****META-ANALYSIS ON INTEGRATING ENTREPRENEURIAL SKILLS INTO RADIO, TELEVISION, AND ELECTRONIC WORK PROGRAMME****

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**Abstract:** Enterprise skills required for self-reliance and wealth creation are crucial for survival in any nation. The gap between the enterprise skill needs and Radio, Television, and Electronic Work (RTEW) students’ skills exists due to insufficient curriculum adopted in technical colleges. Although entrepreneurial skills are discovered effective but have not been integrated into RTEW trade curriculum in Nigeria. This lack of integration might be one of the problems that made RTEW curriculum insufficient as a result of which RTEW students graduated from Nigerian technical colleges without the needed enterprise skills that will effectively equip them for the world of work. As such, meta-analysis of entrepreneurial skills was conducted with the purpose of sieving desired entrepreneurial skills needed for integration into the curriculum of Radio, Television and Electronics Work trade in Nigerian technical colleges. The research design of the study is meta-analysis. The sample of the study were 10 different scholarly articles. The Scope of the study was limited to databases such Science Direct and JSTOR, though local conferences conducted in Nigeria were also consulted for data gathering. However, the findings of the study revealed entrepreneurial awareness, qualities of entrepreneurs, self and paid employment, ethics in life and business, business ideas and opportunities, starting and operating a business, and business plans as important enterprise skills needed in RTEW curriculum. Importantly, the implication of the results is to overcome potential challenges encountered in the job market and guide for effective curriculum design in Radio, Television, and Electronic Programme in order to help students in developing the necessary skills needed for successful employment after graduation so that they could contribute to the sustainable development of Nigeria.

**Keywords:** meta-analysis, entrepreneurial skill, curriculum development, integration

#  Introduction

The term skill has been defined in many ways by scholars and institutions. For example, UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (2015) defined skill as the ability to apply knowledge, use know-how to complete tasks and solve problems. Skill can also mean the acquired ability to practiced and perform tasks for a particular job proficiently. As a multi-dimensional concept, skill can be used as a proxy measure in occupations, qualifications, and educational attainment. Other abilities used at daily work such as teamwork and problem-solving are also considered as skills. More so, The Organization for Economic Cooperation and Development (2011) viewed skill as a collection of knowledge, traits and aptitudes which empower learners to positively and consistently execute an activity or task and can be built upon and extended through learning.

Entrepreneurial skill refers to the capability to undertake commercial and job related opportunities dealing with risk propensity along the lines of the opportunities. The skill comprises the capacity to identify business opportunities, create and explore business plans which will culminate in wealth creation and employment generation for national development (Ministry of Higher Education Malaysia, 2006). Scholars and organizational reports have proposed different approaches to defining entrepreneurship based on individual’s context and understanding of the concept. For instance, European Commission & Eurydice (2016) viewed the narrow understanding of entrepreneurship to focus on developing attitudes and skills young people need to set up and operate their own businesses or become self-employed. On the other hand, the wider understanding, buttressed entrepreneurship as a key competence which encourages young people and equip them with effective work skills for active social responsibility and economic independence in a nation. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (2015) categorized entrepreneurial skills into two types of competency: that of creating value and that of enabling contingency. The ability to develop products and services, competency to master technology, logistics, and create good customer relationships belong to value creative competencies. Whilst ability to direct and steer business operations, develop personnel, and master knowledge refer to contingency competences. In the context of education, entrepreneurship is about learners developing the skills and mind-set that will enable them turn creative ideas into entrepreneurial action. This entails learners’ personal development, active citizenship, social inclusion and employability (European Commission & Eurydice, 2016).

The National Board for Technical Education is the body charged with the responsibility of creating and reviewing curricula for technical colleges in Nigeria. Radio, Television and Electronic Work at technical colleges is a technical programme aimed at developing within the students the right attitudes and frame of mind needed by students to enter into the electronics trade and progress in it. To attain this aim, the curriculum has specified some measurable specific objectives which the students should achieve. The objectives are:

Stimulate and sustain students’ interest in Radio, Television and Electronic Work.Assist students to acquire basic knowledge and practical skills in Radio, Television and Electronics Work.

