Technical and Vocational Education and Training (TVET): Understanding the Nigerian Experience

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Abstract

Technical and Vocational Education and Training (TVET):
Understanding the Nigerian Experience

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The descriptive mixed-methods study explores and describes the challenges and prospects of the growth and development of technical and vocational education and training (TVET) schools and science-based technology education in Nigeria. It is not understood how Nigerians in the United States perceive the impacts of governmental policies on education and the eventual contribution of graduates of TVET schools in Nigeria to the country’s economic growth and development. The purpose of this descriptive mixed-methods study was to discover the opinions and perceptions of Nigerians in the United States regarding the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs.

The questions for the descriptive mixed-methods study enable us to understand how the Nigerian government’s limited level of support for TVET relate to the shortage of highly skilled manpower and technological capabilities and the policy interventions that will improve the situation and enhance national development. To provide a practical solution to the problem, my stances and conceptual framework hinged on human-capital development, leadership and governance, and technological capabilities. A triangulation of both quantitative and qualitative methods was utilized for data collection. To collect primary quantitative data for the study, 100 questionnaires were distributed; eight semi-structured interviews and focus-group sessions of six individuals were utilized to capture qualitative data. Quantitative data were scored on a 5-point Likert-type scale and qualitative data from the semi-structured questions were systematically examined, analyzed, coded, and integrated into the main data. Simple descriptive statistics of frequency counts and percentages were employed to analyze and describe the data. The results were expected to enable the researcher to better understand the topic, reach a valid conclusion, and recommend possible practical solutions to the problem.

Keywords: technical education, vocational education and training, employability and entrepreneurial skills, highly skilled manpower, rising youth unemployment, infrastructure and institutions, economy, Nigeria
This Ed.D. Dissertation Committee from The School of Education at Drexel University certifies that this is the approved version of the following dissertation:

Technical and Vocational Education and Training (TVET):
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Dedication

To my entire family,
without whom this project would have been impossible.

To my wife, Chizor:
Your love and support gave me the energy when I needed it most.
I will remain forever indebted.

To my children, Uche, Amaka, Chidiche, Chinyere, and Ugo:
Your progress in your academic pursuit and your admirable character sustained and
encouraged me to complete this program.
I hope someday you all will reach this height, too.
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Chapter 1: Introduction to the Research

Introduction to the Problem

The mixed-methods descriptive design adopted by this study sought to discover the opinions and perceptions of Nigerians in the United States regarding the consequences of the Nigerian government’s policies toward technical and vocational education and training (TVET) schools and programs. It is not currently understood how Nigerians in the United States perceive the impacts of governmental policies on education, technical and vocational education training (TVET) schools in particular. There is also a need to understand the eventual contribution of graduates of TVET schools to the country’s economic growth and development.

Specifically, this study sought to gain a better understanding of the Nigerian experience with technical and vocational education and training as it relates to the limited level of public support for TVET schools and programs. Such programs empower youths with employability, entrepreneurial skills, and creative and critical thinking skills that combine to enhance the growth and development of the Nigerian economy.

Onwuegbuzie and Leech (2006) observed that mixed-methods study “involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon” (p. 474). However, it has been observed that mixed-methods design is the “third methodological movement” (Borrego, Douglas, & Amelink, 2009, p. 57), taking after quantitative and qualitative methods (Tashakkori & Teddlie, 2011). Creswell, Plano Clark, Gutmann, and Hanson (2003) defined a mixed-methods study as follows:
A mixed methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research. (p. 212)

For Creswell (2005) and Johnson and Christensen (2008), however, designing the research question(s) is an exceptionally significant phase in both the quantitative and qualitative research process because they contract “the research objective and research purpose to specific questions that researchers attempt to address in their studies” (Onwuegbuzie & Leech, 2006, p. 474). For Newman and Benz (1998), research questions are more imperative in mixed-methods research design because mixed-methods researchers make use of the practical method and system of philosophy.

Collins, Onwuegbuzie, and Sutton (2006) noted that mixed-methods research design can be conceptualized 13 distinct phases. Onwuegbuzie and Leech (2006) presented those phases as follows:

1. Determining the goal of the study
2. Formulating the research objective(s)
3. Determining the research/mixing rationale.
4. Determining the research/mixing purpose
5. Determining the research question(s)
6. Selecting the sampling design
7. Selecting the mixed methods research design.
8. Collecting the data
9. Analyzing the data
10. Validating/legitimating the data
11. Interpreting the data
12. Writing the mixed methods research report
13. Reformulating the research question(s) (pp. 474-475)

However, in mixed-methods studies, research questions traditionally drive the methods to be utilized (Newman & Benz, 1998).
For decades, Nigeria has, unfortunately, been described as a country that has failed to give proper attention to its general-education system, particularly technical and vocational education and training (TVET) programs and science-based and technology education. Yet it is aspiring to be an industrialized nation without eliminating the major constraints to actualize the noble vision (Anya, 2011; Dike, 2009c; Okoye, 1999; Oni, 2006, 2008). For instance, in an interview with *The Daily Trust* (2012), Kayode Makinde lamented over the problems facing the Nigerian education system and noted that the root cause is leadership at various levels of the polity. According to Makinde, the nation’s educational policies are unfavorable for educational planning and investment in human-capital development because of poor leadership and governance. Because of the resultant dismal environment, the economy is bleeding profusely and thus exhausted intellectually (*The Daily Trust*, 2012).

Kayode Makinde’s assertion about poor leadership and governance aligns with Achebe’s (1983) lamentation in his epic work, *The Trouble with Nigeria*. Frustrated by the seemingly intractable socioeconomic and political challenges facing Nigeria, which is blessed with abundant human and natural resources – including its oil wealth, Achebe (1983) intoned:

The trouble with Nigeria is simply and squarely a failure of leadership. There is nothing basically wrong with the Nigerian character. There is nothing wrong with the Nigerian land or climate or water or air or anything else. The Nigerian problem is the unwillingness or inability of its leaders to rise to the responsibility, to the challenge of personal example which are the hallmarks of true leadership. (p. 1)

Chinua Achebe (1930-2013) was a renowned Nigerian scholar. He is recognized internationally as one of the most widely read scholarly writers Nigeria has ever
produced. In agreement with Achebe (1983), Dike’s (2009a) work claimed that the problems facing Nigeria today – including its inability to restructure its educational system as well as to give priority attention to technical and vocational education and science-based technology education, which holds the key to the country’s industrialization programs – are traceable to leadership without a moral purpose (Dike, 2009b).

**Technical and Vocational Education: A Brief Overview**

Although the provision of technical and vocational education and training (TVET) schools has a long history (Gordon, 2007; Rauner & Maclean, 2008; Scott & Sarkees-Wircenski, 2008), the focus of this mixed-methods descriptive-design study was not the genesis of TVET around the globe. However, it is imperative to mention that before the Industrial Revolution (between 1750 and 1830) the home and the “apprenticeship system” (Dike, 2009c, p. 200; see also Duffy, 1967) were the principal sources of vocational education. The decline of handwork and specialization of occupational functions eventually forced societies to develop institutions of vocational education (Duffy, 1967) to provide manual training involving general instruction in the use of hand tools (Duffy, 1967; Gordon, 2007; Rauner & Maclean, 2008; Scott & Sarkees-Wircenski, 2008).

Maclean and Wilson’s (2009) empirical studies noted the important role technical and vocational education and training (TVET) programs play in helping youths in the acquisition of job skills and knowledge, enabling them to secure paid employment or be self-employed for a sustainable livelihood. According to Maclean and Wilson (2009), vocational education is practical and non-academic instruction giving the learners
specific occupational skills for entry-level jobs in a trade or vocation (Gordon, 2007; Rauner & Maclean, 2008; Scott & Sarkees-Wircenski, 2008).

Vocational education and training involves mostly hands-on laboratory process and on-the-job training for proficiency in manual skills (Maclean & Wilson, 2009). The programs are designed with the needs of the individual and society at heart (Gordon, 2007; Rauner & Maclean, 2008; Scott & Sarkees-Wircenski, 2008). By contrast, technical education prepares students for acquisition of skills as well as basic scientific knowledge. Maclean and Wilson (2009) noted one of the primary objectives of technical education is providing employability and workplace skills to prepare trainees for occupations above skilled crafts but below the scientific or engineering professions. Such programs prepare graduates for continuing education and often involve mastery of a body of knowledge and skills that can be applied in a practical way (Gordon, 2007; Rauner & Maclean, 2008; Scott & Sarkees-Wircenski, 2008).

Additionally, such programs give learners tools for critical thinking, problem-solving mentality, and the application of technical skills to solve security problems. In light of all these benefits, it is difficult to understand why the Nigerian government fails to give technical and vocational education the support required to produce the needed highly-skilled technical manpower to spur the economy and enhance national development.

**Technical and Vocational Education: The Nigerian Experience**

In Africa, the apprenticeship system was an avenue for acquiring vocational skills before the colonial era (Dike, 2009c; Moja, 2000; Oni, 2006, 2008; Warnat, 1991). In Nigeria, as in most African societies, the youths were trained in traditional vocations such
as pottery, weaving, mat making, wood carving, and traditional medicine – to name but a few – by their parents, family friends, and relatives who were masters of the crafts (Fafunwa, 2002). Everything changed when the colonial masters set up formal vocational schools for those interested in learning particular trades.

The National Board for Technical Education (NBTE) was established in 1985 for quality assessment and program accreditations at polytechnics, professional institutions, technical colleges, and training centers to set guidelines and standards for admissions to the different programs in each institution. In 1992, the National Business and Technical Examinations Board was established and charged with the conduct of technical and business examinations, initially conducted by the Royal Society of Arts (RSA), City and Guilds of London Institute (CGLI), and the West African Examination Council (WAEC) (Oni, 2006, 2008; UNEVOC, 1996).

When the political leaders realized the education system Nigeria inherited from the British colonial master would not enable the country to achieve her economic growth and development objectives, Nigeria adopted a new education system branded 6-3-3-4 system. The 6-3-3-4 system consists of six years of primary education, three years of junior-secondary school education (JSS), three years of senior-secondary school education (SSS), and four years of post-secondary education. The 6-3-3-4 system was achieved through the promulgation of the Federal Government of Nigeria’s National Policy on Education (1981).

The education system, revised by the National Policy on Education (2004), led to the integration of pre-vocational and technical subjects into school curriculum at the junior-secondary education and full-blown vocational and technical subjects at the senior-
secondary level (Dike, 2009c; Ofoha, 2011; Oni, 2006, 2008). The new skill-based secondary-school curriculum was supposed to empower the youths with employability and entrepreneurial skills (Awogbenle & Iwuamadi, 2010). However, when the efficacy of the new curriculum was assessed, it was revealed that the policy was poorly implemented (Moja, 2000; Ofoha, 2011).

While technical and vocational education has continued to thrive in many advanced and emerging societies, the majority of Nigerians, including the leaders and parents, have an untoward attitude toward technical and vocational education and related careers (Adekola, 2009; Adekola, Aderounmu, & Ojo, 2007; Aina, 2009). In Nigeria, there is a general faulty perception that technical and vocational education is meant for individuals who are either not intelligent enough to gain admission into regular academic institutions or are incapable of withstanding the rigors of formal academic programs (Awang, Sail, Alavi, & Ismail, 2011). It is erroneously believed that this group is only good at working with hand tools such as hammers, screwdrivers, and spanners or wrenches (Aina, 2009; Dike, 2009c). Thus, those in related careers are assigned a low social status.

