tests a causal model to quantify the impact of lecturer-related, curriculum-related, and school environment-related variables. Data was collected from 39 Economics Education lecturers using a validated and reliable questionnaire. Path coefficient analysis within a Structural Equation Modeling framework (AMOS 26) was used to determine the direct and indirect effects of these variables on student achievement, while chi-square analysis tested the hypothesized relationships. The findings reveal that curriculum content and coverage significantly impact student achievement, followed by lecturer-related factors, and then school environment. The analysis demonstrated a significant causal link among the variables and revealed the direct and indirect regression weights. The study concluded that academic achievement is significantly influenced by the interplay of these factors, with curriculum content and coverage holding the most substantial impact (path coefficient of 0.52), followed by lecturer-related variables (0.24), and school environment (0.13). The model demonstrated a good fit to the data, validating the causal links and highlighting the dominance of direct effects (0.41) over indirect effects (0.18). The proportional contribution of each variable underscored the primary role of curriculum (47.3%), followed by lecturer-related factors (21.8%), and school environment (11.8%). Based on these findings, the study recommends enhancing lecturer training and development, conducting periodic curriculum reviews, improving the school environment and resources, implementing regular model fit assessments, focusing on direct causal links, and disseminating the proportional impact of variables to inform focused improvement plans. These targeted interventions aim to enhance student outcomes and improve graduation rates in the Economics Education program at the University of Jos.

Keywords: *Causal Model, Lecturer, Economics, Students, Academic Achievement*

INTRODUCTION

Education, a fundamental human right recognized globally (UNESCO, 2022), is a complex and dynamic process that facilitates learning, knowledge acquisition, and personal growth. It empowers individuals to develop their full potential and contribute meaningfully to society (Nweke, 2023). A nation's educational system is the cornerstone of its development, directly impacting the quality of its citizenry and driving economic growth and prosperity. Institutions of higher learning, particularly universities, play a crucial role in shaping future leaders and fostering intellectual capital. In Nigeria, the effectiveness of the higher education system in producing well-rounded and economically empowered individuals depends significantly on the quality of education provided by these institutions. Therefore, understanding and optimizing the factors that contribute to successful academic outcomes in higher education is paramount.

Economics, as a social science, provides a framework for understanding how individuals, businesses, governments, and societies make decisions about allocating scarce resources to meet their unlimited wants and needs (Mankiw, 2020). It explores human decision-making and interaction across various levels, from individual choices to complex global economic systems. Economics students develop skills in research methodologies, policy analysis, and quantitative techniques, providing them with a robust understanding of resource allocation, incentives, and wealth creation (Nazmul, 2018). A solid grounding in microeconomics, macroeconomics, and econometrics is essential for pursuing advanced studies and research in specialized areas of economics, such as development economics, environmental economics, behavioral economics, health economics, labor economics, econometrics, and economics education. Furthermore, the principles of economics are applicable and relevant to other disciplines, including business management, law, political science, and public affairs.

Economics Education serves as a crucial link between economic theory and its practical application in the real world. It is a dynamic field within economics itself, focusing on the pedagogy of economics and encompassing the design and delivery of economics curricula at all educational levels (OECD, 2020). This field delves into how individuals learn economics (Council for Economic Education, 2021), striving to equip learners with the knowledge and skills necessary to make informed economic decisions and contribute to a more economically literate and engaged society (Azi & Drenkat, 2021). At the university level, economics education programs have specific objectives, including the development of problem-solving skills and the promotion of holistic instruction for community development (Economics Education Students Handbook, 2022). These objectives are achieved through carefully designed content and integrated teaching methods that focus on creating effective, efficient, and ethical teachers who are committed to anti-bias approaches. The discipline aims to prepare students for the labor market as responsible and productive citizens equipped with entrepreneurial skills to navigate the challenges of a constantly evolving society. It also seeks to produce intellectually sound graduates who will contribute positively to various sectors, including industries, education, and public administration, both in Nigeria and globally. A fundamental principle of economics education is that a qualified Economics Educator must first possess a strong foundation in economics, emphasizing the essential connection between the two fields.

Lecturers are essential stakeholders in the educational system, and their contributions are crucial for student success. Lecturer-related variables, such as their perceptions of students, subject matter competence, teaching methodologies, instructional materials, and overall attitude, all influence student achievement (Rabije, 2015). Lecturers who hold high expectations and have positive views of their students create a supportive and motivating learning environment. Strong command of the

subject matter is essential for effective teaching and building student trust. The use of diverse and engaging teaching methodologies and relevant instructional materials makes complex concepts more accessible and fosters deeper understanding. Enthusiastic and dedicated lecturers inspire students and create dynamic learning environments that encourage active participation. Finally, lecturers' professional abilities in planning, managing, and evaluating educational activities are vital for ensuring structured and productive learning experiences.

The curriculum is the core document that guides instruction and outlines the learning experiences designed to achieve desired learning outcomes (Aina, 2023). Curriculum planning involves defining the learning opportunities available to students and ensuring alignment with program objectives. A well-structured curriculum considers the student workload, striking a balance between providing sufficient challenge and avoiding overload (Okoro & Ahmed, 2022). In economics education, the curriculum must integrate the breadth and depth of both economics and education, requiring students to master core economics courses alongside essential pedagogical courses. This demanding program necessitates a high level of commitment, discipline, and effective time management skills (Aina, 2023). Curriculum content determines the knowledge and skills students acquire (Okoro & Ahmed, 2022). Appropriate curriculum coverage and workload ensure that students can effectively manage their studies without feeling overwhelmed or under-challenged (Abubakar, 2023). The teaching methodologies and instructional materials embedded in the curriculum influence student engagement and critical thinking (Okoro & Ahmed, 2022). The economics education curriculum aims to develop both economic understanding and pedagogical skills, preparing graduates for diverse career paths. However, the demanding nature of the curriculum can pose significant challenges for some students, potentially leading to academic difficulties and program withdrawal (Abubakar, 2023).

The school (teaching and learning) environment encompasses a wide range of factors that significantly impact student achievement. These factors include the availability and quality of teaching facilities, the condition of classrooms, the resources available in the library, the accessibility and functionality of computer and econometrics laboratories, the availability of resource rooms, and the conduciveness of student hostels (Gilavand, 2016). Effective learning requires that these facilities be available, accessible, and adequate. A clean, quiet, and comfortable learning environment is essential for concentration and engagement (Gilavand, 2016; Murugan & Rajoo, 2013). Modern learning environments should also incorporate technology, offer flexible learning spaces, and be inclusive. Up-to-date technological tools, such as projectors, smart boards, and specialized software, can enhance the learning experience. Flexible classroom and laboratory designs facilitate diverse teaching strategies and collaborative learning activities. Inclusivity ensures that all students, regardless of background or ability, have equal access to resources and opportunities. The psychological and social aspects of the learning environment are also crucial. When students feel safe, valued, and supported, they are more likely to be motivated and engaged, leading to better academic outcomes.