Prepare students for self-employment or occupations in Radio, Television and Electronics Work.

Groom students for advanced studies in Radio, Television and Electronics Work programme (National Board for Technical Education, 2007).

However, Federal Republic of Nigera (FRN, 2014), in the national policy of education, has broken down the curriculum of Radio, Television and Electronics Work into seven major components, namely: Basic Electricity (CEI 11), Electronic Devices and Circuits (CEI 12), Radio Communication Systems (CRT 13), Radio and Audio Frequency Amplifier (CRT 14), Satellite Transmission and Reception (CRT 15), Television (CRT 16) and Workshop Practice and Maintenance (CEI 17). There are specified topic areas under each component with relevant indoor and outdoor activities to be performed by every student. The activities are tasks requiring manipulation by each student in order to ensure the development of psychomotor skill in Radio, Television and Electronic Work. The FRN also recommended methods of teaching with emphasis on learning by doing so that students can become productive in the Radio, Television and Electronic industry upon graduation.

To achieve the provisions of the curriculum, the National Board for Technical Education (2007) recommended that:

Each technical college should be provided workshop space structures, tools and pieces of equipment, and steady supply of consumable materials.

Technical college should have a production and service units to boost practical skill development.

 Technical college should create linkages with similar industries for industrial attachment.

Technical college should recruit qualified teaching staff and assign them to students in a ration of 1:20.

At this juncture, it is important to state that commercial activities to sustain technical colleges and help students to be familiar with entrepreneurial trends has been relegated to the background by the provision of the curriculum. Sustaining a technical college can be through engaging students in entrepreneurial practices to generate revenue for the college and promote students’ self-reliance. Hence, creating service and repair partnership between Radio, Television and Electronic Work departments, electronics business owners and technicians will help establish strong link for entrepreneurial skills acquisition and development.

Therefore, in the perspective of this research, Radio, Television and Electronic Work trades in Nigerian technical colleges will start a new era because students and graduates need to address socio-economic challenges such as political unrest, high insurgency rate, deficient infrastructures, poverty and high unemployment rates, among others. Therefore, policies and initiatives should be targeted at restoring the economy and solving certain national development threats. The National Economic Empowerment and Development Strategy (NEEDS), developed in 2004, is popular among the policies. The major goal of NEEDS is to use education to empower the people. Therefore, in addition to instilling literacy and numeracy skills in school leavers in Nigeria, education is expected to address the problems of youth agitation and unemployment by fostering specific goals of value re-orientation, wealth creation, poverty eradication, and job creation. Among the causes for the restlessness and unemployment of young people in Nigeria was the lack of significant work skills in young school leavers due to deficiency of effective entrepreneurial skills in schools’ curricula that would train them for 21st century world of work (UNESCO, 2014). The uniqueness of the present study, is proposing curriculum integration approach for infusing entrepreneurship skills into Radio, Television and Electronic Work trade curriculum in Nigerian technical colleges.

Similarly, the gap between the enterprise skill needs and Radio, Television and Electronics (RTEW) trade students’ skills exists due to insufficient curriculum and insufficient teaching and evaluation strategies adopted in technical colleges, among other problems. Although entrepreneurial skills are discovered effective but have not been adopted in RTEW trade curriculum in Nigerian technical colleges. This is what prompted the present study. Hence, the need to conduct a Meta-Analysis to identify entrepreneurial skills needed for integration into RTEW trade curriculum. Conversely, the contribution of this study includes: methodological contribution, meta-analysis design for exploring entrepreneurial skills for inclusion into RTEW trade curriculum; theoretical contribution, academia (RTEW Research) and curriculum development bodies; practical contribution, RTEW students and employers of labour will find benefit by acquiring both enterprise skills and technical skills befitting the contemporary world of work.

