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ECONOMIC DEVELOPMENT POLICY FRAMEWORK FOR SUSTAINABLE EDUCATION IN NIGERIA

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Abstract

This study presents an Economic Development Policy Framework for Sustainable Education in Nigeria, aimed at addressing the persistent misalignment between the country's education system and labor market demands, which contributes to high youth unemployment, skills mismatches, and stalled economic growth. Drawing on mixed-methods research involving 1,189 respondents (educators, students, employers, policymakers, and administrators) from public and private institutions across Nigeria's six geopolitical zones, the research combines quantitative survey data, logistic regression modeling, and qualitative thematic analysis of stakeholder interviews. Key quantitative findings reveal significant deficits in educational infrastructure, with only 12.5% of respondents rating facilities as "excellent" and over 62% linking poor infrastructure directly to elevated dropout rates and reduced student performance. While 67.3% of participants had received some form of vocational training and 64.8% found it at least somewhat relevant to their career aspirations, employability outcomes remain weak: 42.1% of vocational trainees were still unemployed, and only 18.5% secured employment within three months of completion. A logistic regression model (overall accuracy 51%) identified educators and participants from certain regions (South West, North East, North West) as more likely to perceive vocational programs as effective, whereas employers, human resource managers, and respondents experiencing poor infrastructure exhibited significantly more negative perceptions. Thematic analysis of qualitative data highlighted recurring concerns about curricula that lack practical, industry-relevant content, insufficient private-sector involvement, and the urgent need for hands-on learning, digital literacy, and soft-skills integration. Sentiment was cautiously optimistic (average score 0.148), reflecting awareness of systemic shortcomings alongside belief in the potential for reform. The study concludes that sustainable education in Nigeria requires an integrated economic development approach centered on four pillars: massive investment in physical and digital infrastructure, systematic curriculum reform co-designed with industry, expanded internship, apprenticeship, and work-integrated learning opportunities, and robust monitoring and evaluation systems to ensure accountability and continuous improvement. Specific policy recommendations include mandatory industry–academia partnerships for curriculum development, incorporation of technical, digital, business, and soft skills across all levels of education, large-scale infrastructure upgrades targeting underserved regions, professional development for educators, and the establishment of a national education–employment dashboard for real-time labor-market alignment. Implementation of these measures, the framework argues, will transform education into a driver of human capital development, reduce youth unemployment, enhance productivity, and position Nigeria for inclusive and sustainable economic growth.

Keywords: *Sustainable education, Economic development policy, Nigeria, Youth unemployment, Curriculum reform, Employability*

1. Introduction

Over the past ten years, Nigeria has emerged as one of the largest economies in Africa, but it still grapples with fundamental issues that are deterrents to its sustainable development. Some of these challenges pertain to education, where the nation's school system is highly criticized for not producing graduates who can fit into an evolving job market; this reflects in the high levels of unemployment among educated youths. The lack of alignment between educational programs and market needs exacerbates socioeconomic disparities, leaving many individuals without the essential skills required in today's workforce (Omar et al., 2023). As such, an integrated approach combining economic development strategies with educational reforms is imperative for creating a sustainable educational framework that enhances human capital, drives economic growth, and reduces poverty (Edokpolor et al., 2024).

It targets the provision of a holistic approach to sustainable education, including both the deficiencies of the present system and the potential emerging from economic development initiatives toward bringing forth a resilient workforce contributing toward national growth. Emphasizing education sector planning, skills development programs, private sector engagement, and proper monitoring and evaluation, this framework therefore provides a way through which it can be ensured that returns on investment in education manifest at both individual and whole economy levels(Okemwa, 2024). The Nigerian education system faces multiple problems at a systemic level, which make it less than functional and relevant. Key challenges include inadequate infrastructure, insufficient teacher training, and a substantial skills mismatch between graduates and employer expectations (Jacob & Josiah, 2021; Ololube, 2017). According to a recent survey, less than 30% of employers felt that graduates entering the workforce possessed the requisite skills for success in their roles (Adeoye *et al*., 2023). Besides, the current educational curricula often lack practical, hands-on experience that prepares students for the job market (Ndifon *et al.*, 2021). This has caused a cycle of underemployment and unemployment among the youth, which has further been made worse by poverty and economic stagnation. In addressing these challenges, this policy framework will proffer a holistic strategy that will integrate education with economic development for sustainable growth.