The problem facing technical and vocational education and training (TVET) in Nigeria has a long history. Before independence in 1960, the Ashby Commission was set up to review Nigeria’s manpower needs (Ashby, 1960; Fafunwa, 2002). The commission reported a shortage of skilled manpower at all levels (lower, middle, and high) and observed that “the major defect in Nigerian education is the strong bias toward the traditional literary and academic subjects; this is reflected in a lack of respect, on the part of the public, for manual labour” (Ashby, 1960, p. 18).
The report strongly recommended Nigeria introduce technical subjects in secondary education and warned that the nation could “ill afford to ignore” (Ashby, 1960, p. 18) the recommendation. It also indicated that Nigeria would need to produce hundreds of engineers and thousands of technicians yearly, for decades, to be able to meet the technical manpower needs of the society. Although some technical and vocational training schools were established following the recommendations of the Ashby Commission (Ashby, 1960; Fafunwa, 2002), the nation’s secondary schools and higher institutions remain oriented toward white-collar jobs and education and skills training involving the use of hand tools are often disregarded. Every facet of the Nigerian economy has been affected by the resultant shortage of highly skilled technical manpower.

Another dimension of the problem facing technical and vocational education and training is the employers’ preference for regular university graduates with Bachelor’s Degrees (BS/BA) over graduates of Polytechnics with Higher National Diploma (HND); this preference is the reason for the pay disparity between the graduates (Dike, 2009c; Moja, 2000; Oni, 2008). Evidently, the policymakers have not handled Nigeria’s quest for economic growth and development properly, given their limited level of support for science-based technology education, technical and vocational education, and skills-acquisition programs. As a result, Nigeria is currently suffering from a shortage of highly skilled middle- and high-level technical manpower to build and maintain the critical infrastructure and institutions driving the economy and creating employment for the teeming population. These scholars have vehemently argued that technical and
vocational education and training is the missing link in Nigeria’s development programs (Anya, 2011; Dike, 2009c; Okoye, 1999; Oni, 2008).

As often said, all that glitters is not perceived as gold by everyone. One of the arguments against the benefits of technical and vocational education and training (TVET), which caught this researcher’s attention, was offered by Mureithi (2009). For this study, the benefits of spreading TVET institutions to rural communities can be curtailed by the nature of their underdevelopment. Mureithi (2009) has noted that training or skill acquisition by itself does not create jobs; the predominant economic policies in a society must be favorable for the acquired skills to be pertinent in any form of creation of employment. Thus, Mureithi (2009) has argued that for skills to be applicable, economic and political conditions must be supportive.

The dissenting opinion notwithstanding, experts in human-capital development (Becker, 1993; Hanushek, 2005; Heckman, 2005; Schultz, 1961) agreed that a wise and well-targeted investment in general education, as well as science-based technology and technical and vocational education, is one of the tested and proven ways to develop highly skilled technical manpower for economic growth and development. Thus, such programs are seen as antidotes to rising youth unemployment, poverty, social crisis, and security problems in a society (The Economist, 2013).

Statement of the Problem to Be Researched

We do not understand how Nigerians (students, teachers, and other professionals) in the United States perceive the impacts of governmental policies on education and the eventual contribution of graduates of TVET schools in Nigeria to the country’s economic growth and development.
Purpose and Significance of the Problem

Purpose Statement

The purpose of this mixed-methods descriptive design study was to discover the opinions and perceptions of Nigerians in the United States (students, teachers, and other professionals) regarding the consequences of the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs.

Significance of the Problem

The significance of this mixed-methods descriptive-design study rests on the belief that societies with a good stock of highly skilled manpower and technological capabilities are known to produce high-quality goods and services, at least covering costs, and give them a competitive edge over other countries in the global marketplace (Anya, 2011; O’Connor & Lunati, 1999). But because of poor investment in critical infrastructure and educational institutions focused on technical and career education, the environment is currently unfriendly toward business activities, which has the potential to raise youth unemployment, poverty, and social crisis. Therefore, to create a brighter economic future for the next generation of Nigerians and for the country to develop as it should, Nigeria must invest copiously in human-capital development to produce creative and innovative minds as well as high-quality goods and services at low costs. Evidently, the manufacturing sector has virtually collapsed for lack of highly-skilled technical manpower to build and maintain the critical infrastructure to keep the economy humming (Anya, 2011; Oni, 2006, 2008; Richardson & Teese, 2006; Taiwo, 2009).
Nigerian leaders are touting plans for transforming into an industrialized nation in the near future. But Nigeria’s successful implementation of its industrialization program hinges on its investment in human capital, physical development, technological capability, and how well the resources are organized and managed (Dike, 2012). Highly skilled technical manpower, technological capabilities, as well as good leadership and governance are perceived as engines of economic transformation and national development. Obsolete technologies are also “a major cause of retarded economic development” (Watanabe, 1980, p. 167) in developing nations.

The concern that Nigeria has not accorded priority attention to technical and vocational education and training (TVET) makes this descriptive study much more compelling. Such programs are perceived worldwide as an indispensable vehicle for effective socioeconomic transformation in both developed and developing nations (UNESCO-UNEVOC, 2010). Nigeria should emulate the good work done in education by other countries such as Germany, South Korea, and Singapore “by upgrading vocational and technical education by forging closer relations between companies and schools” (The Economist, 2013, p. 12). For instance, Germany has a long history with a well-established system of vocational schooling and apprenticeships, South Korea has its “meister” schools (vocational schools), and Singapore has followed the good example by boosting its technical colleges (The Economist, 2013, p. 12). Enhancing science and technology education and expanding vocational and technical education and training, as well as apprenticeship, has helped these countries close the gap between the world of education and the world of work.
Thus, a long-term investment in technical education, science-based technology education and training (Okoye, 1999), and investment in regulatory institutional mechanisms is imperative to ensure investments in human and physical capital are properly utilized (Felipe, 2004). For the Asian Development Bank (2004), human-capital development is known to improve employability and entrepreneurial skills and increase “the productivity of the individual worker” (p. 7), thus enhancing national development (see also Asian Development Bank, 2008). Advanced technical manpower and know-how “may lead to higher rates of innovation and invention, make everybody more productive by helping firms introduce new production methods, and lead to more rapid introduction of new technologies” (Hanushek, 2005, p. 16). But unfriendly business environments caused by nonfunctional infrastructure and regulatory institutions, as well as a lack of job and entrepreneurial skills and knowledge, leads to low worker productivity, poor quality of goods and services, and Nigeria’s ineffective competition in the global marketplace (Adekola et al., 2007; Dogara, 2009).

However, developed and emerging economies have intensified their efforts to fully integrate technical and vocational education and training into their general education systems, putting other necessary structures in place within their educational system to ensure the provision of high quality academic studies and job-skills training to prepare youths for the world of work (ILO, 2009; Krueger & Lindhal, 2001). According to The Economist (2011), the emerging economic giants of the BRICS (Brazil, Russia, India, China, and South Africa), as well as the Asian Tigers (Hong Kong, Singapore, South Korea, and Taiwan), could not have become what they are today without investing bountifully and wisely in both human- and physical-capital development. As Cohen and
Bloom (2005) observed, “cultivating” the young “minds,” as well as ensuring “an enduring commitment” to good governance, will boost development and improve the people’s living conditions (p. 9). The authors are good advocates of any educational goals, whether through formal schooling or other means, that will enhance “readiness for local or global labor market” and “the creation [or sustaining] [of] a more cohesive society” (Cohen & Bloom, 2005, pp. 13-14).

Healthy and functional institutions are facilitators for economic growth and development (Hoff, 2003). Without functional infrastructure and appropriate job skills, workers’ productivity will be low; the economy will be weak; and unemployment, poverty, and crime will continue to rise (Kakwagh & Ikwuba, 2010). In addition, without functional regulatory institutions (Fong, 2006), good governance and leadership, and well-focused economic policies to develop a good stock of highly-skilled technical manpower and technological capabilities, Nigeria will continue to grope in the dark (Anya, 2011; Wines, 2007). As noted earlier, many countries around the globe are boosting economic growth and development and creating employment for their teeming youth population by investing in science-based and technology education and upgrading their technical and vocational schools to bridge the gap between education and the world of work (The Economist, 2013).

**Research Questions**

Given the importance of technical and vocational education and training (TVET) schools and programs to the growth and development of the Nigerian economy, the proposed mixed-methods descriptive-design study answered the following specific research questions:
1. How do Nigerians residing in the United States describe the levels of support for TVET education by the Nigerian government?

2. What opinions do Nigerians residing in the United States have of the relationship between the government level of support for TVET and the shortage of highly skilled technical manpower?

3. What government interventions do they believe are needed to enhance acquisition of employability and entrepreneurial skills among students to improve the productivity of TVET graduates?

**Conceptual Framework**

**Researcher’s Stances and Experiential Base**

My conception of experiential based learning is learning by doing; it is creative application of ideas to productive use instead of passive learning. Thus, as a mixed-methods researcher, I utilized the pragmatic stance or philosophy. As a pragmatist, a researcher, and an economist, I would like to discuss my stances in the proposed mixed-methods study through the lenses of human-capital development, leadership and governance, and technological capabilities theories. It was expected that the approach would provide practical solutions to the questions raised in the study. As a pragmatist, I immediately implemented what I learned from the study to tackle the subject matter.

In addition, as a rationalist, I utilized mixed methods (or triangulation of both qualitative and quantitative methods) in data collection and analysis because it gave the researcher an opportunity to properly address the research questions. The essence of
mixed methods in data collection as well as in data analysis is that both perceive the nature of the issue similarly, but the researcher does not mix the paradigms.

As a pragmatist, I believe the purpose of research is to find practical, generalizable answers to real-world problems using information learned from one method in one specific situation and making the most suitable use of that knowledge in other environments. As a researcher, and a pragmatist at that, mixed-methods study and data collection and analysis appear to me as a logical way to approach my proposed research. Such an approach enabled me, as a pragmatist, to find practical solution to questions in this study.

Furthermore, as a pragmatist, I believe a long-term investment in education, particularly science-based and technology education, has contributed to the development of skilled technical manpower and improvement in individual workers’ performance and thus enhanced national development. In addition, as a pragmatist, I believe that for the Nigerian economy to grow and develop, it needs to invest handsomely in general education as well as technical and vocational education and training and science-based technology education to build and maintain the institutions and infrastructure that drive economic activities and enhance national development.

As a pragmatist, I am very passionate with regard to experimenting with new ideas and procedures in my quest to provide practical solutions to problems. Thus, I believe a wise and well-targeted investment in education, particularly technical and vocational education and training and science-based technology and education, holds the key to the growth and development of the Nigerian economy.
Furthermore, as a rationalist; a mixed-methods researcher, an economist, and a writer, I am an experiential educator because I teach through the application of direct experience. I have written extensively on the limited level of Nigerian government support for technical and vocational education and training; my experience shows that for the Nigerian economy to grow, develop, and create employment for the teeming youth population, Nigeria must invest in the technical and vocational education known to bridge the gap between education and the world of work.