# Statement of the Problem

Perhaps, ineffective curriculum for teaching the students, and inadequate methodologies of teaching and assessment in RTEW trade has led RTEW students graduating from technical colleges without the needed enterprise skills required for self-reliance and wealth creation. This is a problem which indicated a gap between the enterprise skill needs and RTEW students’ skills in technical colleges. While entrepreneurship skills are discovered effective in other countries and disciplines, but have not been adopted in RTEW trade curriculum in Nigeria. For instance, throughout secondary schools, Finnish education system integrated entrepreneurship skills across disciplines with emphasis on progressive attitudes, basic business knowledge and skills, and an enterprise mode of operation. A lot of emphasis is also provided through the school enterprise system to hands-on learning and personal experience of involvement and impact. Similarly, the Sweden entrepreneurship skills are acquired through business simulations, case studies, and project works in vocationally oriented courses. The vocationally-oriented programmes are designed to prepare students to own and run businesses in the areas of commerce and services, tourism and travel, design and innovation, electronic repair works, materials and tools, and customer relations and marketing. Sweden also embrace apprenticeship training by students to provide linkages between young people and employers of labour. It is against this background, therefore, the need to investigate entrepreneurial skills suitable for integration into Radio, Television, and Electronics Work (RTEW) Trade Curriculum at Technical College level in Nigeria evolves.

# Objective of the Study

To investigate entrepreneurial skills suitable for integration into Radio, Television, and Electronics Work (RTEW) Trade Curriculum at Technical College level in Nigeria.

# Research Question

What are the entrepreneurial skills suitable for integration into Radio, Television, and Electronics Work (RTEW) Trade Curriculum at Technical College level in Nigeria?

# Significance of the Study

The study was carried out to disclose components of entrepreneurship skills by conducting meta-analysis. In addition, the meta-analysis answered the research question and fulfilled the objective of this study by presenting ideas on how to close the gap of the research by integrating entrepreneurship skills into Radio, Television and Electronic Work programme. The findings of this study are beneficial to teachers and students of Radio, Television and Electronic Work programme, employers of labour, and curriculum development bodies such as National Board for Technical Education.

Teachers: Trade teachers will enhance their knowledge if Radio, Television and Electronic Work technical skills and entrepreneurship skills will be embedded in the curriculum of technical colleges. Trade teachers will also be better informed through retraining by using effective strategies for teaching and learning the contents of the integrated curriculum.

Students: Students and graduates will become more effective as entrepreneurs by acquiring entrepreneurial skills and Radio, Television and Electronic Work technical skills from one curriculum.

 Employers of labour will value the entrepreneurship skills to be acquired by students at technical college for promoting a specialist work force because the knowledge of the level of entrepreneurship skills acquired by students will make them efficient and competitive in business.

Curriculum development bodies such as National Board for Technical Education will use the findings of the study in planning future reviews by considering the identified entrepreneurship skills to be embedded in Radio, Television and Electronic Work curriculum and other curricula so that students will become well-groomed for entry into the world of work.

# Materials and Methods

The research design of the study is meta-analysis. The methodology in meta-analysis involved development of research question; forming criteria; search strategy including data bases and manual searching; protocol registration; title, abstract, and full text screening; extracting and checking data; quality assessment of data; statistical analysis; and manuscript writing.

The sample of the study were 10 different scholarly articles on entrepreneurship education and entrepreneurial skills. The rational for selecting 10 studies was that they were meaningfully pooled and their results were sufficiently similar. This is the inclusion criteria. In addition, any similar degree of evidence(s) on entrepreneurship education and entrepreneurial skills among the 10 studies chosen made the researcher to include the study as relevant. While studies on other type of skills and competencies not related to entrepreneurial skills were excluded from selection in the present study.