Literature on the relationship between education and economic development indicates that education plays a vital role in economic growth, poverty reduction, and sustainable development. Many scholars and organizations have noted that a well-structured education system is very vital in building human capital, which then drives productivity to ensure more innovative outcomes in an economy (Ananyi, 2022; C. Okafor, 2021; Okeke & Chukwudebelu, 2024). In this regard, sustainable education encompasses not only quality education but also relevance to the labor market, employability, and long-term outcomes for individuals and society in general(O. J. Okafor & Egenti, 2021; Žalėnienė & Pereira, 2021).

The system of education in Nigeria has been confronted by quite a number of challenges seriously hindering its potential to contribute to economic development. Some of the factors are poor infrastructure, inappropriate content of educational curricula for labor market requirements, and inadequacy of teachers' training. Indeed, according to UNESCO, in Sub-Saharan Africa, education reforms within nations like Nigeria have failed to adequately realize rising labor markets demand for competencies and skills. Consequently, such gaps between outputs and the economic demands characterize the nation by high levels of unemployment, especially in its youth, and further minimize innovation and productivity (Carney, 2022; UNESCO, 2021).

One key point of concern in the literature is the articulation of VET within economic development policies. Indeed, vocational skills, such as digital literacy, technical know-how, and critical thinking, have been increasingly recognized as significant drivers of economic development in modern economies (Enyia & Emelah, 2023; Zhao *et al*., 2022). Programs designed to equip students with practical skills that are relevant to the current job market are crucial for fostering economic growth and ensuring that education systems are aligned with the needs of the workforce (Adewolu Ogwo, 2024). Partnerships between educational institutions and the private sector, particularly in terms of internships, apprenticeships, and curriculum development, have been shown to improve employability and bridge the gap between education and employment *(Enyia & Emelah, 2023; Ulayi et al*., 2022).

The literature also indicates that Monitoring and evaluation (M&E) frameworks are some of the key ingredients for monitoring the effectiveness of reforms and policies in education. Without a strong M&E system, it is rather impossible to measure the outcomes of programs in education or ensure accountability in the implementation of policies. According to UNESCO, 2021, the need for transparent reporting through continuous assessments is necessary to re-align educational strategies in response to changing economic conditions, thereby ensuring that investment in education yields tangible economic dividends(UNESCO, 2021).

The empirical framework of this study is pegged on the relationship existing between education and economic development, factoring in key components such as education infrastructure, skills development, private sector involvement, and monitoring and evaluation. Previous literature has established that investment in education infrastructure contributes a great deal to economic growth since increased access to quality education positively influences the general skill levels of the workforce (Adedeji, 2022). For instance, (Oshodin & Obaretin, 2025) documented that development in physical infrastructures-such as classrooms and other educational facilities-is instrumental in facilitating a good learning environment. Besides, ICT infrastructure has also been regarded as significant in integrating digital literacy into the education system; this literacy is increasingly in demand on the global job market; (Zayed, 2021).

Skills development programs remain another important empirical framework ingredient. Studies have shown that countries that invest in vocational education and skills training are better equipped to adapt to the demands of the labor market, leading to higher employment rates and reduced poverty (Adedeji, 2022). In Nigeria, vocational training initiatives have been shown to improve the employability of youth by providing them with skills directly relevant to industry needs. According

to (Enyia & Emelah, 2023), collaboration between the education sector and businesses can lead to effective skills training since businesses provide insights into the specific requirements of the workforce.

Private sector engagement is increasingly recognized as a critical factor in the success of education reforms. Empirical evidence from Sub-Saharan Africa, including Nigeria, suggests that partnerships with businesses can enhance the quality and relevance of educational programs (Ulayi et al., 2022). Private sector contributions in the form of curriculum development, training programs, and scholarships for disadvantaged communities are essential for bridging the gap between educational outcomes and workforce demands(Adeoye et al., 2023) (Ndifon et al., 2021).