Thus, as a pragmatist, I believe in technical and vocational education because it hinges on hands-on application or learning by doing. As a practical person, I like any learning situation involving the application of concepts, ideas, and theories in a productive way as well as in an interactive setting. I plan to build modern technical and vocational education and skill training (TVET) schools in my community, which will serve as a model of what technical and vocational education and training should be like. It will serve as a laboratory where students will get together in groups to learn, design, implement, and evaluate the efficacy of their projects by getting immediate feedback.

Finally, as a pragmatist, I am more inclined toward applied education theory in practice, as opposed to education that is abstract in nature; this defines my long-term interest in technical and vocational education and training where the majority of learning is through practical experience.

**Conceptual Framework of the Three Research Streams**

The conceptual framework adopted for this mixed-methods descriptive-design study, intended to enable Nigeria to sustain economic growth and development, emanate from the foundation laid by advocates for human-capital development (Becker, 1993;
Schultz, 1961, 1993; Schumpeter, 1942), contemporary scholars in the field of leadership and governance (Achebe, 1983; Kotter, 2008; Northouse, 2007; Shabbir Cheema, 2004; Ward, 2009), and those scholars who are proponents of technological capabilities (Acemoglu, 2003; Edison, 2003; Mohan, 2003). It has been vehemently argued that no country can become an industrialized nation (Mohan, 2003). Therefore, to build the conceptual framework for this mixed-methods study, the researcher drew from the concepts of the three streams forming the foundation: (a) human-capital development, (b) governance and leadership, and (c) technological capabilities.

![Figure 1. Graphical representation of the three streams](image)

**Human-capital development.** Contemporary economists and human- and social-capital thinkers (Becker, 1993; Bell & Pavitt, 1995; Hanushek, 2005; Hanushek & Kym, 1995; Schultz, 1961, 1993; Schumpeter, 1942), among others, have been
confronted by the issues of human-capital development and physical-capital development for decades. They recognized the critical role of the health of an economy (individual workers’ productive capability and the prosperity of a nation) and the standards of living of the people. Thus, human-capital development (education and health) plays a critical role in individual workers’ productivity and the prosperity of a nation, in terms of capacity building of the economy as well as improving the standard of living for citizens of an entire society.

**Governance and leadership.** The issues of leadership and governance are explored in volumes of literature because economists, political scientists, and other social scientists are interested in their implications on national development as well as on the welfare of the citizens (Achebe, 1983; Kotter, 2008; Northouse, 2007; Shabbir Cheema, 2004; Ward, 2009). Ward (2009) defined leadership as “the art of motivating a group of people to act towards achieving a common goal” (para. 1) and not for a selfish objective. Northouse (2007) aptly noted that leadership is a process of getting things done through people, a perspective aligned with that of Ward (2009).

**Technological capabilities.** For decades, social scientists – particularly economists and political scientists – have argued that without a long-term investment in technical and science education and without providing effective infrastructural and institutional framework and technological capabilities to spur the economy (Acemoglu, 2003; Edison, 2003; Kim, 1980, 1997), no country can become an industrialized nation (Mohan, 2003). The proposed mixed-methods design study also hinges on the premise that among the challenges facing the economy is ineffective institutions and dilapidated infrastructure. The plethora of reforms and development policies in Nigeria are
ineffective due to shoddy infrastructure and institutional failure (Hoff, 2003; Wright, 2008).

The seemingly limited level of Nigerian government’s support for technical and vocational education and training (TVET) schools has hampered economic growth and development. The development of any country, including Nigeria, hinges precariously on technological innovation or what Schumpeter (1942) referred to as “Creative Destruction” (p. 139). His theory posits that “destructive innovation” (Schumpeter, 1942, p. 139) creates new ideas, products, and services that will replace obsolete technologies with better technologies, create efficient production techniques to meet the people’s aggregate demands, and thus spur economic growth and national development.

**Definition of Terms**

**Economy**

An economy is “a system of producing and distributing wealth of a nation region” (Economy, 2002, p. 200). Thus, it is activities relating to the production and distribution of goods and services in a particular geographical region.

**Employability Skills (Job Skills)**

Also “known broadly as generic skills or generic capabilities, enabling skills or even key skills” include “non-technical skills and competencies [abilities] that play a significant part in contributing to an individual’s effective and successful participation in the workplace” (Commonwealth of Australia, 2006, p. 8; see also Wiseman & Alromi, 2007).
**Human Capital**

It is “the body of human knowledge that contributes know-how to productive activity” (Pass et al., 1991, p. 232). It is defined as “the knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social, and economic well-being” (OECD, 2001, p. 18). Additionally, human capital is the knowledge, experience, skills, health, values, and abilities enabling individuals to produce goods and services (Becker, 1993; Mankiw, 2008).

**Human-capital Development**

It entails the practices or processes of “training, education, and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values, and social assets of an employee which will lead to the employee’s satisfaction and performance, and eventually on a firm performance” (Marimuthu, Arokiasamy, & Ismail, 2009, p. 266).

**National Development**

It refers to the ability of the nation’s human resources acting on its natural resources to produce goods (tangible and intangible) to improve the welfare and social wellbeing of citizens of the entire nation in terms of indicators of development predicated on minimum standards of living, including (among others) a reasonable standard of good health and housing facilities, electricity and food security, life expectancy (reduction of infant mortality and improvement of maternal and reproductive health), education and literacy, and employment (Chumbow, 2009).
**Physical Capital**

It is manufactured assets such as buildings, machines, vehicles, and technical equipment used in production; it is any non-human assets made by humans and used in production (Becker, 1993; Mankiw, 2008).

**Social Capital**

There are myriad arguments from different disciplines concerning the actual meaning of social capital. For the purpose of this study, however, “social capital is the existing stock of social relationships in a society” (Piazza-Georgi, 2002, p. 471). Social capital is, also, perceived as “those forms of human relationships that are related to oiling the wheels of economic activity” (Piazza-Georgi, 2002, p. 471; see also Coleman, 1988).

**Strategy**

The direction and scope of an organization or a country over the long term, which gives advantages for the organization or country through its configuration of resources within a challenging environment to meet the needs of markets or of citizens and to fulfill stakeholders expectations (Johnson & Scholes, 2006).

**Technical Education (or Career and Technical Education)**

It offers post-secondary skills training and education to increase the skills and knowledge of local labor force. It prepares learners for acquisition of skills as well as basic scientific knowledge and prepares graduates for continuing education, often involving the mastery of a body of knowledge and skills that can be applied in a practical way (UNESCO-UNEVOC, 2010).
Technological Capability

It is “the ability to make effective use of technological knowledge in efforts to assimilate, use, adapt, and change existing technologies” (Kim, 1997, p. 4).

Technology

Defined here as “the application of scientific and technological knowledge in order to improve products and production processes” (Pass, Lowes, Davis, & Kronish, 1991, p. 516).

Unemployment

In this study, it is defined as people who do not have a job, have actively looked for work in the past four weeks, and are currently available for work (ILO-Bureau of Statistics, 2008). It describes the state of a worker who is able and willing to work but cannot find a job. For ILO’s Bureau of Statistics (2008), unemployment describes an economically active population without work but currently available for work (paid employment or self-employment) and thus are seeking work.

Vocational Education (or Vocational Education and Training)

It is a practical (non-academic) instruction giving learners specific occupational skills for a trade or vocation and for entry-level jobs. Vocational education takes the needs of the society and individual into consideration (Maclean & Wilson, 2009).

Youth

In this study, youth is defined as young people (boys and girls) between the ages of 15 and 24 years (ILO, 2010a, p. 40; ILO, 2010b). It is pertinent to mention that different countries have their own definition of youth. In Nigeria, youth
comprises those in the age group of 18-35 (Onyeizugbo, 2007); in Britain, it is those in the age group of 16-18 (Cuddy & Leney, 2005); in Northern Italy, those in the age group of 14-29; and in Southern Italy, it is those in the age group of 14-32 (O’Higgins, 1997).

Youth Unemployment

In this study, youth unemployment is a proportion of the young population (the youth age group) not employed. It represents the number of unemployed young people aged 15-24 as a percentage of the total labor force (ILO, 2010a, 2010b).

Assumptions and Limitations

The purpose of this section is to describe the assumptions and limitations for this mixed-methods descriptive-design study. It is understandable that in every scholarly work, such as writing a dissertation or thesis, researchers are restricted in various ways, including limited funding; timeframe; and, of course, the scope of their study. Krathwohl and Smith (2005) aptly observed that “assumptions underlie all studies” (p. 139). Put differently, Leedy and Ormrod (2010) observed that “assumptions are so basic that, without them, the research problem itself could not exist” (p. 62).

As noted, there is limitation in everything we do as human beings and conducting research is not an exception. As Simon (2011) noted, the restrictions can affect the resources available to the researcher as well as the person’s thinking process, assumptions, and limitations. In conducting this mixed-methods study, this researcher was confronted by varied deficiencies, but he worked diligently to limit their effects on the outcomes of the study.
Thus, in conducting this mixed-methods study, this researcher’s assumption was that the selected participants would answer the questions candidly and to the best of their ability. It was also assumed that the sample or unit of study was representative of the population providing data and that such data would provide practical solutions to the problem. To accomplish this objective, this researcher endeavored to provide an environment enabling participants to provide the critical information for the study. Their personal identity was strictly protected as their contributions were aggregated to preserve their confidentiality. To ensure this survey got to the heart and soul of the research problem, and that the participants provided information enabling this researcher to answer the questions, a pilot study was performed and the dictated deficiencies were corrected.

It was also assumed that the entrenched negative perceptions or mindsets of the participants about technical and vocational education and training schools and programs might prevent some of the students from participating in the survey. This researcher worked from the assumption that the Nigerian government’s limited patronage of TVET has contributed to the shortage of highly skilled technical manpower, hampering economic growth and development. This researcher also worked from the assumption that this mixed-methods descriptive-design study might not address all possible responses to the survey. Therefore, the mixed-methods descriptive-design study was subjected to all the limitations recognized in collecting primary data and the possible risk of incorporating bias in this study. The researcher strove to minimize all the limitations and assumptions under the following conditions:
1. That a sizeable majority of students and teachers would be flexible enough to participate in this descriptive survey and provide unbiased answers and vital information, despite their seeming contempt for technical and vocational education and training;

2. That it is the desire of the government to institute appropriate interventions to change the dismal public perceptions about technical and vocational education and skills training (TVET) to fully integrate this important subsector of the educational system into the general education system; and

3. That it was assumed that this would motivate the youths to embrace technical and vocational education and skill training schools and programs in Nigeria to acquire employability and entrepreneurship skills that would enable them to secure paid employment or be self-employed, which would enable them to improve their living conditions and meaningfully contribute to national development.

One of the limitations of this mixed-methods descriptive-design study was the survey was limited to Nigerians in the United States. However, the study used a sample of participants believed to possess the knowledge and skills to supply the needed data. The problem in this study was the results might not be significant and thus cannot be generalized to the entire population of Nigeria. Because this study involved the use of primary data, time constraints and a lack of adequate finances posed some limitations.

This study was funded with the meager personal financial resources available to the researcher. Minimal funding notwithstanding, the survey had to be concluded within
a given timeframe of about three to four weeks. However, the time constraints were
made explicit to the participants, enabling them to complete the questionnaire within the
allocated timeframe. The researcher assumed these limitations or deficiencies would not
pose a serious bottleneck.