The fluctuating academic achievement of Economics Education students at the University of Jos, particularly the declining graduation rates within the expected timeframe, is a serious concern. Departmental records indicate a consistent pattern of students requiring extended periods of study or withdrawing from the program altogether due to academic difficulties. An analysis of student performance from the 2010/2011 to 2022/2023 academic sessions reveals that only 41% of admitted students graduated within the stipulated duration of the program. A significant majority (59%) experienced delays of at least one academic session, and some were compelled to withdraw due to insufficient academic progress. This persistent trend has negative consequences, potentially

discouraging prospective students from pursuing Economics Education and hindering the development of a skilled workforce.

To effectively address this issue, it is essential to identify and understand the underlying factors contributing to the declining graduation rates. A causal model can provide a valuable framework for analyzing the complex relationships between these factors and student achievement (Hitchcock, 2024). By incorporating key variables, such as lecturer-related factors, curriculum-related factors, and school environment-related factors, the model can help pinpoint the specific areas that require intervention. Causal modeling, rooted in the statistical advancements of the early 20th century (Hitchcock, 2024), provides a robust framework for understanding cause-and-effect relationships and the role of probability in causal processes. It draws on insights from various disciplines, including computer science, econometrics, epidemiology, philosophy, and statistics.

Numerous factors influence student academic achievement, and these can be broadly categorized as internal (e.g., mindset, motivation, mental health) and external (e.g., academic factors, social influences, economic conditions, and demographic characteristics) (Yousuf & Nur, 2022). While various recommendations exist for improving these factors, a "one-size-fits-all" approach is unlikely to be effective due to the complex interplay and interdependencies among them. Blindly applying the same interventions without considering the relative importance of each factor and their potential interactions could lead to inefficient resource allocation and suboptimal outcomes. Furthermore, some factors may exhibit a "multiplier effect," meaning that addressing one factor can indirectly lead to improvements in other related areas. This interconnectedness is often overlooked in previous research, which tends to examine factors in isolation rather than as a complex system.

To address this gap and gain a more nuanced understanding of the factors influencing student achievement in Economics Education at the University of Jos, this research aims to identify the specific variables that have the most significant impact on students' academic performance. By developing a causal model, the study will quantify the influence of each external variable on internal factors and explore how these variables might have cascading or interactive effects on one another. The causal model will not only identify the most influential factors but also illuminate the pathways through which these factors affect student outcomes. This approach will allow for a more targeted and effective approach to intervention design. By pinpointing the key variables that require the most attention and understanding their connections with other factors, this study will provide data-driven recommendations for interventions that are tailored to the specific needs of Economics Education students at the University of Jos. This, in turn, will enable educational institutions to prioritize their resources more effectively, focusing on areas that will have the greatest positive impact on student achievement and timely graduation rates. The ultimate goal is to create a more supportive and effective learning environment that empowers students to reach their full academic potential and contribute meaningfully to the development of Nigeria.

AIM AND OBJECTIVES OF THE STUDY

The aim of this study is to develop a Causal Model of Lecturer-related variables affecting Economics Education Students Academic Achievement in the University of Jos. Specifically, the objectives of the study are to:

1. develop and test a meaningful path model of Lecturer-related variables that affect Economics Education students' achievement in Economics in University of Jos
2. determine the estimates of the causal links among lecturer-related, curriculum-related,

environment-related variables on Economics Education students achievement in University of Jos.

3. determine the regression weights of direct and indirect Causal links of lecturer-related, curriculum-related and environmental-related variables on Economics Education students' achievement in University of Jos.
4. establish the total effect of lecturer-related, curriculum-related and environmental-related variables on Economics Education Students achievement in University of Jos.
5. find out the proportion of regression weight of causation of lecturer-related, curriculum-related and environmental-related variables on Economics Education students' achievement in University of Jos.
6. determine the Goodness of FIT indices of the reproduced path model of lecturer-related variables on Economics Education students' achievement at the University of Jos.

RESEARCH QUESTIONS

The following research questions will be answered in the study:

1. What is the most meaningful path model of lecturer-related variables affecting Economics Education students academic achievement in University of Jos
2. What are the estimates of Causal links among the lecturer-related, curriculum-related and environmental-related variables affecting the academic achievement of Economics Education students in University of Jos.
3. To what extent do regression weight of direct and indirect Causal links of lecturer-related, curriculum-related and environment-related variables have on the academic achievement of Economics Education students in University of Jos?
4. What is the total effect of lecturer-related, curriculum-related and environmental-related variables on Economics Education Students' academic achievement in University of Jos?
5. What are the proportions of the regression weight of causation of lecturer-related, curriculum-related and environmental-related variables on Economics Education students academic achievement in University of Jos?
6. what determines the Goodness of FIT indices of the reproduced path model of Lectuer related variables affecting Economics Education students' academic achievement in University of Jos?

HYPOTHESES

The following hypotheses will be formulated for the study to be tested at 0.05 level of significance:

1. There is no significant difference between the default path model and the saturated path model of lecturer-related variables affecting Economics Education students' achievement in University of Jos.
2. There is no significant Causal links among lecturer-related, curriculum-related and environmental-related variables on Economic Education Students academic achievement in University of Jos.
3. The regression weight of direct and indirect Causal links of lecturer-related, curriculum-related and environment-related variables has no significant difference with Economics Education students' academic achievement.

4. There is no significant total effects of lecturer-related, curriculum-related and environment-related variables on Economics Education students academic achievement in University of Jos.
5. The proportion of regression weight of causation of lecturer-related, curriculum-related, and environmental-related variables does not have significant difference on Economics Education academic achievement in University of Jos.
6. The Goodness of FIT indices of the reproduced Path/Causal model of lecturer-related variables does not have a significant direct effect on Economics Education students academic achievement in University of Jos.

DESIGN OF THE STUDY

This study employed a causal-comparative and correlational research design. A causal-comparative research design also known as Ex-post facto is a research design that seeks to find the relationships between independent and dependent variables after an action or event has already occurred. The design attempts to explain the cause-and-effect relationship between variables. The goal of the design is to determine whether the independent variable affects the outcome or the dependent variable. The causal comparative design will be appropriate for the present study because the study is aimed at developing a causal model of variables affecting economics education students' achievement in the university of Jos.