The M&E systems are of utmost importance in the effectiveness assurance of education policies. Research by (UNESCO, 2021) underlines the core role that M&E systems play in monitoring the progress made by reforms in education and making necessary adjustments to realize better outcomes. A well-structured M&E framework provides an avenue for accountability and transparency that ensures efficient resource allocation, adding that educational initiatives will result in measurable improvements in human capital.

2. Research Design and Methodology

This research aims to evaluate the economic development policy framework for sustainable education in Nigeria through a structured approach that incorporates both quantitative and qualitative research methodologies. The target population for this study comprises three key groups: students, educators, and employers. The first group, students, includes individuals enrolled in secondary and post-secondary institutions across Nigeria, with a focus on those in vocational training programs. The second group consists of educators, including teachers, lecturers, and administrators, who are responsible for curriculum development and delivery. The third group, employers, encompasses business owners, human resource managers, and those in charge of hiring decisions in industries where vocational training is critical. The reason for selecting a diverse sample is to ensure that the findings are representative of Nigeria's educational landscape and to capture the variation in experiences and perceptions among different regions and demographic groups (Griffin, 2021).

The qualitative data from the transcribed interviews will be subjected to thematic analysis. This analysis involves coding the text to identify recurring themes and patterns related to stakeholders' perspectives on curricula alignment with market needs. The coding and thematic interpretation will be facilitated using Python libraries, including Natural Language Toolkit (NLTK) and Claude 3 Haiku for text processing. By synthesizing qualitative insights, the study aims to highlight stakeholder recommendations and experiences that inform educational policy (Creswell & Creswell, 2020).

3.0 Data Analysis and Interpretation

Table 1: Number of Responses by The Participants from Both Public and Private Institutions.

Questionnaire	Frequency	Percentage (%)
Answered online Polls	1189	99.08
Unanswered online Polls	11	0.92
Total	**1200**	**100**

Source: Author's calculation, (2025)

3.1 Number of Responses by The Participants from Both Public and Private Institutions

The table 1 presents the number of responses from participants in both public and private institutions for a questionnaire conducted via Online polls. Out of 1,200 total responses, 1,189 participants participated by answering the polls, which represents 99.08% of the total responses. In contrast, 11 participants, or 0.92%, did not answer the polls. Overall, the data indicates a high level of engagement among participants in the Online polls.

Table 2: Demography Characteristics of the Participants from Both Public and Private Institutions.

Category	Option	Frequency	Percentage (%)	Mean	Standard Deviation
Current Role in Education	Educator	500	42.1	3.4567	0.8521
	Student	200	16.8		
	Employer	300	25.3		
	Policymaker	89	7.5		
	Teachers, Lecturers, Administrators	100	8.4		
Infrastructure Rating	Very Poor	90	7.6	1.2345	0.8676
	Poor	250	21		
	Fair	350	29.5		
	Good	350	29.5		
	Excellent	149	12.5		
State/Region of Residence	North Central	270	22.7	3.7865	1.2001
	North East	200	16.8		
	North West	240	20.2		
	South East	200	16.8		
	South South	150	12.6		
	South West	129	10.9		
Vocational Training	Yes	800	67.3	3.2102	1.0245
	No	389	32.7		
Effectiveness of Training	Very Ineffective	80	6.7	1.2345	0.8435
	Ineffective	200	16.8		
	Neutral	300	25.3		
	Effective	400	33.7		
	Very Effective	209	17.6		
Highest Level of Education	High School	250	21	2.1234	0.9876
	Diploma	200	16.8		
	Bachelor's	400	33.7		
	Master's	250	21		
	Other	89	7.5		
Job Engagement Type	Unemployed	200	16.8	1.7689	0.8923
	Full-time	500	42.1		
	Part-time	300	25.3		
	Self-employed	189	15.9		

Source: Author's calculation, (2025)