Summary

This chapter systematically described and analyzed the forces contributing to the
limited level of the Nigerian government’s support for technical and vocational education
and training (TVET) programs and schools. Such lack of support was shown to
contribute to the shortage of highly skilled technical manpower in the country. This
chapter also explained that this study was informed by a pragmatist research paradigm,
which acknowledges that realistic and practical solutions can solve the problems facing
TVET and the Nigerian economy.

In addition, this chapter noted that the conceptual framework of this mixed-
methods study was anchored on the foundation laid by advocates of human-capital
development (Becker, 1993; Schultz, 1961, 1993; Schumpeter, 1911, 1942) as well as
contemporary scholars in the field of leadership and governance (Achebe, 1983; Kotter,
2008; Northouse, 2007; Shabbir Cheema, 2004; Ward, 2009). This chapter also
highlighted the works of scholars who are proponents of technological capabilities
(Acemoglu, 2003; Edison, 2003; Mohan, 2003). It has been aptly argued that no country
can become an industrialized nation (Mohan, 2003). Finally, this chapter noted that
improvement in the quality of leadership and governance – as well as good levels of
support for technical and vocational education and training and science-based technology
education – holds the key to Nigeria’s development.
Chapter 2: Review of the Literature

Introduction

The endemic and chronic problems facing Nigeria’s education in general, and technical and vocational education and training in particular, have been roundly highlighted (Dike, 2009c; Oni, 2006, 2008). Such studies dictate the need to address the issues surrounding the limited level of Nigerian government’s support for science-based technology education as well as technical and vocational education. Support for such programs is necessary to ensure sustainable (or long-term) economic growth and development in the society.

Studies on human-capital development emerged in the 1940s through 1960s and were expanded in the 1990s (Becker, 1993; Schultz, 1961, 1993; Schumpeter, 1942). The recent rampant corruption in leadership and governance in Nigeria and a lack of technological capabilities, which drive the growth and development of the Nigerian economy, have encouraged researchers to examine these issues as they relate to the shortage of highly skilled technical manpower in Nigeria. In particular, the concept of human-capital development (Becker, 1993; Schultz, 1961, 1993) provides direction for the general growth and development of any economy. However, the growth and development of any economy is impossible without good leadership and governance as well as technological capabilities (Kim, 1997; Mohan, 2003). The development of human capital, technological capabilities, and a strong economy are impossible without good leadership and governance (Achebe, 1983; Kotter, 2008; Northouse, 2007; Shabbir
Cheema, 2004; Ward, 2009). This mixed-methods study was anchored on the aforementioned conceptual framework.

Building a coherent conceptual framework or an outline of possible course of action (Miles & Huberman, 1994) for this mixed-methods study enables us to fully understand the Nigerian experience with technical and vocational education and training (TVET) as it relates to the limited level of the Nigerian government’s support for TVET, the effect on individual workers’ skills and productive capabilities, the supply of goods and services to meet the aggregate demand of the citizens, as well as the economic health of the nation (Mankiw, 2008). Chapter 2 reviews the literature in the field of human-capital development, technological capabilities, and leadership and governance, which are the streams of this study.

The three streams adopted for this mixed-methods descriptive-design study are in the field of human-capital development, leadership and governance, and technological capabilities (see Figure 1). This study utilized three disciplinary streams that represent “a three-legged stool” (Senge, 2006, p. xiii) holding the Nigerian economy. The study could not be meaningful without the three streams working together. The descriptions and analyses of the forces associated with the seemingly poor investment in general education, technical and vocational education and training (TVET), and science-based technology education have contributed to a shortage of highly skilled technical manpower in Nigeria (Dike, 2009c, 2012; Okoye, 1999; Oni, 2006, 2008).

According to Anya (2011) and Dike (2012), while population growth in Nigeria persists (the population is estimated to about 167 million), the country’s science-based and technology-oriented higher institutions and skills-training schools have been unable
to produce enough highly skilled technical manpower to meet the demands of the economy. The country’s political and economic landscape is littered with evidence of a dearth of highly skilled manpower to drive economic activities. The Nigerian economy can be considered labor intensive. However, due to the neglect of the TVET and the general education system, Nigeria lacks competent and advanced technical manpower to build, install, and maintain the machine components used in the technology-dependent manufacturing sector. According to Anya (2011), Dike (2009c), Okoye (1999), and Oni (2006, 2008), such a lack constitutes a bottle-neck to the growth and development of the Nigerian economy as well as the improvement of the people’s standard of living.

Economists, political scientists, and other social scientists are interested in the implications of leadership, governance, and corruption on national development and thus the welfare of the citizens (Kotter, 2008; Northouse, 2007; Smith, 2008; Ward, 2009). Ward (2009) defined leadership as “the art of motivating a group of people to act towards achieving a common goal” (accessed online) and not for a selfish objective. Northouse (2007) aptly noted that leadership is a process of getting things done through people, a perspective aligned with that of Ward (2009). It means responsibility – having passion for the purpose and the mission of the organization or society.

Studies show that no nation has developed without technological capabilities (Bell & Pavitt, 1995; Kim, 1980, 1997; Mohan, 2003). For Kim (1980), “technological capability” is “the ability to make effective use of technological knowledge in efforts to assimilate, use, adapt, and change existing technologies” (pp. 254, 277). In the present knowledge-driven 21st-century economy, any country that fails to invest copiously in education, acquire some form of technological capabilities (Kim, 1980), and train enough
advanced technical manpower to maintain the critical infrastructure (Mohan, 2003; Seng, 2007) driving the economy will be unable to compete effectively in the global marketplace (Mankiw, 2008).

**Literature Review**

In this proposal, extensive emphasis has been placed on the role of technical and vocational education and training (TVET) programs, science-based technology education, and general investment in human-capital development in developing and training a good stock of highly skilled technical manpower to drive economic growth and national development. The rationale for how the streams informed the proposed research was that no one sector of the economy is an island. The streams (human capital development, leadership and governance, and technological capabilities) hold the key to national development; like the proverbial tripod (or three-legged stool), which must function effectively together for the economy to grow and develop. The education sector, by itself, does not seem to be Nigeria’s problem. Rather, like other sectors of the economy, the problem facing the education sector is lack of deserved attention from Nigerian leaders.

If the educational institutions have enough financial resources and competent, talented human capital, they will be able to invest in modern research equipment and train their professors to carry out sound research and development (R&D) for better teaching and learning strategies. In other words, the government must properly motivate and educate the educators. Such measures combine to produce a higher quality of graduates, technological innovation, as well as national development.
But gaining such valuable human capital is impossible without good leadership and governance, security, and political stability. Thus, to improve the state of the economy and enhance national development, the government must allocate enough financial and human resources to human-capital development (education and healthcare) to meet international standards in research and development and technological capability. Any country without a high-quality education system and healthcare is tantamount to a power-driven system without electricity and an engine.

For decades, social scientists – particularly economists and political scientists – have argued that no country can become an industrialized nation (Mohan, 2003) without investing in human-capital development – particularly technical, science, and technology education – and without providing effective infrastructural and institutional framework as well as technological capabilities to drive the economy (Acemoglu, 2003; Edison, 2003). As noted, the three streams are inter-related because it is impossible for Nigeria to meet its technological and system challenges and move along with the changing global economy without investing copiously in human-capital development, particularly science-based technology education, acquisition of technological capabilities, and improvement in its leadership and governance. Technological innovation gives rise to new entrepreneurs and knowledge-driven industries that will push down the barriers to economic growth and development (see Figure 1).

Thus, without sustainable development, future generations will be denied the equal economic opportunities past generations enjoyed. In addition to investing in human-capital development, one of the best ways to ensure future generations have the same opportunities enjoyed by previous generations is by expanding the stock of
Nigeria’s social capital (Grootaert, 1998). According to Grootaert (1998), social capital (a part of human-capital development) can be perceived as the glue holding societies together.

Social capital is the essence of good governance and leadership, part of the three streams. Good leadership organizes the people to utilize resources in the society for the common good. Altogether, governance and leadership, human-capital development, and technological capabilities form the tripod of this descriptive study; each one must be in good operational condition to collectively improve the economy, increase individual workers’ productivity, and enhance national development. Like a tripod or “a three-legged stool” (Senge, 2006, p. xiii), if one of the three legs is dysfunctional, it will render the whole tripod unstable (see Figure 1).

Chapter 2 reviews the literature in the following order: human-capital development, governance and leadership (corruption), and technological capabilities (infrastructure and institutions). Each of the three streams is described in detail. An appropriate way to appraise the impact of the Nigerian government’s limited level of support for education in general – and technical and vocational education and training in particular – is the state of the Nigerian economy, which is suffering from a shortage of highly skilled technical manpower and slow growth of national development. Such issues are integrated in the three streams.

**Human Capital Development**

Contemporary economists and human- and social-capital thinkers (Becker, 1993, Bell & Pavitt, 1995; Hanushek, 2005; Hanushek & Kym, 1995; Schultz, 1961, 1993; Schumpeter, 1942) have been confronted by the issues of human-capital and physical-
capital development for decades. They recognized the critical role such development plays in the health of an economy (individual workers’ productive capability and the prosperity of a nation) and the standard of living of the people. Human-capital development plays a critical role in individual workers’ productivity and the prosperity of a nation in terms of building the capacity of the economy and improving the standard of living of the citizens of an entire society.

Scholars and analysts in the field of human-capital development and social-capital theory (as mentioned above) observed that workers’ productivity capability is determined by many variables. Such variables include human skills, ability, health, motivation, and job satisfaction. For instance, Anya (2011) and Dike (2012) noted the majority of the sociopolitical and economic issues facing Nigeria today can be attributed to poor investment in human-capital development and physical-capital development.

Human capital, as a term, was said to be invented by Schultz (1961), in his epic work “Investment in Human Capital,” to describe the contribution of education, human capabilities, and skills to an individual workers’ productivity and future earnings. Schultz’s (1993) work dealt with increasing returns on investment in schooling. The concept of investment in human capital brought some changes in economic thought. According to Schultz (1961), investment in human-capital development plays a pivotal role in a country’s economic development. Schultz (1961) stated that education enhances an individual’s ability to positively deal with disparity in changing economic conditions. In addition, he observed that human capital consists of the accumulation of all past investments in education; on-the-job training; and health (among other factors), which increase individual productivity and earnings (Schultz, 1961, 1993). Schultz argued that
knowledge and skills acquired through education are partly the products of prior investment in education combined with other investment in human capital (health care). Thus, investment in human-capital development primarily accounts for the productive advantage of advanced and emerging economies over developing countries (Schultz, 1961, 1993).

In his epic work *Capitalism, Socialism, and Democracy*, Schumpeter (1942) observed that “creative destruction” (p. 139) has transformed many advanced and emerging economies into economic superpowers while contributing to the rapid growth and expansion of its middle class. Schumpeter (1942) noted that creative destruction is a “process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, [and] incessantly creating a new one” (p. 83).