The Scope of the study was limited to databases such as Science Direct and JSTOR, though local conferences conducted in Nigeria were also consulted for data gathering. However, the scope of this study can be expanded for future research, especially in technical subject areas such as electrical installation, mechanical and automobile crafts, among other trades. Similarly, pilot implementation in the area of this study is desirous as it would indicate the impact and implication of the present study or otherwise.

The justification for selecting Science Direct and JSTOR as data sources were that both Science Direct and JSTOR are highly reputable and widely used platforms for accessing peer-reviewed scholarly content. Their credibility ensures reliable and high-quality data. Diverse Disciplines Covered is another factor considered for their selection because Science Direct focuses on scientific, technical, and medical disciplines, making it ideal for research requiring rigorous and cutting-edge scientific data. While JSTOR offers a broader scope, encompassing humanities, social sciences, and interdisciplinary studies, making it useful for context-driven or multidisciplinary research. Moreover, peer-reviewed content is another factor that informed their selection because articles on these platforms undergo strict peer-review processes, ensuring accuracy and academic rigor. This strengthens the validity of the research findings. On the other hand, the criteria for inclusion of Science Direct and JSTOR as data sources are: Relevance to research topic because the two platforms host content directly aligned with the study's subject area and multidisciplinary needs. Similarly, robust peer-review system that ensure the reliability of the data. Other criteria are accessibility and established reputation, allow institutional or individual access as well as wide recognition and respect in academia that ensure trustworthiness.

# Results and Discussion

Table 1: Meta-analysis of entrepreneurial skills findings.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Author/year | Entrepreneurial Awareness | Qualities of Entrepreneurs | Self and paid Employment | Ethic in Life and Business | Business Ideas and Opportunities | Starting and Operating a Business | Business plan | Business Report |
| Harris (2006) |  |  |  |  | ✓ | ✓ | ✓ | ✓ |
| Ramirez, Orejuela, and Vargas (2010) | ✓ |  |  | ✓ | ✓ |  |  |  |
| Orji (2013) | ✓ | ✓ | ✓ | ✓ |  |  |  | ✓ |
| Obiama (2014) | ✓ |  | ✓ | ✓ |  | ✓ | ✓ | ✓ |
| Obiama (2015)  | ✓ |  |  |  |  | ✓ |  | ✓ |
| Kalimasi & Herman (2016). |  | ✓ | ✓ |  | ✓ | ✓ |  | ✓ |
| Shabbir, Shariff & Shahzad (2016) | ✓ |  | ✓ |  | ✓ |  | ✓ |  |
| Deveci & Cepni (2017). |  |  |  | ✓ | ✓ |  |  |  |
| Nwosu (2017) | ✓ |  |  | ✓ |  |  |  |  |
| Deveci & Seikkula-leino (2018). |  |  |  | ✓ | ✓ |  |  |  |
| Total  | 6 | 2 | 4 | 6 | 6 | 4 | 3 | 5 |

According to table 1, six out of ten studies indicated entrepreneurial awareness as entrepreneurial skill. Two studies showed qualities of entrepreneurs, four studies specified self and paid employment, six studies revealed ethics in life and business, six studies disclosed business ideas and opportunities, four studies uncovered starting and operating a business, three studies showed business plan, and five studies advanced business report as entrepreneurial skills. A total of eight entrepreneurial skills were found and analyzed as indicated in table 1.

Conversely, Maria, et al. (2019) and Aderotimi (2014) opined that business entrepreneurial encapsulate managerial skills, financial skills, communication skills, and marketing skills. In addition, the sub-skills set of management skills included: manage material resources to achieve the objectives of the organisation; foster the spirit of team relationship among members of the organisation; oversee organisational matters; set effective communication channels for proper feedback from customers; purchase goods, tools and pieces of equipment appropriately; produce requested items before collection date; manage time to meet job schedule; treat customers and subordinate honestly; deal with difficult customers carefully and patiently; develop, interpret and implement organisational policies; set viable and attainable goals for the organisation; create long term vision for the organisation; control, direct and delegate authority; organise human and material resources for goal attainment; maintain authority in dispensation of leadership; possess knowledge concerning the need for staff growth and development; provide an open door policy; assess employees’ performances; evaluate activities and operations in the process of goal achievement; and evaluate the impact of staff in the organization.