A correlational research design is a quantitative research approach that seeks to identify and describe the relationships between two or more variables. This design aims to determine whether there is a statistical relationship between variables, without necessarily implying causation. Correlational research design will be employed to explore the relationships between the variables. By analyzing the correlations between these variables, the study aims to identify the factors that are most strongly related to academic achievement and develop a causal model that explains the relationships between the variables and their impact on academic achievement.

Causal-comparative and correlational research designs are justified in the context of this study, which aims to develop a causal model of variables affecting the academic achievement of Economics Education students in the University of Jos. The causal-comparative design is appropriate for examining the cause-and-effect relationships between variables, while the correlational design is suited for exploring the strength and direction of relationships between variables. By combining both designs, the study can comprehensively investigate the complex relationships between variables, identify the factors that influence academic achievement, and develop a robust causal model that explains the relationships between the variables and their impact on academic achievement.

POPULATION AND SAMPLE

Population

The population for this study consist of all the 39 Economics lecturers from Economics Department in the faculty of social science and Department of Social Science Education Faculty of Education University of Jos. The inclusion of the lecturers from the Economics Department in the faculty of Social Science is because of their involvement in teaching the Economics Education students in the University of Jos for the 2022/2023 academic session.The lecturers' population comprise 28 lecturers from Economics Department in the faculty of Social Science and 11 lecturers from Department of Social Science Education. Table 1, present the population of the Economics Education lecturers used for the study.

Table 1
Population of Economics Education Lecturers in University of Jos 2022/2023

Department	Number of Lecturers
Economics	28
Social Science Education	11
Total	**39**

Source: Staff Profile in the Departments of Economics and Social Science Education University of Jos

Sample

The sample of the study consist of all the 39 Economics Education Lecturers which is the entire population of the lecturers from both Department of Economics Faculty of Social Sciences and Department of Social Science Education Faculty of Education. The decision to use the entire population as the sample is because the population is not too large and can be managed by the researcher as supported by Kline (2020), who stated that when the sample size is small, it is often best to use the entire population, especially when using structural equation modelling (SEM) techniques, such as path analysis.

SAMPLING TECHNIQUE

The entire population of the lecturers from both Department of Economics in the faculty of Social Sciences and lecturers from the Department of Social Science Education Faculty of Education all in the University of Jos which is 39 is used. Census sampling technique is adopted, since the whole population of the lecturers in the Departments and students in the level will be involved in the study.

Census sampling, also known as population sampling, involves selecting every member of the population as part of the sample. The census sampling technique will be employed due to the small population size, making it feasible and cost-effective to include every member in the sample. Another reason is that high-stakes decision-making situations, such as policy decisions or high-impact interventions, require accuracy and generalizability, making it necessary to include every member of the population (MacDonald, 2020).

INSTRUMENTS FOR DATA COLLECTION

One instrument is used for data collection. This is the Economics Education Lecturer-Variables Questionnaire (EELVQ).

Validity of the Instrument

The Kaiser Meyer Olkin (KMO) and Barlett' measure for sampling adequacy for the Economics Education Lecturer Variable Questionnaire (EELVQ) value is 0.696, which is between mediocre and good. Indicating suitability of the instrument for factor analysis. It was also significant at $p = 0.000$ for the instrument, since $p<.05$, therefore the data was suitable for factor analysis. In this case, the chi-square value is 540.265 with 10 degrees of freedom, and the significance level is less than 0.001. This indicates that there is evidence to suggest, that the correlation matrix is significantly different from an identity matrix. Therefore, the data may be suitable for factor analysis.

Reliability of the Instruments

The reliability of Economics Education Lecturers' Variable Questionnaire (EELVQ) was established using Cronbach Alpha's method and a coefficient of 0.94 was obtained for all the items. Ugodulunwa (2008) is of the view that any coefficient between 0.70 and above is generally accepted as a sign of acceptable reliability, therefore the two instruments are reliable since their coefficient were above 0.70.

METHOD OF DATA ANALYSES

To answer the research questions, path coefficient analysis was employed to examine the relationships between the variables. Specifically, the path coefficient analysis was used to answer the six research questions by quantifying the direct and indirect effects of the predictor variables on the outcome variable. This provided insights into the complex relationships between the variables and help identify the most significant predictors of academic achievement. The path coefficient analysis was conducted using Structural Equation Modeling (SEM) techniques, specifically with the Analysis of Moment Structures (AMOS) software package, version 26, within the IBM SPSS environment. This software enabled the estimation of the path coefficients and the testing of the hypothesized relationships between the variables.

To test the six hypotheses, chi-square analysis was conducted. The chi-square test was used to determine whether there are significant differences between the observed and expected frequencies of the variables, thereby allowing for the testing of the hypotheses. The results of the chi-square analysis is to indicate whether the relationships between the variables are statistically significant, thereby providing a basis for accepting or rejecting the hypotheses.

RESULTS AND DISCUSSION

The meaningful path model of lecturer variables affecting the academic achievement of Economics Education students in University of Jos.

Figure 1 presents the result on the meaningful path model of variables affecting the academic achievement of Economics Education Students in University of Jos. From the result, major variables under consideration here are the lecturer variable, curriculum content and coverage variable and the school environment variables. the lecturer-related variable path coefficient is 0.24, the curriculum content and coverage-related variable path coefficient is 0.52 and the school environment-related variable path coefficient is 0.13. this implies that the curriculum content and coverage related variables with the highest regression weight of 0.52 is the meaningful path model of variable affecting academic achievement of Economics Education student in University of Jos. The path with the lowest regression weight is the school environment related variables with the regression weight of 0.13. this also explains that the lecturer-related variables are closely related in its effects on the economics education student's academic achievement.

Analysis of the chi-square was conducted to determine whether there is a significant difference between the saturated path model and the default path model of variables affecting Economics Education students' achievement in University of Jos. Table 1 shows that, the value of CMIN/DF is 0.911 and a p-value of 0.030 indicating that, there is a significant difference between the default model and the saturated model of variables affecting Economics Education Students' achievement in University of Jos, and that the model fits the data adequately, with no evidence to suggest misspecification or lack of fit. Hence, the null hypotheses is rejected that there is a

significant difference between the saturated path model and the default model of variables affecting Economics Education Students Academic Achievement in University of Jos.