According to Schumpeter (1942), the process creates new goods and services as it adopts efficient and profitable ways to produce existing products or create new ones. Comparatively, there is no creative outcome in *destructive destruction* as nothing new is produced to replace the old in the process and there is no *entrepreneurial dynamism* (Schumpeter, 1942). Also, as Schumpeter (1942) observed:

> The opening up of new markets, foreign or domestic, and the organizational development from the craft shop to such concerns as U.S. Steel illustrate the same process of industrial mutation – if I may use that biological term – that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. However, the process of “creative destruction is the essential fact about capitalism. (p. 83)

For Schumpeter (1942), the economic wellbeing and growth of any society correlates with good governance, good leadership, and a long-term investment in human-capital
development and physical-capital development because economic growth and development does not occur simply by spending more money. Schumpeter (1942) added, although “economic growth determines how much improvement will occur in the overall standard of living of society” (p. 15), the manner with which a society is governed can either inhibit or enhance the pace of its prosperity and socioeconomic transformation.

In agreement with Schumpeter (1942), Becker’s (1993) quantitative study (first published in 1962) was widely observed to have laid the foundation of the theory that human-capital development tends to draw a distinction between general education and specific training. The purpose was to specifically examine how investment in human capital can influence peoples’ future real earnings. According to Becker (1993), general education creates general human capital and technical and vocational education provides specific human capital. In human-capital framework, the economic prosperity and progress of a nation depends precariously on the stock of its physical and human capital (Becker, 1993). Furthermore, Becker (1993) observed that the key focus of human-capital theory is how education and training increases human productivity by improving human knowledge and skills and increases an individual workers’ productive capacity, future income, and lifetime earnings.

Thus, Becker’s (1993) work on human-capital development tends to draw a distinction between general education and specific training. His hypothesis was that there is a difference in earnings between people with general training and specific training. While Becker indicated that the unit of this study was global, he did not identify the particular site or participants in the study, but it appears he drew data from the United States to illustrate his points.
Becker’s (1993) study, which adopted mixed-methods design and data collection (interviews, various archival sources from both developed and developing countries), utilized multiple regression analysis and graphs to depict the results of his empirical study. Becker’s (1993) study found that most on-the-job training in firms falls within the category of specific training because such trainings are mostly useful to the firms providing or paying for the training. He also found that investment in education (both specific and general) and health is essential for human-capital development, which he perceived as the grease keeping the wheels of national development turning. The neglect of this important element has far-reaching consequences on the welfare of a nation.

Becker’s (1993) work observed the key focus of human-capital development theory is how education increases human productivity by improving human knowledge and skills, thus increasing an individual workers’ future income and lifetime earnings. Formal education as well as technical and vocational education and training is instrumental in improving the productive capacity of an individual worker and improving his or her living standard (Becker, 1993). Becker (1993) concluded that the differences in earnings among workers, areas, or times periods are a result of technological knowledge and ability; they also depend on institutions including unions and/or specialized production system. Becker’s (1993) study is essential because it laid the foundation for the theory of human-capital development. Becker (1993) observed that general education creates general human capital and technical and vocational education provides specific human capital. As a pragmatist, this descriptive study was predominantly anchored on the foundation established by Becker’s (1993) work.
In alignment with Becker (1993), Hanushek (2005) examined the role of investment in human-capital development in South Asia and other developing countries using a mixed-methods study. The problem the study examined was that the education system of many countries in the developing world placed an emphasis on increasing school attainment, rather than quality of teachers and education, as a way to improve students’ learning capabilities. Data were collected by interviewing government officials and experts in the field of human-capital development as well as from a review of government documents in South Asia and other developing countries. Although the unit of this research was the South Asian region, Hanushek (2005) used data from the United States to illustrate issues concerning the developed world.

Hanushek (2005) found that quality of education is not the only factor determining growth, suggesting that economic institutions are also important, particularly in developing nations. He also found that improvement in cognitive skills attainment seemed to have little or no role in national growth. Although Hanushek (2005) found the “cognitive achievement” (p. 291) of students increased with high quality teachers, he admitted he lacked better understanding of how to institute policies to improve the quality of the teaching profession. Hanushek (2005) concluded that every government should invest abundantly in human-capital development; he also noted that schooling has direct implications for both individual and national outcomes.

Following Hanushek’s (2005) line of argument, Hanushek and Kym’s (1995) study observed that no nation can talk about the manpower planning, national growth and development, and creation of employment to improve the lives of citizens without bringing education (formal, non-formal, and informal) or learning into the equation. The
shortage of skilled technical manpower (this author emphasizes technical education) has the tendency to impede individual worker productivity, national productivity, and economic growth. Thus, human-resource development has an essential role to play in the economic health of a nation (Perkins, Radelet, Snowgrass, Gillis, & Roemer, 2001).

Thus, social scientists and other social thinkers in the field of human-capital development and social-capital theory have observed that workers’ productivity capability is determined by many variables. Such variables include human skills, ability, health, motivation, and job satisfaction (Bell & Pavitt, 1995; Judge, Thoresen, Bono, & Patton, 2001; Schultz, 1993; Schumpeter, 1942). Additionally, experts in this field as well as social analysts have observed that the majority of the sociopolitical and economic issues facing Nigeria can be attributed to its poor investment in human-capital development and physical-capital development (Dike, 2010; Ferriss, 2006; Lewis, 2004).

In their meeting in Bonn, the UNESCO international experts recognized the importance of education in national development. It was declared that “since education is considered the key to effective development strategies, technical and vocational education and training must be the master key that can…improve the quality of life for all and help achieve sustainable development” (UNESCO, 2004, p. 107). One of the major problems facing the Nigerian democracy and economy is that the nation, which is aspiring to transform into an advanced economy, is not investing copiously in education and the necessary institutional and infrastructural conditions (Acemoglu, 2003; Dike, 2012; Hoff, 2003).

In alignment with the opinion of the international experts of UNESCO (2004), Kazilan, Hamzah, and Bakar’s (2009) study set about to determine how technical and
vocational training has helped empower students at the technical institutes or centers in Malaysia with employability skills. Kazilan et al. (2009) hypothesized that skills and knowledge acquired in industrial, vocational, and technical training would boost individual workers’ productivity. Primary data for the study were collected through self-administered questionnaires administered to teachers and students at selected technical and vocational-training centers in Malaysia. Out of the 450 questionnaire-response sets, a descriptive analysis and inferences such as ANOVA and t-test were adopted for data analysis. A secondary source of data was the review and analysis of the available relevant literature on the impacts of employability skills on workers’ productivity. Kazilan et al. (2009) found a positive relationship between education, job training, and higher productivity of individual workers. The researchers concluded the students’ basic skills needed to be improved because empowering graduates with employability skills increases their productivity.

It has been argued that Nigeria’s underdevelopment status can also be traced to poor governance and inept leadership, breeding the corruption that has become pandemic in the society (Bensinger, 2007; Dike, 2010; Smith, 2008). The policymakers and other major players in the economy are mostly interested in making profits; creating wealth for the common good does not seem to be their priority (Dike, 2012). Such biased interests are among the undisputable reasons for the lack of investment in institutional and infrastructural frameworks, but investment in human-capital development (health and education) enables a nation to develop a good stock of highly skilled technical manpower to drive economic growth, advance national development, and improve the health of the nation (Krueger & Lindhal, 2001).
The purpose of Min and Tsang’s (1990) study was to examine the relationship between the introduction of vocational-education subjects in secondary education, economic development in China, and workers’ productivity. In particular, their study examined the impact vocational education and training had on the productivity of workers in a Beijing General Auto Industry Company. In addition, the study examined the economic relevance of vocational education, its connection to individual workers’ productivity, and how different levels of education affect people’s productivity.

Data were collected by interviewing workers’ who went through vocational education and general secondary school to discover whether the different routes to education made any difference in their levels of productivity. Min and Tsang (1990) found the following:

1. Secondary vocational school graduates as factory workers holding jobs more closely related to their training tend to exert higher work effort in their jobs than general senior high school graduates who hold the same job;

2. Secondary vocational school graduates as factory workers holding jobs closely related to their training tend to be more productive than general senior high school graduates who hold the same jobs; and

3. A worker’s educational background has a less significant impact on productivity in a more co-operative work group than that in a less co-operative group.
Thus, Min and Tsang (1990) concluded that graduates holding jobs closely related to their training were more satisfied than regular secondary-education graduates holding similar jobs.

Usman and Tafida’s (2011) work highlighted the causes of the rising rate of unemployment in Nigeria and suggested some solutions to the problem. The problem of the study was that unemployment – which was rising unabated in the country – was causing social crises, rising crime rates, and hampering national development. The primary methods of data collection were a combination of questionnaires distributed to students and a selected unemployed group, personal interviews of top government officials in the Ministry of Education in the Niger Delta region (with a high rate of unemployed youths), and a review of government documents.

Aligning with Becker (1993), Usman and Tafida’s (2011) study focused on the implications of human-capital development, employability skills, and technological capabilities on national development. The study concluded that unemployment and poverty will continue to ramp upward without empowering the jobless youths with employability skills. The study provided its perspective on the best possible way to strengthen technical and vocational education and training in the country to resolve the unemployment and underemployment among the youth.

In their study, Usman and Tafida (2011) found that technical and vocational educational and training (TVET) can empower the youth with employability skills and soft skills such as human relation (social capital) to secure paid employment and become entrepreneurs instead of job-seekers. According the study, all these factors can lead to
development of infrastructure, development of investor-friendly economic conditions, and improvement of a nation’s rapidly deteriorating quality of education.

The issue of employability skills takes us to Oni’s (2006) study, which examined the concept of vocationalism in the Nigerian educational system. In his study, Oni (2006) traced the historical background of vocational and technical education in Nigeria, including the causes of poor student enrollment in the technical and vocational schools, poor staffing and teacher preparation, as well as the underfunding of the institutions in the country. Oni (2006) was working from the theory that technical and vocational education is the missing link in Nigeria’s development program.

Oni’s (2006) work aligns with Usman and Tafida’s (2011) study; both studies focused on the importance of vocational and technical education in empowering the youths with employability-skills and entrepreneur-skills development and national development. Oni’s (2006) study utilized data from the 1995 social statistics, the 2001 Annual Abstracts of Statistics, and the 2006 Federal Office of Statistics; the study found that students’ enrollment in technical and vocational education is dwindling rapidly to the detriment of national development. The poor student enrollment in technical and vocational education means a shortage of advanced technical manpower to build and maintain the institutions that keep the economy humming. Oni (2006) concluded that for Nigeria to develop as it should, the political leaders need to change their mindsets toward technical and vocational education and training (TVET) programs and schools to train skilled manpower for industrial development.

Glor (2007) explored the role of inventions and innovations in governance, public administration, and the need to invest in human-capital development for poverty
reduction and national development. Glor (2007) adopted a narrative approach to show how policies on inventions and innovations were implemented during the 19th and 20th centuries in the West as compared to what is obtainable today. Glor (2007) found that innovation requires will and money and its implementation has consequences. People abandon new ideas that work because of the power of institutions, elites, and violence; because they fear change or are comfortable with the status quo; and because of an inability to determine how to effectively implement new ideas. Glor (2007) also found that innovation is created either in reaction to crises or proactively by motivated entrepreneurs, leaders, and other champions. Glor (2007) concluded that successful application of innovative processes to improve governance and public administration and to address poverty is a question of will, effective policy implementation, and circumstance.