However, another type of business entrepreneurial skill is financial skills which encompasses sub-skills as follows: estimate electronics components for repair and maintenance; make budget for product implementation; interpret financial statements; understand payroll and deductions effectively; facilitate auditing of finances and resources; control income finances; control outgoing finances; keep proper records of every transaction; devise strategies for profit making; identify customers’ needs; define the right product to meet customers’ needs; delineate the right service to meet customers’ needs; identify the target markets for sale of products and service delivery; determine availability of goods and have knowledge of buying situation; organize sales promotion to motivate customers; advertise products and services to customers through appropriate media; determine factors of competition; interpret strengths of competitions; manage money carefully; and gather market information about current prices.

Similarly, communication skill was reported among types of business entrepreneurship which entails sub-skills such as: ability to prepare handbills and pamphlets about enterprise goods and services; ability to actively listen to customers and understand them; ability to identify barriers to listening and avoid them; ability to read and comprehend variety of publications; ability to utilize multi-media communication; ability to share one’s feelings; ability to share one’s thoughts; convey messages to others politely; ability to communicate with other individuals with deep knowledge capacities; accept feedback from others; persuade others in simple language; provide specific details about enterprise product or service; acknowledge different opinions from people; project oneself into the audience point of view; explain objectively without evaluation; ability to interact in group of various sizes; ability to conduct qualitative oral presentation; and being open-minded.

More so, marketing skill constitute another type of business entrepreneurship which contains the following sub-skills set: recognize marketing opportunities; analyse marketing opportunities; promote and sell enterprise products and services; persuade customers politely; communicate effectively with customers; capture the attention of customers; retain the attention of the customers; establish linkages with other business persons and stakeholders; identify and use market opportunities; understand business law such as taxation, insurance, among others; acquire effective sales habits; analyse demand and supply; use banking facilities effectively to interpret financial statement; keep records and inventories adequately; make decision on marketing mix; use advertisement properly to attract customers; carry out sound marketing research; understand the concept of marketing; demonstrate knowledge of forecasting sale; and demonstrate knowledge of analyzing sale.

# Conclusion

The analysis revealed eight (8) entrepreneurial skills that could be a guide to investors in technical education who desire to implement integrated curriculum, especially infusing entrepreneurial skills into RTEW trade curriculum or other technical trade curriculum. The study is limited to Radio, Television and Electronics Work Trade curriculum being operated in Nigerian technical colleges. Nevertheless, the eight (8) discovered entrepreneurial skills are recommended for infusing in technical colleges curricula in Nigeria as it will help students in developing enterprise skills needed to be applied for wealth creation and self-employment after graduation so that they could contribute to the sustainable development of Nigeria. In the context of this study, entrepreneurship skills amalgamation into schools’ curricula of two European countries, namely; Finland, and Sweden, were considered by the researcher from the work of Hatak and Reiner in the year 2023. This is to explore and find out how and why other core curricula incorporated entrepreneurship skills into other core curricula. The results of the studies on incorporating the skills of entrepreneurship as an integral part of the curriculum suggest improvements on several points. First, improvements in methods of teaching and assessment (e.g., experiential training and preparing feasibility report) are needed to provide students with effective entrepreneurship education. Second, there is a need to improve the educational framework (e.g. including resource person talking in schools). Third, there is a need for a fundamental change in mind-set from government as government not only delivers grants but also regulates access to quality of education.

# Declaration of Interest Statement

The author declare that I have no conflict of interests.

