






Research Article

Challenges for Technical and Vocational Education in Achieving Gender Equality in Nigerian Polytechnic

**Oladimeji Olanrewaju Adedipupo^{1,*} , Lasisi Taiwo Abideen² ,
Akomolafe Abayomi Ayodele³ , Ogunbanwo Samson Tolulope⁴ ,
Ogunkeyede Olabisi Yinka⁵ **

¹Department of Statistics, Federal Polytechnic, Ile-Oluji, Nigeria

²Department of Statistics, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

³Department of Statistics, School of Physical Sciences, Federal University of Technology, Akure, Nigeria

⁴Department of General Studies, Federal Polytechnic, Ile-Oluji, Nigeria

⁵Department of Electrical Electronics Engineering, Ajayi Crowther University, Oyo, Nigeria

Abstract

Gender equality in Technical and Vocational Education should be viewed as both a fundamental aspect of the right to education and as rights inherent within the educational system. A balanced participation of both men and women in the education system can facilitate progress toward achieving the highest levels of educational attainment. This study aimed to elucidate the advancements made in promoting gender equality within Technical and Vocational Education in Nigeria. Both international and national consensus on priorities in Technical and Vocational Education emphasize the significance of achieving gender equality within educational spheres. To assess progress toward this goal, an evaluation was conducted on the nature of advancements made and the barriers impeding equal participation. While recognizing the efforts made by the Government of Nigeria and the governing councils of tertiary institutions to enhance gender equality across various courses offered at Polytechnics over the years, challenges persist, particularly in fields such as Engineering, Sciences, and others. The research methodology employed a questionnaire-based approach, where respondents provided information for further analysis, supplemented by observations and document analysis. It was observed that while Polytechnics have strived to enroll equal numbers of men and women, challenges remain, with disparities evident even from secondary school intake. Meaningful gender equality necessitates the establishment of mechanisms to ensure equal treatment. These mechanisms hinge on a commitment to non-discrimination, the eradication of social norms that perpetuate gender inequality, and the concerted effort of all stakeholders to eliminate stereotypes and attitudes that reinforce disparities in resource distribution.

Keywords

Gender Equality, Technical and Vocational Education, Administrator, Questionnaire, Gender Sensitivity

*Corresponding author: akomolafeayotade@gmail.com (Oladimeji Olanrewaju Adedipupo),
adedipupo.oladimeji@gmail.com (Oladimeji Olanrewaju Adedipupo)

Received: 23 May 2024; **Accepted:** 11 June 2024; **Published:** 20 August 2024



Copyright: © The Author(s), 2024. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

1. Introduction

The National Gender Policy was distributed to all sectors including the Ministry of Higher and Tertiary Education, Science and Technology Development. The Polytechnic administrators are trying to improve gender equality across the courses offered but women are still under-represented in Engineering department and males in the Cosmetology and Clothing Department. The researcher discovered that some of the departments are male dominated while others are female dominated. Soon after independence the government showed enthusiasm towards women status and recognizes the need for the full participation of men and women in development processes at all levels. This led to the formulations of several laws aimed at advancing the status of women. After the Beijing conference in 1995, the government developed a National Gender Policy to address the gender sensitivity through Education and Training. This prompted these researchers to find out what could be the reasons for the inequality considering the stance which was taken by the Government to encourage gender equality in all sectors for the past decades. These researchers also discovered that polytechnics had mechanisms in place to address the issue of gender equality but seemed to be less effective. This prompted these researchers to analyse the challenges for Technical and Vocational Education in achieving gender equality at Polytechnics.