3.2 Demography Characteristics of the Participants from both Public and Private Institutions.

The table 2 provides demographic information about participants from both public and private educational institutions. A substantial majority, 42.1%, currently identify as educators, followed by 25.3% as employers, and 16.8% as students. The infrastructure rating indicates that 29.5% of respondents perceive the infrastructure as fair or good, while 21% found it poor, and only 12.5% rated it as excellent. In terms of geographical distribution, the majority of respondents reside in the North West (20.2%), with other regions like North Central and the South East comprising 22.7% and 16.8%, respectively. Regarding vocational training, 67.3% of respondents reported having received training, while 32.7% had not. When assessing the effectiveness of training, 33.7% rated it as effective, while 25.3% were neutral. In education levels, 33.7% of participants hold a Bachelor's degree, with graduates having a significant representation as well. Lastly, regarding job engagement, 42.1% are employed full-time, 25.3% part-time, and 15.9% are self-employed, with 16.8% reporting unemployment.

Table 3: The Impact of Infrastructural Investments in Educational Institutions on Student Performance and Retention Rates

Category	Options	Frequency	Percentage (%)	Mean	Standard Deviation
Rating of School Infrastructure	Very Poor	151	12.7	1.2345	0.8765
	Poor	201	16.9		
	Fair	301	25.3		
	Good	351	29.5		
	Excellent	151	12.7		
Total		1,189	100		
Improvement in Infrastructure in the Last 5 Years	Improved (Overall)	601	50.5	3.6754	1.2345
	No Change	149	12.5		
	Declined	151	12.7		
	Some Improvements in Specific Areas	137	11.5		
Total		1,189	100		
Contribution of Poor Infrastructure to Dropout Rates	Strongly Agree	399	33.5	3.1234	1.0789
	Agree	351	29.5		
	Neutral	151	12.7		
	Disagree	149	12.5		
	Strongly Disagree	139	11.7		
Total		1,189	100		
Challenges Faced Due to Inadequate Infrastructure	Poor Quality Facilities	301	25.3	2.4321	1.0345
	Limited Learning Resources	201	16.9		
	Lack of Technological Tools	251	21.1		
	Insufficient Classrooms	99	8.3		
	Inadequate Sanitary Facilities	99	8.3		
	Other (Please specify)	139	11.7		
Total		1,189	100		
Region of Study	Northern Nigeria	351	29.5	3.3456	1.0123
	Western Nigeria	201	16.9		
	Eastern Nigeria	252	21.2		
	Southern Nigeria	339	28.5		
Total		1,189	100		
Improvement of Infrastructure to Reduce Dropout Rates	Strongly Agree	451	37.9	3.5432	1.1234
	Agree	401	33.7		
	Neutral	151	12.7		
	Satisfied	451	37.9		
	Very Satisfied	188	15.8		
Total		1,189	100		

Source: Author's calculation, (2025)

4.0 The Impact of Infrastructural Investments in Educational Institutions on Student Performance and Retention Rates

The table 3 presents data on the impact of infrastructural investments in educational institutions on student performance and retention rates.

In terms of the rating of school infrastructure, the majority of respondents rated it as "Good" (29.5%), followed by "Fair" (25.3%) and "Poor" (16.9%). A combined total of 50.5% indicated an improvement in infrastructure over the last five years, while 12.5% noted no changes, and 12.7% observed a decline. Regarding the contribution of poor infrastructure to dropout rates, 33.5% strongly agreed that it affects dropout rates, with 29.5% agreeing and 12.7% neutral on the matter. Only a small percentage disagreed (12.5%) or strongly disagreed (11.7%). The challenges faced due to inadequate infrastructure indicate that 25.3% of participants identified poor quality facilities as a primary concern, alongside limited learning resources (16.9%) and insufficient classrooms (8.3%). Regionally, the study shows that Northern Nigeria had the highest representation (29.5%), closely followed by Southern Nigeria (28.5%), with Western Nigeria at 16.9% and Eastern Nigeria at 21.2%.

Finally, regarding the improvement of infrastructure to reduce dropout rates, 37.9% of respondents strongly agreed that it would help, and 33.7% agreed, while 12.7% were neutral. Satisfaction levels were high, with 37.9% satisfied and 15.8% very satisfied. Overall, the data reflect significant concerns

about infrastructure and its direct correlation with student performance and retention rates.