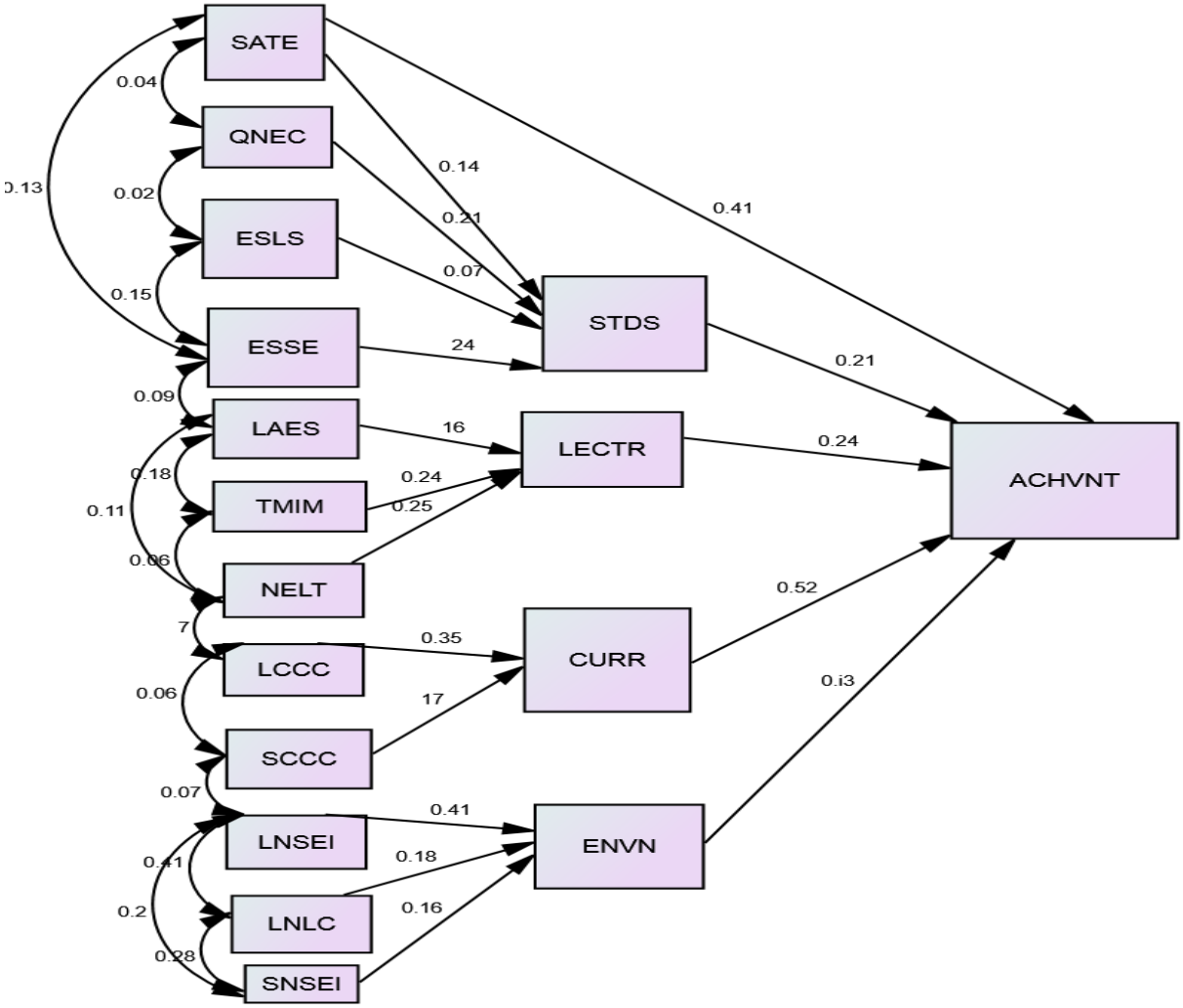

Figure 1: The most meaningful path model of variables affecting Economics Education Students achievement

SATE: Students Attitude towards Economics
QNEC: Quantitative Nature of Economics
ESLS: Economics Students Learning Style
ESSE: Economics Students Self Efficacy
LAES: Lecturers Attitude towards Economics Education Students
TMIM: Teaching Methods and use of Instructional Materials
NELT: Nature of Examination and Lecture Timetable
LCCN: Lecturers and Curriculum Content and Coverage
SCCC: Students and Curriculum Content and Coverage
LNSEI: Lecturers and Nature of School Environment and Infrastructures
LNLC: Lecturers and Nature of Lecture Halls and Classrooms

SNSEI: Students and Nature od School Environment and Infrastructures
STDS: Students Related Variables
LECTR: Lecturer Related Variables
CURR: Curriculum Content and Coverage Related Variables
ENVN: School Environment Related Variables
ACHVNT: Economics Education Students Achievement

Table1
The results of the model fit summary of the default model and the saturated model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	23	.612	4	.030	0.911
Saturated model	19	.000	0		

Source: Researchers analysis

The estimates of Causal links among the lecturer-related, curriculum-related and environmental-related variables affecting the academic achievement of Economics Education students in University of Jos.

The estimate strengths of the causal links among the lecturer-related, curriculum content and coverage related, and environment related variables affecting academic achievement of Economic Education students' achievement in University of Jos is presented in figure 2. These estimates present the causal links between the lecturer related variable which is 0.24, curriculum content and coverage related variable which is 0.52 and the school environment related variables which is 0.13 and Economics Education students' academic achievement in Univrsity of Jos. This shows that the causal link of Lecturer-related variable, student-related variables, curriculum content and coverage related variables and school environment related variables is 0.89.

The CMIN/DF and the P-value for the model is presented in table 2 which revealed that the CMIN/DF is 0.925 since its relatively close to 1 it indicates a good fit and the P value is 0.020 indicating that there is a significant causal link among the lecturers-related variables, curriculum content and coverage related variables and school environment related variables. This shows that Economics Education students' academic achievement in University of |Jos is a function of lecturer-related, students-related, curriculum content and coverage related and school environment related variables.