2. Review of Related Literature

Researchers noted that parents' education and social influences are doubtlessly factors that continually reproduce the stereotypical self-development of young girls and boys. Winter [15] pointed out that parents play an important role in determining what trade their children need to learn at an early age in order to support their families when grow up. In Nigeria today, Technical and Vocational Education is being emphasized both at secondary and tertiary education and can keep students engaged. This is an important factor in reducing the high drop-out rate and this can lead students to take higher levels of maths and science. In addition the programs are academically rigorous and can offer training in new and emerging high-technical fields. Adebile and Ojo [1] emphasized that Vocational and Technical Education (TVET) serves as a catalyst for economic growth. TVET equips students with fundamental life skills, empowering them to become productive entrepreneurs. Additionally, it fosters creativity and innovation, contributing to increased economic growth and self-reliance. According to the Statistical Data (2014/2015) provided by the National Board for Technical Education (NBTE) regarding enrollment in Technical Colleges in Nigeria, 87% of students enrolled were male, while only 13% were female. Conversely, in the colleges of Health and Sciences during the same academic year, female enrollment accounted for 71%, with males comprising 29%. These

statistics highlight a societal perception that women are primarily responsible for familial caregiving duties rather than engaging in technical education, which could enable them to actively participate in the country's socio-economic activities [12].

Moreover, a segment of the difference in wages between genders persists without clear explanation, even after adjusting for factors such as human capital. Becker [3] referred this phenomenon to as "taste discrimination," where those exhibiting discriminatory behavior are willing to sacrifice potential additional pay to select a preferred group over an equally productive but less favored group. Becker [3] delineated three primary forms of discrimination within a competitive framework: employer, employee (or co-worker), and customer discrimination. Becker's framework identifies three channels through which labor market discrimination occurs. Via the employer channel, employers offer a premium wage to hire individuals they favor [3]. In this scenario, the discriminatory employer demonstrates unwillingness to hire workers unless women or minority workers effectively "compensate" employers by accepting a lower wage—below that paid to men—for identical productivity or by demonstrating higher productivity at a given wage [2]. Consequently, as they favor men over women, they are inclined to offer higher wages to men. Therefore, it is important to offer high quality Technical and Vocational Education and to ensure that girls have equal access to training for high-skill and wage occupations. Promoting female education is known to reduce fertility levels, reduce child mortality levels and promote the education of the next generation. However, women have specific needs and concerns in training and employment and this leads to discrimination. These needs include the safety and protection of women on overnight and underground work, reproductive health, harmful chemicals, biological contaminants as well as bad posture. Although lack of access to these educational opportunities affects both genders, it is particularly troubling for women in today's economy.

According to Kapungu [8], gender disparities in education also extend to the selection of academic disciplines pursued by men and women in higher education institutions, thereby influencing their career paths and employment prospects. This phenomenon is often influenced by cultural and societal norms that designate certain fields of study as inherently "male" or "female," as well as specific careers. There's a prevailing belief that certain subjects, such as mathematics, science, and technology, are more suited for boys, a perception ingrained within society and perpetuated through the socialization process. Culturally, schools tend to assign subjects based on gender identity, and attitudes toward particular subjects and careers are shaped by classroom dynamics, familial influences, and broader societal norms [11]. The emphasis on expanding opportunities in science and technology without

addressing the need to reorient these fields to cater to both boys' and girls' educational needs fails to advance gender equality in education and subsequently limits employment prospects for both genders. In addition, early marriages, household responsibilities, family restrictions, conservative social mindset, preference for male child, lack of sanitary facilities and sexual harassment are some of the serious barriers that renders training and work environment not appropriate for women. More so, other barriers include failure to recognize, identify and nurture women's talents [13]. Men create and maintain patriarchy not only because they have the resources but because they have real interest in making women serve their interests. Men were taught on modern techniques of cultivation and given access to modern equipment/machinery that could raise the level of production and women labour become inferior and private. As a result this created a major disruption to pre-colonial gender relations among Nigerian society. Gender equality is centered on re-working on women's conscience so that they recognizes their own value and strength, as some women still look down upon themselves. Further, women empowerment can be achieved if women are recognized as knowledge managers and in some aspects of industrial processes as the bearer of relevant knowledge. From a well-being and equity perspective, gender inequality is problematic as it lowers well-being and is a form of injustice in most conceptions of equity or justice. Fortunately, girls and boys of today have many options open to them. Though progress is being made towards gender equality, areas like Electronics and Motor mechanics, women lack equal representation and in areas like Cosmetology and Clothing Technology men also lack equal representation. The main goal of gender equality is to eliminate gender disparity in primary, secondary schools as well as tertiary institution. Therefore, real community change and effective developments in Polytechnics must include men and women as clothing designers, motor mechanics and electricians. The success of gender equality in Technical and Vocational Education requires the concerted effort not only by government and Polytechnic administrators but by parents, teachers of primary and secondary schools where basic education is imparted whilst children are still young. Education has considerable potential, in its many dimensions and processes, for bringing about change which can redress imbalances between women and men as well as other social groups. It is against this background that the study was conducted to find out the challenges of Technical and Vocational Education in achieving gender equality at Polytechnics.