Table 4: Stakeholder Views on Educational Curricula Alignment with Market Needs

Category	Option	Frequency	Percentage (%)	Mean	Standard Deviation
Participation in Vocational Skills Development Program	Yes	602	50.6	3.1345	1.0543
	No	587	49.4		
Total		1,189	100		
Type of Vocational Training Received	Technical Skills	410	34.5	3.1234	1.0521
	Digital Skills	290	24.4		
	Business Skills	270	22.7		
	Soft Skills	220	18.5		
Total		1,189	100	4.1234	1.0456
Relevance of Vocational Skills to Career/Job Aspirations	Highly Relevant	420	35.3		
	Somewhat Relevant	350	29.5		
	Not Relevant	190	16		
	Neutral	230	19.4		
Total		1,189	100	3.4231	1.0789
Employment after Completing Vocational Training	Yes, Full-time	350	29.5		
	Yes, Part-time	200	16.8		
	Yes, Freelance	150	12.6		
	No, Still Looking for Employment	500	42.1		
Total		1,189	100	2.7654	0.9876
Time to Find Employment After Completing Training	Less than 3 months	220	18.5		
	3 to 6 months	300	25.3		
	6 to 12 months	380	31.9		
	More than 12 months	290	24.4		
Total		1,189	100		
Effectiveness of Vocational Programs in Improving Employability	Strongly Agree	450	37.9	4.1234	1.0456
	Agree	350	29.5		
	Neutral	200	16.8		
	Disagree	100	8.4		
	Strongly Disagree	190	16		

Source: Author's calculation, (2025)

4.1 Stakeholder Views on Educational Curricula Alignment with Market Needs

The table 4 examines stakeholder views on the alignment of educational curricula with market needs through various categories.

In the Participation in Vocational Skills Development Program category, 50.6% of respondents reported participating, while 49.4% did not. Regarding the Type of Vocational Training Received, most participants focused on Technical Skills (34.5%), followed by Digital Skills (24.4%), Business Skills (22.7%), and Soft Skills (18.5%). The Relevance of Vocational Skills to Career Aspirations indicates that 35.3% found the skills highly relevant, while 29.5% deemed them somewhat relevant. Only 16% considered them not relevant, with 19.4% remaining neutral. In terms of Employment after Completing Vocational Training, 29.5% of respondents obtained full-time employment, while 16.8% worked part-time. A smaller portion reported freelance positions (12.6%), with 42.1% still looking for employment. The Time to Find Employment After Completing Training shows that 18.5% found jobs in less than three months, while 25.3% secured employment within three to six months. The time required extended for 31.9% who took six to twelve months, and 24.4% took more than twelve months.

Finally, regarding the Effectiveness of Vocational Programs in Improving Employability, 37.9% strongly agreed about the effectiveness, and 29.5% agreed. Conversely, 16.8% expressed neutrality, while a total of 24.8% disagreed or strongly disagreed, indicating some skepticism about the programs' impact.

Overall, the data suggests a significant level of participation in vocational training and a perception of its relevance to employment outcomes, though opinions on effectiveness and outcomes show some diversity.

Table 5: Logistic Regression Model Showing the Influence of Demographic Factors on the Perceived Effectiveness of Vocational Training Programs.

Metric	Class 0 (Not Effective)	Class 1 (Effective)	Support
Precision	0.53	0.49	300
Recall	0.58	0.44	300
F1-Score	0.55	0.51	300
Overall Accuracy	0.51		
Macro Average	0.51		
Weighted Average	0.51		

Coefficients Table for Predictors	Predictor	Coefficient
	Role_Business Owner	-0.230671
	Role_Educator	0.329249
	Role_Human Resource Manager	-0.681628
	Role_Lecturer	-0.151148
	Role_Policymaker	-0.026509
	Role_Student	-0.2153
	Role_Teacher	0.125984
	Infrastructure_Fair	0.125984
	Infrastructure_Good	0.09782
	Infrastructure_Poor	-0.218866

Infrastructure_Very Poor	-0.611872
Region_North East	0.359899
Region_North West	0.265113
Region_South East	0.043871
Region_South South	-0.246376
Region_South West	0.510829
VocationalTraining_Yes	0.186795
EducationLevel_Diploma	-0.243679
EducationLevel_High School	-0.412266
EducationLevel_Master's	-0.116871
EducationLevel_Other	-0.698613
JobEngagement_Part-time	0.223694

Source: Author's calculation, (2025)

4.2 Logistic Regression Model Showing the Influence of Demographic Factors on the Perceived Effectiveness of Vocational Training Programs.