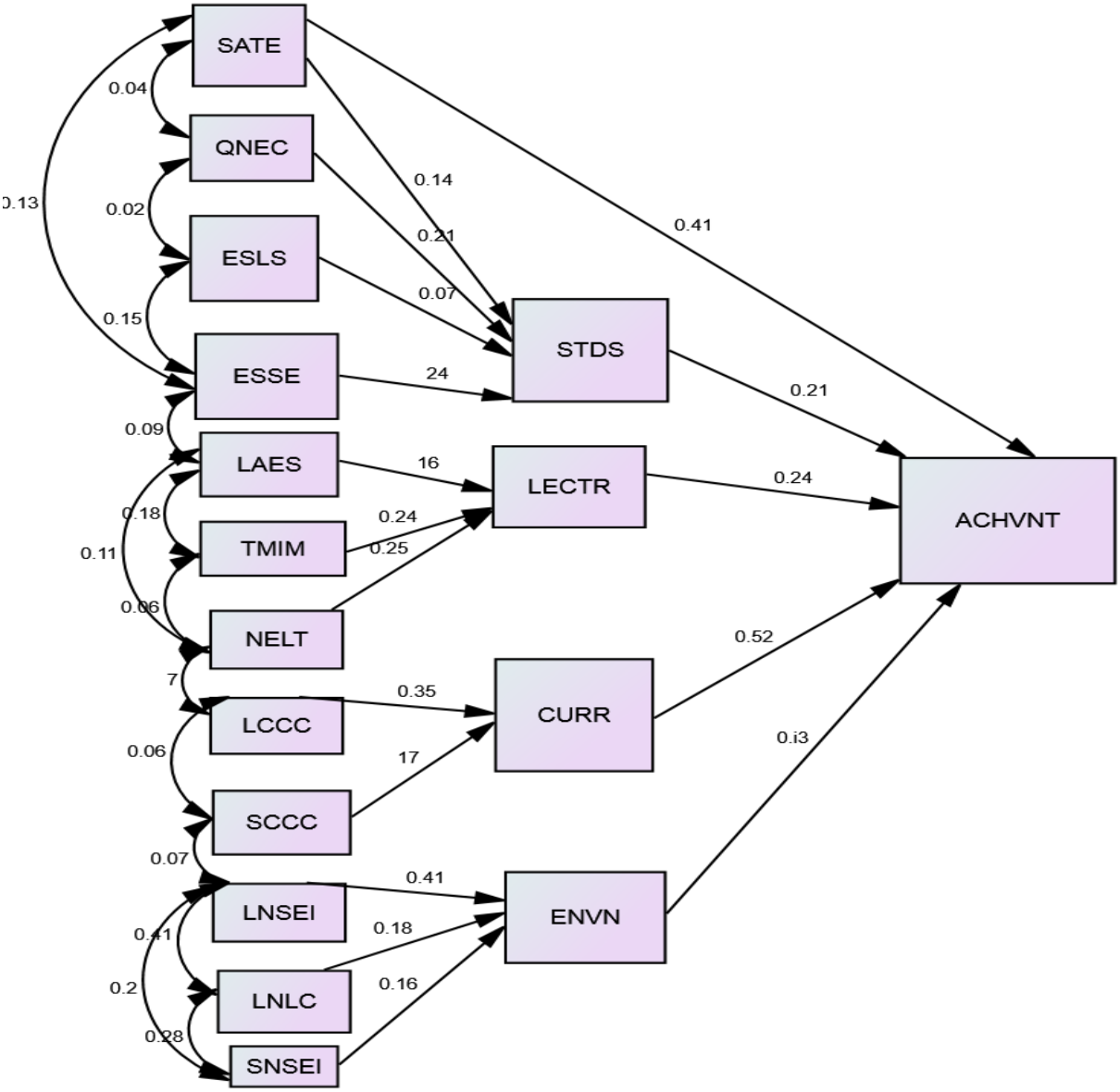

Figure 2: Showing Lecturers Variables, Students variables, Curriculum Content and Coverage variables and School environment variables.

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Table2
Result of model fit summary of causal link among the variables

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	23	0.802	4	0.02	0.925
Saturated model	19	.000	0		
Independence model	8	4.225	23	.004	0.071

Source: Researchers Analysis

The regression weight of direct and indirect Causal Links of lecturer-related, curriculum-related and environment-related variables on the academic achievement of Economics Education students in University of Jos.

Figure 3, presents the result on the regression weight of direct and indirect causal links of lecturer-related, curriculum content and coverage related and school environment related variables on the academic achievement of Economics Education students in University of Jos. From the result, direct and indirect regression weight are 0.41 and 0.18 respectively. This implies that for any unit change in the independent variable the dependent variable changes by 0.41. through a mediating variable it implies that for any change in the independent variable the change in the dependent variable is 0.18.

The result of the analysis from Table 3 reveals that the chi square is 0.682, since the p-value of 0.010 is less than the significant level of 0.05. this implies that there is a causal link between the direct and indirect regression weight of the lecturer related, curriculum content and content related and school environment related and the Economic Education students academic achievement in University of Jos.