The purpose of Ahmed’s (2010) quantitative dissertation was to examine the importance of empowering technical, vocational education and training teachers and trainers in Khartoum (Sudan) with the technical skills and knowledge (capabilities and competencies) to give the students the employability skills they need to find employment or become self-employed after graduation. The problem was the teachers and trainers in technical and vocational education institutions in Khartoum (Sudan) lacked the technical skills to function effectively as technical and vocational education educators. Data collection was through structured questionnaires distributed to a large group of teachers in both vocational training centers and technical secondary schools in the region. The study adopted a quantitative design with descriptive statistical-analyses frequencies, percentages, and chi-square tests.
Ahmed’s (2010) study concluded there were no specialized technical institutions in the Sudan to empower the teachers and trainers with modern technical skills and knowledge to give the students the technical skills they need to effectively compete in the 21st-century global marketplace. The study further concluded that technical institutions in Khartoum State (Sudan) need serious renovation to meet international standards to give the teachers the tools they need to function effectively.

In his dissertation, Brown (1999) examined the impact of human-capital development on economic revitalization with Newfoundland as a case study. The purpose of the study was to explore the widespread conjecture that investment in education and training improves the economic capabilities and wellbeing of citizens in the developing world. Data for the study were collected through personal interviews and focus groups. The study adopted a qualitative-design method. The study found sporadic growth, high unemployment (high part-time and seasonal employment), increasing transfer dependency, and a decline in population size in Newfoundland. The findings suggested a relationship between human-capital development and economic revitalization in the region. The study concluded that education and training can make significant contribution to economic development in a depressed economy, but improvement in the economy is enhanced by other policy interventions.

Classens’ (2008) dissertation explored the effect of the Education 1 Project on the skills development and prospects of students at a high school in Swaziland. Furthermore, it explored how The Education 1 Project, which is a more hands-on educational program established by the government in Swaziland, is a prevocational education initiative at selected high schools with the goal of improving the job-skills levels of the students.
The design of the case study was qualitative and used data collection methods involving oral testament of teachers and students in technical and secondary schools, interviews of family members, and a review of government artifacts. According to the study, no official data was available for tracing students after graduation, making it difficult to define the impacts of the program on the students. The study found that with the hands-on educational initiative, the students acquired basic skills as a result of the assertiveness of the prevocational program as well as the amount of time and resources devoted to learning. Other factors enabling the students to acquire basic skills included external factors such as government’s financial support of the program and the quality of teachers.

Millar Wood’s (2008) case study explored a range of issues associated with globalization and education, including the effect of globalization on education policies, structure, and practice in Uganda over a 20-year period (1987-2007). Millar Wood displayed a good understanding of the effect of globalization in Uganda through a comprehensive grasp of the historical background of the region. The study adopted a qualitative case-study-design approach that encouraged a detailed description of the circumstances surrounding educational reforms, policies, and practices in Uganda. Data collection was based on extensive field research in Kampala, the capital of Uganda, and individual interviews with open-ended questions and focus group sessions. The limitation of the case study was its narrow scope because it focused solely on the education reforms carried out in a single location. The study found that globalization has negatively affected Uganda like other developing nations with no goods or services to trade in the global marketplace. It concluded that education remains on the periphery of
policy discussions in the country. The study recommended that the issue of globalization – its opportunities and challenges as they affect the region – should be addressed.

Palmer (2007) suggested a problem in Ghana is that youths are left to navigate their way through the terrain of the informal sector of the economy in search of paid employment (or become self-employed) after acquiring job skills through technical and vocational education and training and from formal education. The purpose of Palmer’s (2007) study was to examine the three types of skills-training provision: on-the-job training, short-term integrated training, and longer-term pre-employment training in Ghana. The mixed-method design investigated whether technical and vocational education and skills trainings enhanced students’ chances of securing employment in the labor market in Ghana after graduation.

The mixed-methods design allowed for data to be collected through multiple sources: self-administered structured questionnaires, personal interviews, group discussions, and extensive review of related literature. Participants in the study were graduates from seven vocational training centers and village, district, and national officials; the study also included participant observation of skilled local enterprises and entrepreneurs in Ashanti, Ghana. Palmer’s (2007) study found that successful entry into self-employment as well as the establishment of small businesses requires much more than technical and vocational skills; it requires access to capital, markets, and business-management competence. The research concluded that the development of a successful microenterprise requires a positive framework of conditions including an enabling environment.
Dike’s (2010) work argued that Nigeria’s underdevelopment status can also be traced to poor governance and inept leadership, which breeds the corruption pandemic in the society (Bensinger, 2007; Smith, 2008). The players in the economy are mostly interested in making profits, not in creating wealth for the common good. According to Dike (2012) and Anya (2011), such biased interests appeared to be a major reason for the lack of investment in institutional and infrastructural framework, human-capital development (education and health), technical and vocational education and training, and science-based technology education that would enable the country to develop a good stock of highly skilled technical manpower to drive the economy and enhance national development (Krueger & Lindhal, 2001).

For Mankiw (2008), a lack of long-term investments in human capital, the accumulation of knowledge, human skills, and physical-capital development constitute a bottleneck to the economic growth and development of a country and the creation of employment for its citizens. The work of Mankiw (2008) is in agreement with that of Hanushek and Kym (2005) and Becker (1993), as discussed earlier. According to Dike (2012), employers of labor in Nigeria have been complaining that university graduates lack employability, problem-solving skills, and other competencies that are the main variables determining an individual workers’ productivity capabilities (Mankiw, 2008). Yet Nigeria’s policymakers in education and political leaders have done very little, if anything, to increase investment in human-capital development to improve the quality of human capital, which has direct bearing on workers’ productivity (Perkins et al., 2001).

Piazza-Georgi’s (2002) work brought the role of human skills capital (HSK) into the equation of individual workers’ productivity and, by extension, its role in the profit
margins of organizations around the globe. According to Piazza-Georgi (2002), organizations around the globe are spending billions of dollars annually to educate and upgrade their employees’ human-skills capital for them to compete effectively with their competitors in the knowledge-driven global marketplace. In the same vein, Clayton (1995) observed that more often than not workers are rewarded according to their skills – higher productivity as well as the quality of their goods and services – which influence their firms’ bottom line or their profits’ margin.

As related literature has noted, before independence in 1960, the schools in Nigeria were properly funded and managed, students were well behaved, and the quality of graduates was equal to those from advanced nations (Babalola, 2006; Fafunwa, 2002). Babalola (2006) found the current Nigerian education system lacked adequate funding for research and development (R&D) to enhance technological innovation, hire quality teachers, and purchase the necessary instructional technologies to produce high quality graduates as well as to teach good character formation. As a result, values education, good moral values, and civic responsibility – which shape the character of nations – have become things of the past. One cannot separate character education from the discussion of human-capital development.

According to the National Bureau of Statistics (2011), the national unemployment rate rose to 23.9% (or 24%) in 2011 from 21.1% in 2010 and 19.7% in 2009 (p. 12). In addition, the National Bureau of Statistics (2011) has put the composite rate of unemployment for youth (age group 15-24) at 37.7% (p. 12). As noted earlier, the federal government recently acknowledged that about 80% of the youth is unemployed and 10% are underemployed (Any, 2011; Dike, 2009a; Jeon, 2002; Kakwagh & Ikwuba,
2010). Such statistics are the consequences of a long duration of neglect of technical and vocational and training (TVET) schools as well as science-based technology education to train the skilled technical manpower that drives the economy and enhances national development.

As Okoye (1999) and Dike (2009c) observed, it is difficult, if not impossible, for Nigeria to meet its technological challenge and shift with the changing global economy without investing copiously in education and research and development; such measures are needed to nurture and strengthen the infrastructure making technological development possible. In particular, Dike (2009c) noted that the poor patronage of technical and vocational education or the seeming neglect of this important subsector of the Nigerian education system has a far-reaching consequence on the health of the economy and the living conditions of the people.

Technological innovation gives rise to new entrepreneurs and knowledge-intensive industries that push down the barriers to economic growth and development. According to Mohan (2003), no country can grow and thrive in the present knowledge-driven global economy without a long-term investment in human-capital development (education and health), technological innovation, and functional infrastructure and institutions (Hoff, 2003). Put differently, no society will thrive in the present 21st-century knowledge-driven global economy without copious investment in human-capital development and technological innovation, either by developing indigenous technological innovation or copying and adapting other nation’s technological ideas in the cheapest possible means (Kim, 1980, 1997).
For Freeman (1987) and Rongguang (2000), China and other advanced economies (as well as emerging economies) have traveled this route to become a technological giant; this has given the country’s economy the clout to gain from the power of productivity (Lewis, 2004). To become an industrialized society, Nigeria should either adopt and adapt the economic policies and technological innovation of successful countries by the cheapest possible means or develop her own indigenous technology (Offor, 2007; Rose, 2009). As Dike (2012) aptly noted, Nigeria will continue to dream of being an industrialized nation unless they create a hospitable environment to lure investors into the economy; ensure the Constitution and rule of law are respected and business contracts honored; and invest in human capital development (education and health), particularly technical and vocational education and training and science-based technology education.

**Leadership and Governance**

The issues of leadership and governance have volumes of literature because economists, political scientists, and other social scientists are interested in their implications on national development and the welfare of the citizens (Achebe, 1983; Kotter, 2008; Northouse, 2007; Shabbir Cheema, 2004; Ward, 2009). In *The Trouble with Nigeria*, Achebe (1983) observed that “the trouble with Nigeria is simply and squarely a failure of leadership” (p. 1). Like other well-meaning Nigerians, Achebe was frustrated by the seemingly intractable socioeconomic and political challenges facing Nigeria, a country blessed with abundant human and natural resources, including its oil wealth. Nigeria’s oil production is Africa’s second biggest economy.
Ward (2009) defined leadership as “the art of motivating a group of people to act towards achieving a common goal” (accessed online) and not for a selfish objective. Northouse (2007) noted that leadership is a process of getting things done through people, a perspective aligned with that of Ward (2009). Additionally, it means responsibility – having passion for the purpose and the mission of the organization or society one leads. For Kotter (2008), “leadership…is about coping with change” (p. 6) in government as well as in business organizations. Kouzes and Posner (2008) noted that “leadership is not about personality; it is about practice” (p. 26).

For Rose-Ackerman (2004), a combination of the nature of leadership and governance determines how the economy of any society functions and the pace of development in every entity. Rose-Ackerman’s (2004) work, which aligns with Northouse (2007), hinged on the premise that bad leadership and poor governance breed bribery and corruption as well as mediocrity in governance. Such corruption fuels social crises, as they often deplete the resources meant for social programs and thus hamper economic and national development. Thus, the role of leadership in the progress and direction of organizations and the development of nations has continued to prompt debates (Marquis & Huston, 2012).

According to Dike’s (2009b) work, since the reprise of democracy in 1999, the costs of Leadership without a Moral Purpose in Nigeria’s government are astronomical. The huge sum spent in paying the corrupt and ineffective politicians should have been wisely invested in rehabilitating the dilapidated roads, schools, and hospitals to spur the economy and enhance national development. Thus, because of failed leadership and poor governance nothing works in the country as it should. Worse still, a majority of
Nigerians are not demanding accountability or transparency; as a result, good governance has been relegated to the background.