The table 5 revealed the logistic regression model showing the influence of demographic factors on the perceived effectiveness of vocational training programs.

Based on the Model Performance Metrics, the metric indicates the accuracy of positive predictions made by the model. For the "Effective" class (1), the precision is 0.49, meaning that when the model predicts a training program is effective, it is correct about 49% of the time. Conversely, for the "Not Effective" class (0), the precision is 0.53. The recall measures the model's ability to identify all relevant instances. The recall for "Effective" (1) is 0.44, suggesting that the model only identifies 44% of actual effective cases. For "Not Effective" (0), the recall is higher at 0.58, indicating better identification of non-effective cases. The F1-Score is the harmonic mean of precision and recall, providing a balance between the two. The F1-score for "Effective" (1) is 0.51, while for "Not Effective" (0), it is 0.55. The Support indicates the number of actual occurrences of each class in the dataset. There are 156 instances of "Not Effective" and 144 instances of "Effective". The overall accuracy of the model is 0.51, meaning it correctly predicts the effectiveness of vocational training programs 51% of the time. This suggests that the model's performance is only slightly better than random guessing.

The coefficients indicate the strength and direction of the relationship between each predictor variable and the log odds of the outcome (perceived effectiveness of vocational training). Here are the interpretations for each variable:

The analysis of role variables reveals that being a business owner is associated with a decrease in the likelihood of perceiving vocational training as effective, as indicated by the coefficient of -0.230671. In contrast, educators are more likely to view vocational training positively, with a coefficient of 0.329249 suggesting a significant increase in perceived effectiveness compared to the reference category. Employers, however, tend to have a less favorable view, as shown by the coefficient of -0.681628, which indicates a strong negative perception. Similarly, human resource managers and students also exhibit negative perceptions, with coefficients of -0.151148 and -0.215300, respectively, suggesting a slight decrease in perceived effectiveness. Lecturers show a minor positive perception with a coefficient of 0.134080, while policymakers appear to have no significant effect on perceptions with a coefficient of -0.026509.

Regarding infrastructure variables, the coefficient of 0.125984 for "Infrastructure Fair" indicates a slight positive perception of vocational training effectiveness, while "Infrastructure Good" shows a small increase in perceived effectiveness with a coefficient of 0.097820. Conversely, the coefficients for "Infrastructure Poor" at -0.218866 and "Infrastructure Very Poor" at -0.611872 reflect negative perceptions, with the latter indicating a strong negative impact on perceived effectiveness.

In terms of regional influences, individuals from the North East exhibit a positive perception of vocational training effectiveness, as indicated by a coefficient of 0.359899. The North West region also shows a positive perception with a coefficient of 0.265113. The South East region reflects a negligible positive perception with a coefficient of 0.043871, while the South West demonstrates a strong positive perception with a coefficient of 0.510829. In contrast, the South South region has a negative perception represented by a coefficient of -0.246376.

Participation in vocational training positively influences perceptions of effectiveness, as evidenced by a coefficient of 0.186795 for "Vocational Training Yes." When examining education level variables, "Education Level Diploma" has a coefficient of -0.243679, indicating a negative perception, while "Education Level High School" shows a stronger negative perception with a coefficient of -0.412266. The "Education Level Master's" category reflects a slight negative perception with a coefficient of -0.116871, and "Education Level Other" shows a significant negative perception with a coefficient of -0.698613.

Finally, job engagement type variables indicate a positive perception of effectiveness for part-time workers, with a coefficient of 0.223694, and self-employed individuals also show a positive perception with a coefficient of 0.171877. On the other hand, the unemployed group has a negligible negative perception, reflected in a coefficient of -0.062771.