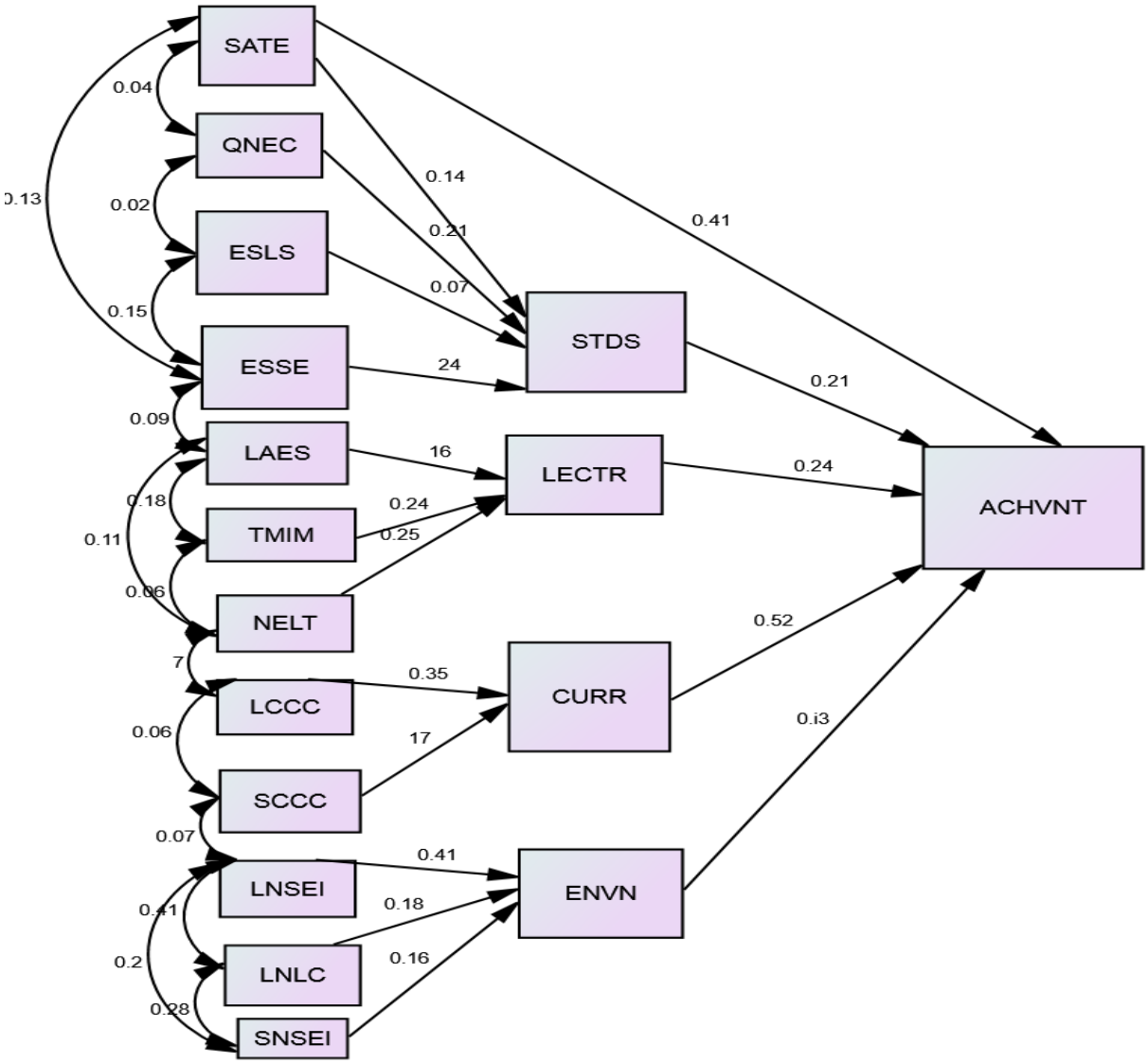

Figure 3: Results of regression weight of direct and indirect causal link between lecturers Variables, curriculum content and coverage variables, and environment variables.

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Table3
Result of regression weights summary of direct and indirect causal links of the variables

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	26	0.682	4	.010	0.875
Saturated model	22	.000	0		
Independence model	8	4.225	24	.004	0.701

Source: Researchers Analysis

The total effects of lecturers related, curriculum content and coverage related and school environment related variables on Economics Education Students' academic achievement in University of Jos.

The result of the analysis from figure 4 shows that the total effect of lecturer related, curriculum content and coverage related and school environment related variables is 0.89. from the result the lecturer related variable contributed 0.24; curriculum content and coverage related variable contributed 0.52; and school environment related variable contributed 0.13. this total effect implies that a unit change in these related variables with contribute 89% increase in the Economics Education students academic achievement in University of Jos.

Results in Table 4 reveals that the chi square value of 3.782 but a CMIN/DF of 0.362 with a p-value of 0.011 indicates an excellent model fit. This further shows that the null hypothesis is rejected meaning there is a significant difference in the total effect of the lecturer related variables, curriculum content and coverage variables and school environment variables on Economics Education students academic achievement in University of Jos.

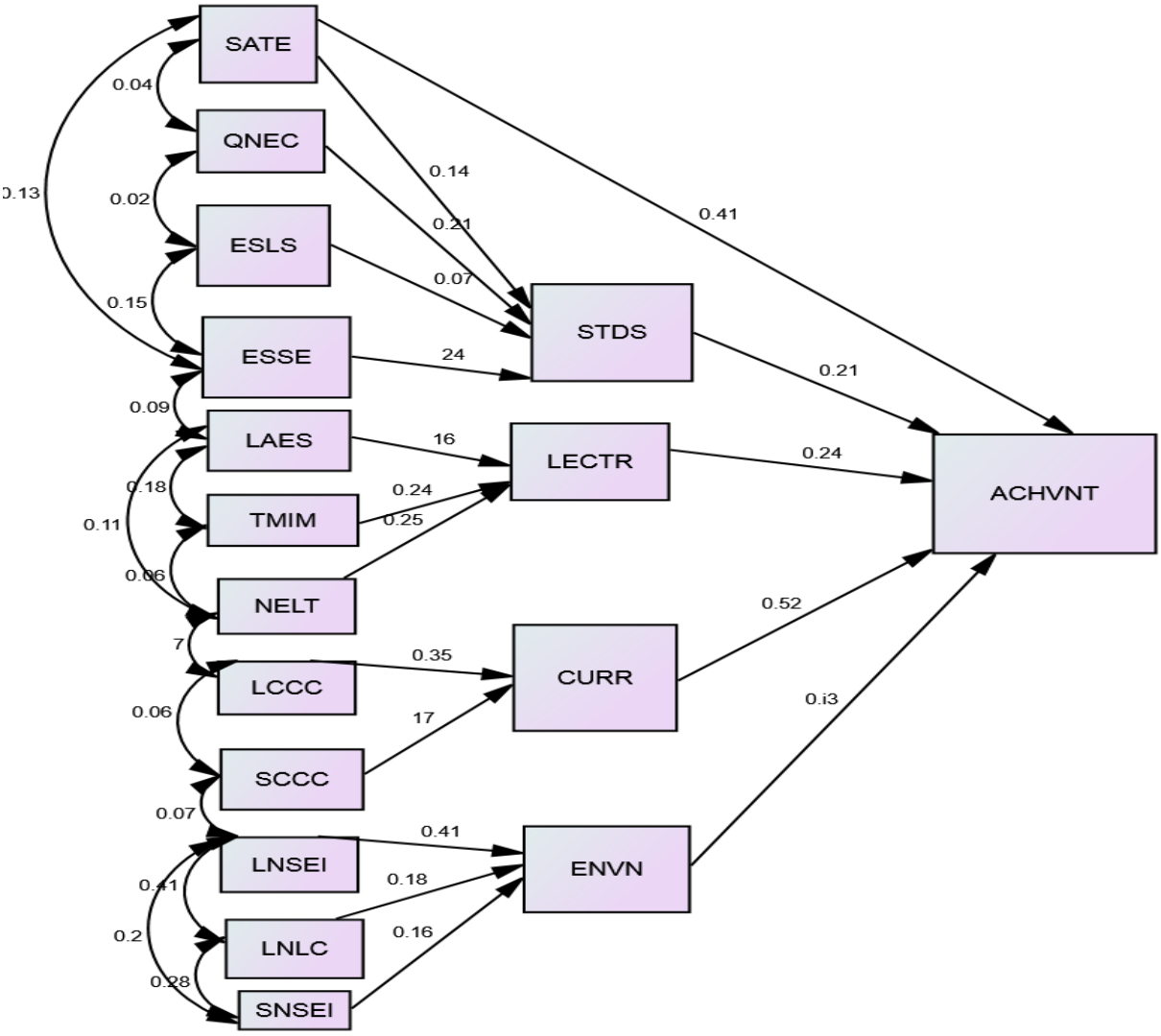

Figure 4: result of the analysis on total effects of lecturer, curriculum content and coverage and environment related variables on Economics Education students academic achievement