3. Methodology

Case studies offer valuable insights into social realities as they are subjectively perceived, experienced, and constructed by participants [14]. According to Borg and Gall [4], the case study approach involves an in-depth examination of instances of a phenomenon within its natural context, viewed from

the perspectives of the individuals involved. Mbetu-Nzvenga, Gudyanga, and Gudyanga [10] further emphasize that case studies delve deeply into the experiences of individual participants through detailed analysis of their self-reports. This method was deemed suitable for investigating the challenges facing Technical and Vocational Education in achieving gender equality at Polytechnics. Case studies serve as valuable sources of hypotheses [4] and facilitate thorough exploration of uncharted territories. In educational research, case studies typically employ both qualitative and quantitative methods. In this study, researchers utilized both qualitative and quantitative approaches. Miles and Huberman highlight the qualitative research methodology for its ability to yield rich, contextually detailed data. This approach is user-friendly, acknowledging the pivotal role of individuals as informants, and it fosters humanistic principles by allowing for inductive reasoning. The population sample of participants was fifty (50), forty students from different departments and ten (10) administrators from a population of five hundred (500) participants.

The researchers used the purposive sampling which is a non-probability sampling technique where participants (administrators) were selected due to their post of responsibility, accessibility and proximity to the researchers [5]. Convenience sampling was done on the selection of respondents who participated in the research. The researchers preferred this sampling technique because it is fast, inexpensive, easy and the participants were readily available. In this study, interviews, focus group discussions and observations were used as data collection instruments. Individual interviews were done using questionnaire on *goggle meet* with the administrators and focus group. Data was collected through questionnaire, this was compiled, collated, sorted and grouped based on the objective of the study. Descriptive statistics and some other statistical tool were used to carry out the analysis.

4. Data Analysis

The study found out that the chances of enrolling boys and girls at the institution are equal based on the national gender policy although the institution does not have the college gender policy. The gap is getting smaller in areas like information technology and building studies but there is still a large gap in Management studies, Secretarial studies, Records and Tourism and Hospitality as there are more females than males. There is also an extreme gender gap in the Mechanical, electrical, and automotive engineering where there are more males than females. The college through programs like Career Guidance and Integrated Skills Outreach Programmes Market, Technical and Vocational Education through the use of females who are successful in technical careers which are male dominated and also using males in female dominated areas as role models so as to raise interest and awareness. However, regarding the current situation of gender inequality in Polytechnics, more

courses regarding gender aspects and technical subjects need to be introduced even at schools' level to promote equal enrolments of males and females.

The Factors Which Are Hindering the Progress towards Gender Equality

The study found out that there are barriers from an early age which include the failure to recognize and nurture the women's talents. Parents must also be convinced that technical careers are not for male children only. Girl children can perform equally the same. The issue of gender stereotyping has played a major role in career choice of both males and female students in Polytechnics. Results from the interviews revealed that one male student who had.