Dike’s (2009b) study concluded that Nigeria’s leaders need to go beyond paper promises and adopt and implement people-oriented programs and policies that will enhance national development and improve the standard of living of the citizens. In addition, the study observed that because of weak regulatory institutions, each political transition has not brought the needed change in the society. Finally, Dike’s (2009b) work claimed that the political leaders do not seem to understand that leadership is assuming responsibility for something. They appear good at prescribing solutions to economic problems without providing the institutional and infrastructural framework to help the economy grow. As a result, things are rapidly falling apart in Nigeria. Dike’s (2009b) study recommended that to sustain any transformation efforts in the country, Nigerians must also change their mentality to contribute meaningfully in national development.

As Anya (2011) observed, more often than not, because of corruption and poor leadership the policies of the leaders are hastily put together and poorly executed. As a result, the political landscape is littered with the wreckage of unreasoned policies, and those involved in such activities appear to enjoy the nation’s underdeveloped status. The activities of the political leaders in every society shape the economic, political, and social realities of the nations they lead (UNDP, 2008). Nigeria is thus littered with leadership challenges.

For Gallos (2008), the success and failure of every venture in both business and government depends on the role of leadership and how governance is framed because these are all “human intervention and process” (Gallos, 2008, p. 4). Additionally, Gallos
Gallos (2008) observed that “the design of an appropriate system of rules, roles, procedures, and structural relationships to facilitate fulfillment of the organization’s mission and purposes requires [committed] leaders to address [the]…ongoing tensions in the entity” (p. 173). Gallos (2008) highlighted four major tensions:

1. Differentiation and integration: how to divide up the task and work to be done and then coordinate the diverse efforts of individuals and the organization [or nation]
2. Centralization and decentralization: how to allocate authority and decision making across the organization [or nation]
3. Tight boundaries and openness to the environment: how much to buffer and filter the flow of people and information in and out of the organization
4. Bureaucracy and entrepreneurism: how to balance the requirement for consistency, predictability, and clarity with the need for autonomy, creativity, and flexibility. (p. 173)

Gallos (2008) acknowledged that “working through these choices to achieve the right mix for any organization is hard and important work” (p. 173) without good leadership and governance.

In alignment with Gallos (2008), Dike (2009c) observed that one of the major causes of poor investment in Nigeria’s educational system in general, and technical and vocational education and training in particular, is that most, if not all of the leaders lack the leadership acumen. According to Dike (2009c), the problem with Nigeria’s leaders is that they do not seem to possess the competences and capabilities to “design…an appropriate system of rules, roles, [and] procedures” (Gallos, 2008, p. 173) to make the educational system work. Rather, most of them, if not all of them, are drunk with the “power of position” (Sales, 2008, p. 180). Preoccupation with power has prevented them from “understanding” the daily “structural dynamics” of the social and economic “life” of the nation (Sales, 2008, p. 180). Dike’s (2012) work noted that poor leadership and
governance is one of the major challenges facing Nigeria as most, if not all, the elected or appointed men and women in leadership positions in Nigeria do not appear to be people of proven integrity with the drive and know-how to transform the nation and manage its affairs.

Such political deficiency has also prevented them from meeting the ethical challenges of leadership to improve the infrastructure and institutions for organizational effectiveness. Altogether, Nigeria’s economic growth and development rests on good leadership and governance (Bass & Avolio, 1994). Related to the leadership problem is “governance,” which according to the United Nations-Economic and Social Commission for Asia and the Pacific (2012, para. 3), is the process of decision making and the process by which decisions are implemented (or not implemented). According to the United Nations (2012), governance is what a government does, and it determines the pace of economic growth and the health of the nation. In alignment with the United Nations (2012), the UNDP (2008) defined governance as a system of values, policies, and institutions by which a society manages its economic, social, and political affairs through interactions within the state, civil society, and private sector. For UNDP (2008), governance comprises the mechanisms and processes for citizens and groups to articulate their interests, work together and mediate their differences, and exercise their legal rights and obligations with rules, institutions, and practices that set limits and provide incentives for individuals, organizations, and firms (UNDP, 2008).

Governance can be good or bad. Thus, because they have varied meanings, they are better described than defined. For The World Bank (2003), “good governance [is] a complex, multifaceted concept...difficult to collapse into a few empirical measures that
can be compared across countries” (p. 5). According to The World Bank (2003), some of the “critical dimensions of good governance…[range]…from the rule of law, to controlling corruption, to public sector efficiency, to citizen voice, to democracy” (p. 5).

In addition, “Good governance rests on the two core values of inclusiveness and accountability” (The World Bank, 2003, p. 26). Good governance matters for social, political, and economic development.

i) Inclusiveness means that all citizens are equally guaranteed certain basic rights, including equality before the law and the right to participate in the governance process on an equal basis. Conversely, it means the absence of exclusion and discrimination in all citizens’ dealings with government.

ii) Accountability in a governance process means that those who are selected to act in the name of the people are answerable to the people for their failures, as well as credited for their successes. (The World Bank, 2003, p. 26)

For The World Bank (2003), “accountability can be both external and internal” (p. 2). External accountability is when people hold the government accountable for the services it provides, while “internal accountability is when the government, to protect the public interest, institutes various systems and incentives to govern the behavior of different agencies within the government, such as separating powers and setting up independent checks and balances” (The World Bank, 2003, p. 2). Both of them combine to produce good governance. Although “corruption it is a symptom of poor governance…eliminating corruption will not by itself guarantee good governance” (The World Bank, 2003, p. 2).

In alignment with The World Bank (2003), Akhtar (2009) noted that good governance – including integrity, transparency, and anticorruption – is imperative for private sector led growth and development. It is important to note that weak governance impedes development as it “compromises the delivery of public goods and services to the
citizens, particularly to the poor and the vulnerable” (The World Bank, 2003, p. 1). In addition, “[weak governance] complicates the task of regulating markets and creating an enabling environment for private-sector led growth…. [It also] undermines meritocracy in the public sector, as well as a government's ability to allocate resources efficiently to achieve its desired ends” (The World Bank, 2003, p. 1). In agreement with The World Bank (2003), Akhtar (2009) and Rothstein (2011) averred that one of the key measures of the quality of governance is impartiality.

For Shabbir Cheema (2005), good governance must involve political, economic, and social governance. The three dimensions of governance refer to the question of how a society can organize itself to ensure equality of opportunity and equity (social and economic justice) for all citizens. Good governance promotes people-centered development (Shabbir Cheema, 2005).

For Stoker (1998), “governance is characterized by its ability to make decisions and its capability to enforce them” (p. 17). In implementing its policies and governing its people, “the ultimate concern of governance is to create conditions for ordered rule and collective action” (Stoker, 1998, p. 17). Poor governance and leadership, above all other things, is the major cause of the problems facing Nigeria’s educational system and, by extension, its economy. Partiality in governance is also threatening to destabilize the polity and undermine its national development and the democratization process.

For instance, more often than not, what one gets from the federal government depends on one’s ethnic/tribal origin because those in the corridors of power tend to protect their own (Anya, 2011; Dike, 2009b). According to Dike (2012) and Anya (2011), the problem of Nigeria’s development can be tied to the inability of the
leadership to unleash the intellectual potential of the citizens, particularly the youths.

In addition, the society has to create or design the right philosophy for national development.

As noted in Chapter 1, in an interview with *The Daily Trust* (2012), Kayode Makinde (the current Vice-Chancellor of Babcock University) observed that the problem with the Nigerian education sector is leadership at various levels, including the government. He added that the educational policies in Nigeria are unfavorable for educational planning as well as investment in human-capital development. Thus, because of the depressing environment there is a mass exodus of students and experienced university teachers to foreign universities:

Economically, we are hemorrhaging, draining out, but so are we draining out intellectually. So are we draining out morally and so are we professionally. Because where the teachers have jobs the society will expand. The Nigerian teachers don’t have the jobs. Instead of expanding, we are exporting the education sector. We are out-sourcing the education sector. And that is a terrible thing to do. (*The Daily Trust*, 2012, para. 1)

As Sen’s (1999) work observed, *unfreedoms* leave the people with little choice to exercise their reasoned agency. According to Sen (1999), “Freedoms are not only the primary ends of development, they are also among its primary means;” thus, development – whether social, political, or economic – “requires the removal of major sources of unfreedoms” (pp. 36-37).

Poor leadership and governance breeds bribery and corruption. According to Smith (2008), such corruption is a greater part of the problems facing Nigeria as it has hampered sociopolitical and economic development. Although bribery and corruption are global scourges, Nigeria appears to suffer most from it because the leaders are
pathologically corrupt. Is Nigeria born to be corrupt? Everyone appears to believe that Nigeria has a culture of corruption (Smith, 2008).

Over the years, Nigeria has earned a lot of revenue from crude oil, which has gone down the sinkhole created by corruption. In alignment with Smith (2008) and Dike (2009c), Bensinger (2007), in an article in the *San Francisco Chronicle*, described Nigeria as a rich nation floating on oil wealth, but almost none of it flows to the people. Nigeria is an “Oil giant that runs on grease of politics” (Title). The country seems to have become synonymous with corruption, evidenced in the fact that top public servants are very rich because they harbor the mentality that public money belongs to no one (Anya, 2011).

Endemic corruption has rendered the war against corruption in the country ineffective (Dike, 2001, 2003). Fighting the war against corruption seems like trying to contain the wind. A majority of the elected officials, appointees, and top government staff are corrupt. They often extract bribes from the citizens (business owners, those seeking to do business with the state, and others) while performing their official duties. The magnitude of high-profile political corruption in Nigeria tends to dwarf any genuine efforts to enhance economic growth and nation development and diminishes the peoples’ trust in government.

There are two sides to every problem. Private individuals are also involved in corrupt activities. Corruption scandals are strewn all over the society like a straw hut in a hurricane (Anya, 2011). Endemic corruption has led to poor governance; low growth; and poor investment in human-capital development, which hampers social development (Rose-Ackerman, 2004). For instance, according to Dike (2012), the former governor of
Delta State, James Ibori, who eluded the Economic and Financial Crimes Commission (EFCC), was arrested in Dubai recently on money laundering charges. He was given a 13-year jail sentence by a Southwark Crown Court in London for stealing public funds worth over £50m (N12.5 billion). Corruption is, therefore, perceived as an anathema to political stability and economic prosperity. Thus, Nigeria’s underdevelopment status (and related problems) are not from the “harshness and the niggardliness of nature” (Keynes, 1932, p. 525); it is corruption that has prevented the society from investing in human-capital development, particularly technological capabilities that would drive the economy, create employment, and put the nation’s abundant human and natural resources to productive use.

The World Bank (2007) emphasized the need to control corruption in societies to ensure the state creates an alluring environment for the private sector to create wealth as well as employment opportunities for everyone. The United Nations (2007) noted that the purpose of good governance is “sustainable human development” and the enjoyment of human rights and the discarding of “prescriptive approaches to development” (p. 3). Furthermore, good governance involves “strengthening democratic institutions, improving service delivery, respecting the rule of law, and combating corruption” (United Nations, 2007, p. 3).

In alignment with The World Bank’s (2007) and the United Nations’ (2007) perspectives on good governance, ‘Nyong’o (1988) claimed that the key attributes of good governance include transparency, responsibility, accountability, participation, and responsiveness to the needs and aspirations of the governed (see also World Economic Forum, 2007). The other side of the coin is bad governance; the three dimensions –
political, economic, and social governance – which Shabbir Cheema (2004) believed to be hampering Nigeria’s quest for national development (Dike, 2012b).