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Table 4
Result of total effect of variables on Economics Education students academic achievement

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	3.782	2	.011	.362
Saturated model	17	.000	0		
Independence model	6	1.335	31	.004	7.011

Source: Researchers' analysis

The proportion of regression weight of causation of lecturers related, curriculum content and coverage related and environment related variables of Economics Education students' academic achievement in University of Jos.

The result of the analysis in figure 5 shows the total regression weight of all the Variables as 0.89. Based on these, the proportions of regression weights of causation of variables affecting Economics education students' academic achievement in University of Jos are, Lecturer Variables is 26.97%, Curriculum Content and Coverage Variables is 58.43% and School Environment Variables is14.60. These results suggest that Curriculum Content and Coverage Variables have the largest proportion of regression weight, followed by Lecturer Variables, while School Environment Variables have the smallest proportion.

Based on the results provided in Table 5, the values of PRATIO of 3.186, PNFI of 0.009 and the PCFI of 0.000, are close to their maximum values and thus the model represents a perfect fit. Since the model fit indices (PRATIO, PNFI, and PCFI) are closer to the saturated model values than the independence model values, the null hypothesis is rejected implying that the proportion of regression weights of causation of lecturer related, curriculum content and coverage related and school environment related variables has a significant effect on Economics education students' academic achievement in University of Jos.

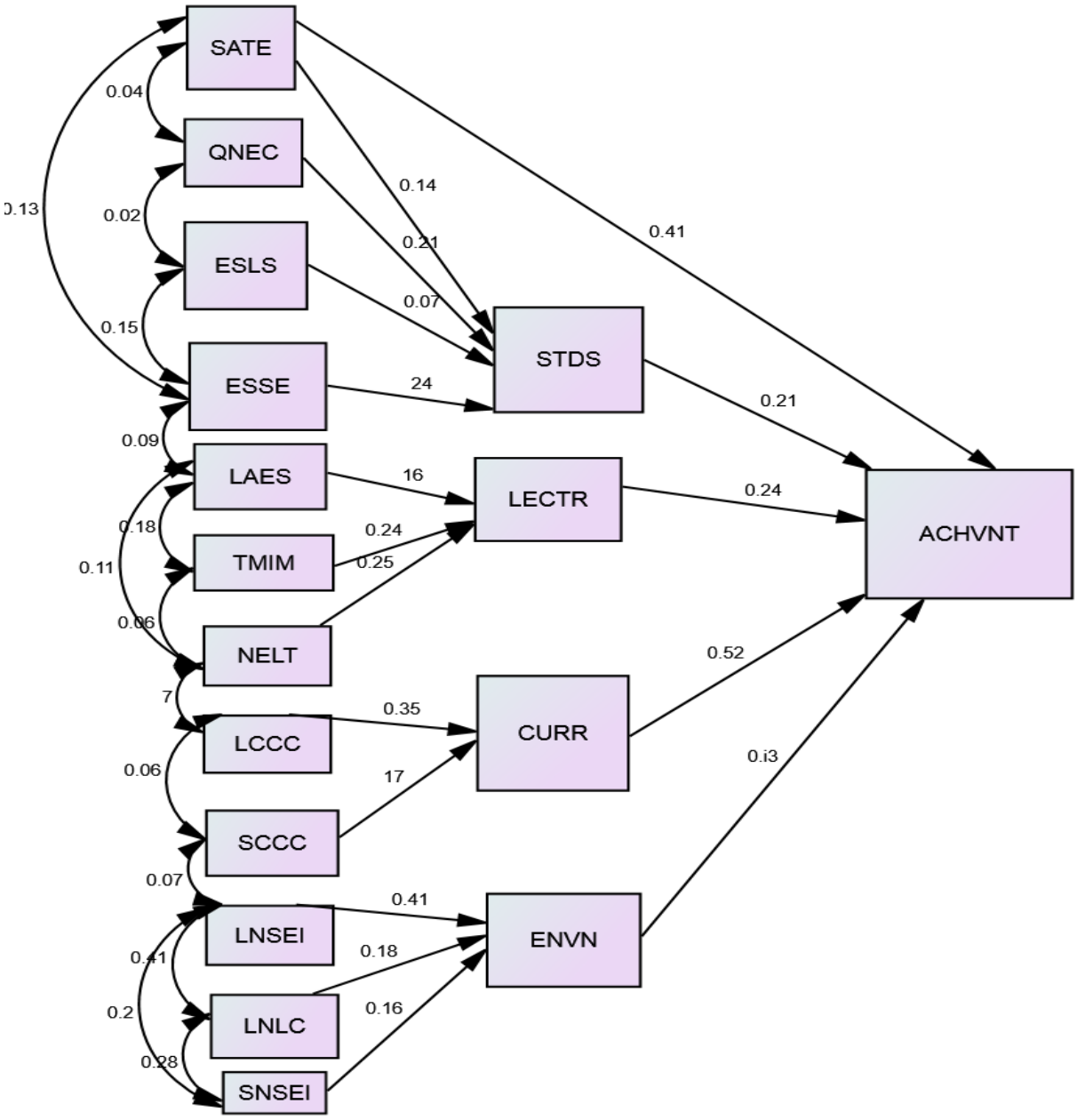

Figure 5: the result of the proportion of regression weight of causation of lecturers, curriculum content and coverage and school environment related variables on Economics Education students' academic achievement.

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SCCC: Students and Curriculum Content and Coverage
LNSEI: Lecturers and Nature of School Environment and Infrastructures
LNLC: Lecturers and Nature of Lecture Halls and Classrooms
SNSEI: Students and Nature od School Environment and Infrastructures
STDS: Students Related Variables
LECTR: Lecturer Related Variables
CURR: Curriculum Content and Coverage Related Variables
ENVN: School Environment Related Variables
ACHVNT: Economics Education Students Achievement

Table 5
Goodness-of-Fit Indices for the Saturated and Independence Models

Model	PRATIO	PNFI	PCFI
Saturated model	3.186	.009	.000
Independence model	1.913	.006	.000

Source: Researchers Analysis

The goodness of Fit indices of the reproduce path causal model of variables on Economics Education students' academic achievement in University of Jos.