The statistics shows that there is an extreme wide gap in engineering department as they are more males than females. There are more females on the softer sciences than males as indicated by the number of girls in secretarial studies, records, tourism and hospitality and management studies although the more males are also enrolling in management studies. These figures may authenticate what was echoed by Goche (2012) by pointing out that, from an early age of social and academic development young girls are modeled and prepared to know that they should dream for softer sciences while boys are enjoying the largest piece of the patriarchal cake have the privilege of dreaming of being doctors, engineers, pilots and architects.

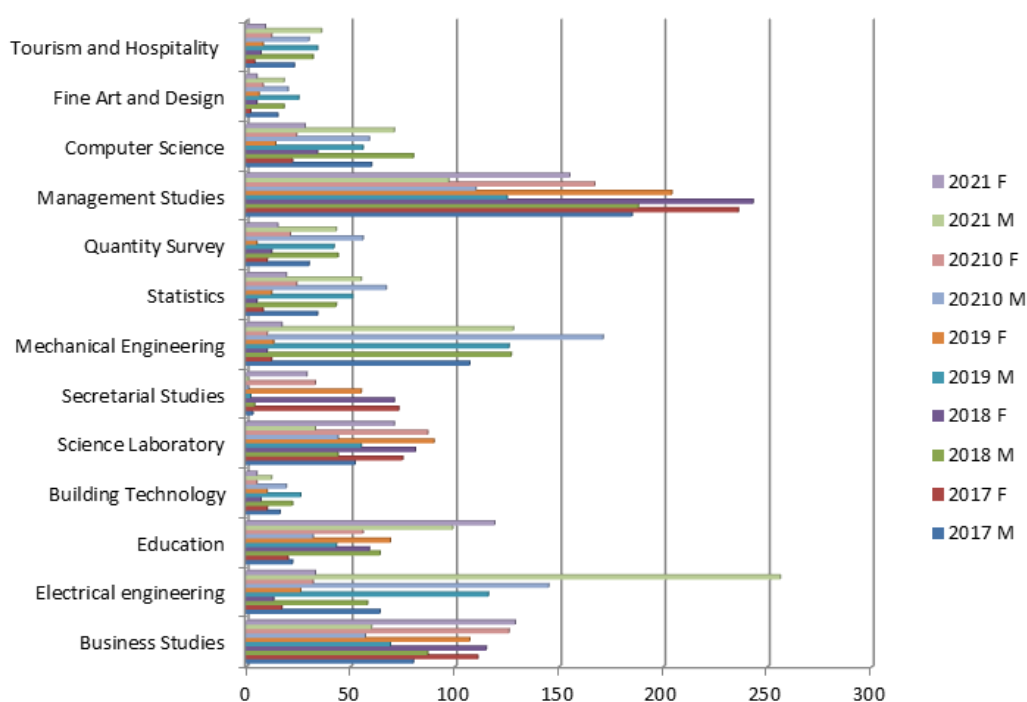


Figure 1. Bar chart showing the graphical representative of candidates admission for five consecutive years as stated in Table 1.

Table 1. Statistics for gender differences in different Department.

Department	2017		2018		2019		20210		2021	
	M	F	M	F	M	F	M	F	M	F
Business Studies	80	111	87	115	69	107	57	126	60	129
Electrical engineering	64	17	58	13	116	26	145	32	256	33
Education	22	20	64	59	43	69	32	56	99	119
Building Technology	16	10	22	7	26	10	19	5	12	5
Science Laboratory	52	75	44	81	55	90	44	87	33	71
Secretarial Studies	3	73	4	71	2	55	1	33	1	29
Mechanical Engineering	107	12	127	10	126	13	171	10	128	17
Statistics	34	8	43	5	51	12	67	24	55	19

Department	2017		2018		2019		2020		2021	
	M	F	M	F	M	F	M	F	M	F
Quantity Survey	30	10	44	12	42	5	56	21	43	15
Management Studies	185	236	188	243	125	204	110	167	97	155
Computer Science	60	22	80	34	56	14	59	24	71	28
Fine Art and Design	15	2	18	5	25	6	20	8	18	5
Tourism and Hospitality	23	4	32	7	34	8	30	12	36	9