# References

Aderotimi, G. (2014). Entrepreneurial Skills required by Automechanics Technology students in the Technical Colleges for Establishing Small and Medium Scale Enterprises in Delta State. Unpublished M. Ed. Thesis, Department of Vocational Teacher Education, University of Nigeria, Nsukka, Enugu.

Deveci, Isa & Cepni, S. (2017). The effect of entrepreneurship education modules integrated with science education on the entrepreneurial characteristics of pre-service science teachers. Socialinis Darbas, 15(2), 56–85. https://doi.org/2029-2775

Deveci Isa & Seikkula-leino, J. (2018). A Review of entrepreneurship education in teacher education. Malaysian Journal of Learning and Instruction., 15(1), 105–148.

European Commission. (2013). Entrepreneurship education: A guide for educators. Bruxelles.: European Union.

European Commission, EACEA, & Eurydice. (2016). Entrepreneurship Education at School in Europe. Eurydice Report. https://doi.org/10.2797/875134

Federal Republic of Nigera. (2014). National Policy on Education. NERDC: Lagos-Nigeria.

Harris, T. (2006). Start-Up: A Practical Guide to Starting and Running a New Business. Berlin Heidelberg: New York: Springer.

Hatak, I., & Reiner, E. (2023). Entrepreneurship Education in Secondary, 1–135.

Kalimasi, P. J., & Herman, C. (2016). Integrating entrepreneurship education across university-wide curricula : The case of two public universities in Tanzania. Industry and Higher Education, 30(5), 344–354. https://doi.org/10.1177/0950422216666668

Maria, R., Colichi, B., Bueno, A., Bonini, B., Estadual, U., Julio, P., & Filho, D. M. (2019). Entrepreneurship and Nursing : integrative review, 72(Suppl 1), 321–330.

National Board for Technical Education. (2007). Radio, Television and Electronic Work Trade Curriculum. Kaduna-Nigeria.

National Bureau of Statistics. (2019). Unemployment rate in Nigeria. Abuja-Nigeria: National Bureau of Statistics.

National Population Commission. (2018). Map of Nigeria. Retrieved December 30, 2018, from www.npc.ng.org.

NERDC. (2007). Curriculum for Electrical Installation and Maintenance Work. Nigerian Educational Research and Development Council. Abuja: NERDC.

Nigerian Educational Research and Development Council, N. (2017). Senior Secondary School Trade Curriculum: Radio, Television and Electronic Work. Nigerian Educational Research and Development Council. Abuja: NERDC.

Nwosu, J. C. (2017). Entrepreneurship education and the challenges of graduate employability in Nigeria. Basic Research Journal of Business Management and Accounts (Vol. 6).

Obiama, G. (2014). Transferable skills in Nigerian senior secondary education curriculum. Beacon: Washington DC.: International Initiative for Impact Evaluation.

Obiama, G. (2015). Education\_in\_Nigeria\_Meeting\_the\_post\_20. Conference.

Ojo, N. J. (2016). Developmement of entrepreneurship skills in furniture making of technical colleges graduates to enhance economic stability in Nigeria: Evidence from Kogi State. The Beam: Journal of Arts & Science, 9, 1–7.

Orji, S. N. (2013). The new senior secondary education curriculum: Trade entrepreneurship. Paper presented at Federal Government College Buni-Yadi, Yobe State: NERDC: Lagos.

Ramirez, A. R., Orejuela, A. R., and Vargas, G. M. (2010). New perspective for the managerial entrepreneurship. International Entrepreneurship and Management Journal, 6(2), 203–219.

Shabbir, M. S., Shariff, M. N. & Shahzad, A. (2016). Determinants of Entrepreneurial Skills set in Pakistan : A Pilot Study, 6(2), 62–74. https://doi.org/10.6007/IJARAFMS/v6-i2/2048

The Organization for Economic Cooperation and Development. (2011). Towards an OECD Skills Strategy.

UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. (2015). World TVET Database Nigeria. Bonn: Germany. Retrieved from http://www.unevoc.unesco.org