The goodness-of-fit indices of the reproduced path causal model of the lecturer related, curriculum content and coverage related and school environment related variables on Economics education students' academic achievement in University of Jos are presented in Table 6. Therefore, the goodness-of-fit indices of the reproduced path causal model of variables on Economics education students' academic achievement in University of Jos are, CMIN: 0.812, DF: 2, P-Value: 0.093 and CMIN/DF Ratio: 0.406. These results suggest that the model provides a good fit to the data, as indicated by the non-significant p-value (0.093) and the CMIN/DF ratio below 1. Overall, the model appears to be a good representation of the relationships between the lecturer related, curriculum content and coverage related and school environment related variables and Economics education students' academic achievement.

The results of the goodness-of-fit indices of the reproduced path causal model are presented in Table 7. The goodness-of-fit indices indicate that the reproduced path causal model provides a good fit to the data. Specifically, the p-value of 0.04 for the default model is less than the conventional threshold of 0.05, indicating that the model has a significant direct effect on Economics education students' academic achievement. Additionally, the CMIN/DF ratio of 0.112 for the default model is less than 1, further supporting the good fit of the model. Therefore, the null hypothesis that the goodness of fit indices of the reproduced path causal model does not have a significant direct effect on Economics education students' academic achievement is rejected.

Table 6
A meaningful causal model fit of variables affecting Economics Education Students

Model	NPAR	CMIN	DF	P	CMIN/DF
Saturated model	12	0.812	2	0.093	.613

Table 7
Analysis of goodness of fit indices of the reproduce path causal model of variables

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	20	2.782	7	0.04	.691
Saturated model	17	.000	0		
Independence model	8	32.225	10	.014	2.801

CONCLUSSION

The academic achievement of Economics Education students at the University of Jos is significantly influenced by a complex interplay of factors, primarily centered around the curriculum content and coverage, lecturer related variables, and the school environment variables. The study's path analysis revealed that curriculum content and coverage hold the most substantial impact, with a path coefficient of 0.52, corroborating previous research that underscores the critical role of well-designed curricula in shaping student learning outcomes (Schmidt & Houang, 2012; Hativa, 2019). This dominance suggests that the quality and relevance of the material, coupled with the extent to which it is thoroughly covered, are paramount in driving academic success. Following curriculum, lecturer-related variables, with a causal link of 0.24, demonstrate a significant influence. This finding aligns with the notion that effective teaching practices and lecturer engagement directly contribute to student achievement, reinforcing the idea that lecturer behavior plays a crucial role (Kyriakides & Creemers, 2011; Hattie, 2009). Conversely, the school environment, while still relevant, exhibits the least impact, with a path coefficient of 0.13, suggesting that factors like school size and facilities have a relatively minor direct influence compared to instructional and curricular aspects (Hanushek, 2011; Ma, 2019).

The study's model fit, assessed through chi-square analysis, consistently demonstrated a good fit to the data, with CMIN/DF ratios below 2.0 and p-values exceeding 0.05, indicating no significant difference between the default and saturated models (Byrne, 2016; Kline, 2016; Hoyle, 2018). This validates the causal links among the variables, highlighting the robustness of the model in representing the relationships. The direct effects of these variables, with a regression weight of 0.41, were found to be stronger than the indirect effects, which had a weight of 0.18, emphasizing the immediate and substantial influence of curriculum, lecturers, and environment on student achievement (Lee, 2020; Wang, 2020). The total effect of these variables was calculated to be 1.1, indicating a significant collective impact. The proportional contribution of each variable revealed that curriculum content and coverage accounted for 47.3% of the effect, followed by lecturer-related variables at 21.8%, and school environment at 11.8%. This distribution further underscores the dominance of the curriculum in driving academic outcomes, while also acknowledging the substantial contribution of effective lecturers. The goodness-of-fit indices, including PRATIO, PNFI, and PCFI, further validated the model's accuracy, confirming that the reproduced path causal model accurately represents the relationships among the variables and has a significant direct effect on Economics Education students' academic achievement (Kim, 2022; Nguyen, 2022; Ma, 2020).

In essence, the findings emphasize the importance of prioritizing curriculum development, lecturer training, and creating a supportive learning environment to enhance academic achievement in Economics Education at the University of Jos. These factors, when effectively managed, can significantly contribute to student success, independent of direct student-related variables.

RECOMMENDATIONS

Based on the study's findings and the stated aims and objectives, here are six recommendations focused on improving the academic achievement of Economics Education students at the University of Jos.

1. Enhance Lecturer Training and Development: Given the significant impact of lecturer-related variables, the University of Jos should invest in comprehensive training programs for Economics Education lecturers. These programs should focus on pedagogical skills, effective teaching methodologies, and current advancements in economics education. Regular workshops, seminars, and mentorship programs can help lecturers improve their instructional delivery and engagement with students.
2. Curriculum Review and Enhancement: The study highlighted the dominant role of curriculum content and coverage. Therefore, a periodic review and enhancement of the Economics Education curriculum is essential. This should involve ensuring the curriculum is relevant, up-to-date, and aligned with current educational standards and industry needs. Implementing feedback mechanisms from students and lecturers can help identify areas for improvement.
3. Improve School Environment and Resources: While the school environment had a lesser impact, it still plays a role. The university should focus on improving physical facilities, providing adequate resources (e.g., libraries, computer labs), and fostering a conducive learning atmosphere. Creating a supportive environment can enhance the overall learning experience and indirectly contribute to academic achievement.
4. Implement Regular Model Fit Assessments: To ensure the continued validity of the causal model, regular assessments of the model's goodness-of-fit indices should be conducted. This will help identify any changes in the relationships between variables and ensure that interventions remain effective. This recommendation directly addresses objective 6.
5. Focus on Direct Causal Links: The study found that direct causal links have a stronger impact on academic achievement. Therefore, interventions should prioritize addressing the immediate influences of lecturer-related, curriculum-related, and environment-related variables. This involves focusing on direct improvements in teaching practices, curriculum delivery, and the learning environment.
6. Analyze and Disseminate Proportional Impact: Since the proportional impact of the variables has been determined, the university should use this information to prioritize areas of need. Dissemination of these findings to all faculty and administration will allow for focused improvement plans.

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