M-MALE F- FEMALE

Source: Authors compilation

5. Discussion

The results also show that areas like information technology and education have shown great improvement to the extent that in education there are now more females than males, while in Information systems the gap is getting smaller. During the discussions male students from the mechanical department revealed that they will not fall in love with the girl in the same department because of the nature of the job. They said 'It's better to fall in love with those who are always smart like girls from the management.' The study also found that there is an issue of discrimination, people have the view that men are physically stronger than females and require no maternity leave even though the performance in class is the same. In addition, it emerged from the participants that preference in industries by stakeholders shows that managers prefer males in engineering owing to the fact that women are weak and fragile in heavy industry work.

Further, the study revealed that the enrolment in engineering invites defamation of character among female students when male counterparts treat female counterparts as 'tom boys'. This labeling degrades the status of women in the society. Huggins and Randell [7] confirmed that females may experience intimidation or harassment in classrooms which are dominated by male students and teachers. The study also revealed that quite a number of girls get married soon after completion of 'A' or 'O' levels and this affect the enrolment of female students or the female student might be forced by the social marriage problems to drop out of college. Edwards [6] added that early marriages, household responsibilities, family restrictions, conservative social mindset, preference for male child, lack of physical and sanitary facilities and sexual harassment are some of the barriers that renders the training and work environment not appropriate for women.

Furthermore, Huggins and Randell [7] concur that traditional gender roles perpetuate girls' underperformance throughout their schooling. This creates a cyclical effect, as low performance in primary school leads to fewer girls admitted to low-

er-quality secondary schools and, consequently, fewer girls enrolling in higher education institutions.

An administrator noted that, in addition to other contributing factors, some women hold negative attitudes toward other women. For instance, a female mathematics teacher used to tell her female students that mathematics is generally difficult and meant for males only. However, Huggins and Randell [7] argue that poor performance in mathematics and science at the secondary level is not exclusive to girls; it may be attributed to a shortage of qualified personnel and inadequate school facilities. Nevertheless, girls are often steered towards social sciences or arts, while sciences and technology are portrayed as subjects reserved for boys. This mindset must be challenged and discouraged during the training of primary and secondary school teachers, as it significantly impacts the future prospects of children.

Regarding the effects of gender inequality on socio-economic transformation, the study indicates that women tend to exhibit lower levels of corruption in the workplace. Edwards [6] corroborate this observation, suggesting that there is a growing body of evidence indicating that female workers, on average, display less susceptibility to corruption and nepotism compared to their male counterparts. If these findings hold true, then increased levels of female education and employment could potentially benefit economic performance. Moreover, given the population ratio of women to men in Nigeria, if there are diminishing marginal returns to education and girls' education is restricted compared to boys', this could enhance overall economic performance.

Theoretical literature suggests that gender inequality diminishes the average human capital in a society, thereby impacting economic performance [9]. It emerged from the study that there is unfair distribution of resources which will lead to unemployment of women. Considering the dual roles of the female in socializing the family and providing capabilities at work they need to be appreciated. Considering the life expectancy due to social ills if the husbands pass away when the wife is not working where will be their position in the economic development. Therefore women empowerment is indispensable tool for advancing development and reduces

poverty. In addition, empowered women contribute to the wealth and productivity of families and communities and improve prospects of the next generation. Sheehan [13] agrees that women's education yields significant social benefits, including reduced fertility rates, lower infant mortality rates, and decreased maternal mortality rates. Furthermore, educated women experience cognitive advantages, leading to an improved quality of life and the ability to make informed decisions regarding their own health and that of their children. Additionally, there is evidence suggesting a greater likelihood of democratic governance in countries where women are well educated.

The administrators involved in the study noted that discrimination against women and girls persists as the most prevalent and enduring form of inequality. This discrimination contributes to social issues such as prostitution, Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), drug abuse, suicides, and divorces, all of which impact socio-economic transformation.