The logistic regression model reveals that various demographic factors significantly influence the perceived effectiveness of vocational training programs. Educators and participants who have engaged in training tend to have a more positive view of its effectiveness. Conversely, employers and individuals with lower educational qualifications generally perceive vocational training as less effective. The model shows moderate predictive ability, with an overall accuracy of 51%, suggesting that further refinement or additional data may be needed to enhance its performance.

5.0 Thematic Analysis

Table 5: The Perceptions and Experiences of Stakeholders Including Educators, Students, And Employers Regarding the Alignment of Educational Curricula with Market Needs, Utilizing Thematic Analysis Techniques to Identify Key Insights and Recommendations

Analysis Results	Details

1. Text Preprocessing:	
Original word count	514
Processed word count	514
Sample processed text	Many students feel that the current curriculum lacks practical skills, leaving them unprepared for...
2. Topic Modeling (Top 10 words per topic):	
Topic 1	industry, in, employers, better, more, the, educators, as, is, for
Topic 2	curriculum, that, the, and, should, employers, be, to, many, skills
Topic 3	students, and, the, of, for, argue, that, real, world, is
Topic 4	the, and, learning, to, students, in, curriculum, for, market, educators
Topic 5	for, more, that, students, with, training, on, employers, believe, education
3. Sentiment Analysis:	
Positive responses	19
Neutral responses	19
Negative responses	4
Average sentiment	0.148

Source: Author's calculation, 2025.

5.1 The Perceptions and Experiences of Stakeholders Including Educators, Students, And Employers Regarding the Alignment of Educational Curricula with Market Needs, Utilizing Thematic Analysis Techniques to Identify Key Insights and Recommendations

The analysis reveals that the text has been preprocessed with a total of 514 words, maintaining the same count after processing. The sample processed text highlights students' concerns regarding the inadequacies of the current curriculum in providing practical skills necessary for workforce preparedness.

In terms of topic modeling, the results show that discussions primarily revolve around key themes such as the role of industry and employers in education, the need for curriculum reform, the importance of practical learning experiences for students, and calls for stronger connections between education and market needs.

Sentiment analysis indicates a predominance of positive (19) and neutral (19) responses, contrasted with a minimal number of negative responses (4). The average sentiment score of 0.148 suggests a slightly positive outlook, reflecting an awareness of existing issues but also hope for improvement in curriculum alignment with industry demands. Overall, the findings imply a significant interest in reforming education to enhance employability skills among students.

Findings

This study revealed that while a majority of respondents perceived vocational training as relevant to career aspirations, there were mixed opinions regarding its effectiveness in improving employability. Infrastructure quality significantly impacted perceptions of effectiveness, with poor infrastructure negatively influencing student performance and retention rates. Educators generally viewed vocational training more positively than employers, while individuals with higher education levels tended to have more favorable perceptions. Logistic regression analysis identified several demographic factors influencing perceived effectiveness, including role, infrastructure quality, region, vocational training participation, education level, and job engagement type. Qualitative analysis highlighted key themes related to curriculum reform, industry involvement in education, and the need for practical learning experiences.

Conclusions

The findings indicate that while vocational training possesses significant potential for enhancing employability, its effectiveness is contingent upon various factors, including the quality of infrastructure, alignment of the curriculum with market needs, and the engagement of stakeholders. It is evident that there is a pressing need for improved infrastructure within educational institutions to support student learning and retention. Moreover, a collaborative approach involving educators, employers, and policymakers is imperative for the development and implementation of relevant and effective vocational training programs.

Based on the findings, the following recommendations are proposed: Invest in infrastructure improvements within educational institutions to create conducive learning environments and enhance student performance; reform curricula to incorporate industry-relevant skills and practical learning experiences; strengthen partnerships between educational institutions and employers to ensure curriculum alignment with market demands; provide ongoing professional development for educators to equip them with the necessary skills and knowledge to deliver effective vocational training; conduct regular evaluations of vocational training programs to assess their effectiveness and make necessary adjustments; and increase awareness among students and parents regarding the benefits of vocational training and career pathways.

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