6. Conclusion

Traditionally, girls' education focused in development of skills which reinforce their socialized role such as secretarial and clothing skills while boys were involved in science and technological courses and this leads to the marginalization of girls and women from technical and vocational education system. Although the gender policy have been put in place to promote equal access to education, people's attitudes are still changing gradually because of socialized roles and stereotypes which continue to prioritize male education than female. This is affecting the socio-economic transformation of the country.

7. Recommendation

Training of Technical and Vocational teachers for primary and secondary schools so that children are made to know the opportunities abound at a tender age. Gender competence coupled with the orientation of teachers and students must be regarded as a key competence and implemented in school curricular. In doing so, sensitive vocational training and working conditions can be achieved and guaranteed. Motivational awareness of training opportunities in Technical and Vocational Education and Training has to be raised in young men and women through use of internet as most young people are now more interested in it than the usual Televisions and Radios.

Abbreviations

HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
TVET	Technical and Vocational Education
NBTE	National Board for Technical Education

Author Contributions

Oladimeji Olanrewaju Adedipupo: Formal Analysis, Project administration, Supervision, Validation, Writing – review & editing

Lasisi Taiwo Abideen: Conceptualization, Funding acquisition, Investigation, Validation

Akomolafe Abayomi Ayodele: Investigation, Methodology, Software, Supervision, Visualization, Writing – original draft

Ogunbanwo Samson Tolulope: Data curation, Funding acquisition, Investigation

Ogunkeyede Olabisi Yinka: Funding acquisition, Resources, Software

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Adebile, O. A. and Ojo, A. O. (2015). Issues of Vocational and Technical Education on Vision 2020. *International Journal of Management Sciences and Business Research* Volume 2, 12.
- [2] Agrawal, B. (2018). Gender equality, food security and the sustainable development goals. *Current Opinion in Environment Sustainability* 34 Pp 26-32.
- [3] Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. University of Chicago Press, Chicago.
- [4] Borg, W. R & Gall, M D (1996). *Educational Research: An Introduction*, New York, Longman.
- [5] Coolican, H. (2000). *Research Methods and Statistics in Psychology*, London, Prentice Hall.
- [6] Edward, R. B. (2010). *Gender Inequality and Social-Economic Development*, University of Queensland.
- [7] Huggins, A. and Randell, S. K. (2007). *Gender Equality in Education in Rwanda. What is happening to our girls?*
- [8] Kapungu, R. S. (2007). A futile effort? A paper prepared for the Centre for International Private Enterprise (cipe) 2007. *International Essay Competition on Educational Reform and Oxford Economic Papers* 54(1): 118–49.
- [9] Knowles, S, Lorgelly, P. and Owen, D (2002). “Are Educational Gender Gaps a Brake on Economic Development? Some Cross-Country Empirical Evidence.”
- [10] Mbetu-Nzvenga, Gudyanga and Gudyanga (2013). *Psychological Challenges Affecting HIV and AIDS Counsellors, Possible Models and Solutions: A Zimbabwean Perspective Canadian Centre of Science and Education Asian Social Science; Vol. 9, No. 17.*

- [11] Mwetulundia, P. (2001). Gender and Other Student Level Factor Influencing the Science Achievement 13- and 14-year-old Australian Students School of Education Flinders.
- [12] NBTE (2017). Digest Statistics of Technical Vocational Education and Training in Nigeria 2014/2015 session, Volume 7.
- [13] Sheehan, K. (2012). Does inequality in education affect educational outcomes, Storrs University of Connecticut.
- [14] Smithson, J. (2008). Focus Groups in Alasuntari, P., Bickman and Brannan J. Eds, Handbook of Social Research Method, Sage Thousand Oaks, 357-430.
- [15] Winter, D. G. (2002). Motivation and Political Leadership in L. Valently & O. Feldman (Eds), Political Leadership for the Century (Pp25-47). Praeger.