Finally, bad leadership and governance has prevented Nigeria from unraveling the challenges facing its education system. Without investing in human-capital development – particularly technical/vocational education, science-based technology education, and research and development (R&D) – Nigeria cannot acquire the technological capabilities to compete effectively in the present 21st century knowledge-driven global marketplace.

**Technological Capability**

For decades, social scientists – particularly economists and political scientists – have argued that no country can become an industrialized nation (Mohan, 2003) without taking the following measures: long-term investment in technical, science, and technology education; providing effective infrastructural and institutional framework; and providing effective and technological capabilities to spur the economy (Acemoglu, 2003; Edison, 2003). This descriptive study also hinged on the premise that among the challenges facing the economy is ineffective institutions and dilapidated infrastructure. The plethora of reforms and development policies are ineffective due to shoddy infrastructure and institutional failure (Hoff, 2003; Wright, 2008).

According to Dike (2012) and Anya (2011), electricity supply is poor and expensive, and investors are not impressed. In a country where electricity takes about 40% of the cost to produce, improving the electricity supply would lure foreign investors into the society and spur the sluggish economy. It has been noted that without functional infrastructure, effective institutions, and a good education system Nigeria cannot be
turned into the Singapore of West Africa. As The Economist (2012) noted, Singapore has become “one of the world’s best-educated populations and busiest port” (p. 80).

As economists such as Rostow (1960), Todora and Smith (2009), Piazza-Georgi (2002), and Webb and Grant (2003) observed, building a vibrant economy or restoring growth to an ailing economy takes technological resources (Dike, 2012). To ensure long-term growth and prosperity, Nigeria must use its resources wisely, invest in science-based technology education to train a good stock of highly skilled technical manpower to build and maintain the critical institutions and infrastructure without which the economy will not gain from the “power of productivity” (Dike, 2012, p. 21; see also Lewis, 2004). Dike (2012) aligns with Lewis (2004) and Mankiw (2008), who observed that a nation enjoys higher standards of living if the workers can produce large quantities of quality goods and services for local consumption and extra for export. Without technological capabilities, the Nigerian economy will remain in shambles, productivity will remain low, the quality of goods and services will remain poor, and Nigeria will be unable to produce enough food to feed its teeming population and will not effectively compete in the global marketplace.

In addition, this study operates on the premise that the problems facing the Nigerian economy and thus national development (including the low capability utilization of domestic industries and firms) hinges precariously on the nation’s poor investment in human-capital development (education and health) and particularly science-based technology education and technical and vocational education and training (Dike, 2012). According to Dike (2012) and Okoye (1999), investment in science-based technology education and technical and vocational education and training will enable Nigeria to
develop a good stock of highly skilled technical manpower to provoke system innovation, technological development, and economic growth that will sustain its industrialization process (Uwaifo, 2010; Uwaifo & Uddin, 2009).

One can deduce from “Africa’s growth tragedy” (Easterly & Levin, 1997), that the problem with Nigeria and its economy has its roots in the country’s ineffective and inefficient domestic development programs. The Nigerian economy has thus remained in shambles because of poor design and implementation of its development policies. The nation’s policymakers have failed to learn from the impressive history of economic growth and development of the East Asian countries or the so-called Asian Tigers (Asian Development Bank, 2004, 2008; Dike, 2012).

Thus, for Nigeria to develop technologically, it has to invest copiously in technical education and develop “an effective national system of innovation (Mohan, 2003)” (as cited in Dike, 2012, p. 22), which is a precondition for rapid technological development. The pace of technological change in any society is a reflection of the health of its infrastructure and institutions and, of course, its social capital – which will encourage innovative system activities and enhance industrial-capital accumulation, technological transformation, and national development (Mohan, 2003). As in human capital-development, physical-capital development in the form of technological capabilities and innovation will drive a sagging economy and create employment (Becker, 1993; Kim, 1980, 1997). Some studies (Rose, 2009; Sen, 1975) have shown a correlation between the underdeveloped status and soaring unemployment in developing nations (Zuehlke, 2009), including Nigeria (Kakwagh & Ikwuba, 2010), to their lack of
technological capabilities and good stock of highly skilled technical manpower to drive
the economy and create employment.

Due to lack of investment in science-based technology education (Offor, 2007)
and technical and vocational education and training (TVET) (Dike, 2009c), Nigeria is
suffering from a shortage of highly skilled technical manpower to build and maintain its
critical infrastructure and produce quality goods and services at a low cost to compete
effectively in the global marketplace. The ongoing global financial and economic crisis
that started in 2008 has worsened the already bad economic situation in Nigeria,
including rising youth unemployment (Kakwagh & Ikwuba, 2010; Okafor, 2011), social
crisis, and lawlessness. The most recent security problem in Nigeria is the ongoing
kidnapping for ransom and the Boko Haram (a militant Islamic group) onslaught on the
country: bombing government offices and Christian churches and killing innocent
citizens (Anyaa, 2011; Dike, 2012).

Modern economy demands skilled technical manpower and technological
capabilities to enhance innovation and function effectively and efficiently (Freeman,
1987; Offor, 2007; Rose, 2009). In particular, development economists (Rostow, 1960;
Soubbotina, 2004; Webb & Grant, 2003) noted that socioeconomic changes or
transformations are impossible in any society without certain preconditions, one of which
is technological capabilities. In addition, studies show that no nation has developed
For Kim (1980) “technological capability” is “the ability to make effective use of
technological knowledge in efforts to assimilate, use, adapt, and change existing
technologies” (Kim, 1980, pp. 254, 277). In alignment with Kim (1980), the United
Nations and Smith and Rees (as cited in Dike, 2012) noted that technological capability is an essential component for “sustainable development,” which is a “development” that “meets the needs of the present [generation] without compromising the ability of future generations to meet their own needs” (p. 23).

In spite of some flickers of development efforts – some studies would argue the efforts are not meaningful and are coated by political rhetoric, not action (Dike, 2012) – the economic environment remains very unfriendly, with industries and organizations still facing a huge hurdle. Thus, because of the poor employment opportunities most of the youth are frustrated and desperate to leave the country and go to Europe, the United States, and even to some African nations to escape economic hardship at home (Fletcher, 2007; Hamoon, 2006). The trajectory of any country and thus its national development is directed by forces of leadership and governance, investment in human capital-development (education and health), as well as its technological capability.

Among the causes of Nigeria’s present underdevelopment status (in spite of the abundant human and natural resources at its disposal) is the neglect of the commanding height of the economy: human-capital development (education and health), infrastructure, and institutions. No government can function effectively and efficiently when the fundamental institutions are in shambles. Building a thriving economy involves copious investment in human-capital development (education and health) and particularly science-based and technology education (Okoye, 1999) to empower the citizens with advanced technical skills and knowledge to become productive workers.

Giving proper attention to the three streams may change the mindsets of the leaders as well as the followers regarding technical and vocational education training,
improving governance, and taming corruption (Rose-Ackerman, 2004; Smith, 2008). Improving the economic environment can change the nation’s development dynamics as it lures investors and entrepreneurs into the economy. Such improvements, in the final analysis, will improve national productivity “and the overall standard of living of society” (Hanushek, 2005, p. 15).

**Summary**

Chapter 2 described and analyzed information from available relevant literature on human-capital development; leadership; and technological capability, forming the three streams of the topic. It has observed that Nigeria must invest in human-capital development (education and health) to develop, as no nation can compete effectively in the emerging global economy with unskilled labor force, poor leadership and governance, and a lack of technological capability. Thus, the Nigerian government needs to adopt and support a skill-oriented education system and science-based technology education to build a good stock of highly skilled technical manpower to enhance the growth and development of the Nigerian economy through improvement in human productive capability, strengthening the health of its critical institutions and infrastructure, as well as investing in good leadership and governance.

As explained earlier, human-capital development, good leadership and governance, technological capability, and national development are interwoven. However, investment in human-capital development (education and health) is meaningless without an encouraging socioeconomic environment and political stability. Without political stability, economic growth and development will be impossible. Therefore, investment in technical and vocational education and training (TVET)
deserves priority attention to empower the youths with employability and entrepreneurial skills, enabling them to meaningfully contribute to the growth and development of the Nigerian economy.
Chapter 3: Research Methodology

Introduction

This study adopted a mixed-methods descriptive design. The research design was viewed as an architectural outline of the study, as it showed all the major parts of the study and acted as a guide for discovering answers to the set of research questions (TerreBlanche, Durrheim, & Painter, 2006; Yin, 2003). Descriptive statistics of mean and percentages were employed to describe and analyze the data. However, the purpose of adopting a mixed-methods descriptive design for the study was to enable the researcher to have a balanced and complete opinion of the perceptions of Nigerians across the United States regarding the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs. Exploring this unique perspective was important because we do not understand how Nigerians in the United States perceive the impacts of governmental policies on education and the eventual contribution of graduates of TVET schools to the country’s economic growth and development.

Another rationale for adopting the mixed-methods descriptive design for the study and utilizing the triangulation of both quantitative and qualitative data-collection methods (Creswell, 2007, 2011; Creswell & Plano Clark, 2011; Onwuegbuzie & Leech, 2006; Tashakkori & Teddlie, 2011; Teddlie & Tashakkori, 2009) was to collect primary data enabling us to understand the Nigerian experience with technical and vocational education training (TVET) through the opinions and perceptions of Nigerians resident in the United States. In addition, the study would enable us to understand how they
perceive the impacts of governmental policies on education and the ultimate contribution of graduates of TVET schools to the country’s economic growth and development. Across the globe, TVET schools and programs are designed to enable youths and young adults to acquire employability and entrepreneurial skills enabling them to secure paid employment or be self-employed, contribute to the growth and development of their local economy, and compete effectively in the global labor market. Yet another rationale for adopting this mixed-methods study was to gain in-depth knowledge from the opinions and perceptions of Nigerians in the United States about the role of technical and vocational education and training (TVET) in economic growth and development.

Furthermore, the main rationale for blending quantitative and qualitative approaches in this mixed-methods descriptive-design study was to ensure the following: (a) participant enrichment, (b) instrument fidelity, (c) treatment integrity, and (d) significance enhancement (Onwuegbuzie & Leech, 2006, p. 479; see also Collins et al., 2006). The method was also selected because it would ensure “a better understanding of the research problem and question than either method by itself” (Creswell, 2011, p. 535). The results of this mixed-methods descriptive-design study were expected to help the researcher answer the three research questions as well as offer appropriate recommendations on how the Nigerian government can fully integrate TVET into the general educational system. Such answers and recommendations are important if Nigeria is to train a good stock of highly skilled technical manpower; acquire technological capabilities to improve human-skills capital (HSK) and social capital, perceived as the “forms of human relationship that oils the wheels of economic activity” (Piazza-Georgi,
2002, p. 471); enhance workers’ productivity; and, in turn, economic growth and development.

The proposed mixed-methods design study explored and analyzed the following research questions in an attempt to understand the problems:

1. How do Nigerians residing in the United States describe the levels of support for TVET education by the Nigerian government?
2. What opinions do Nigerians resident in the United States have of the relationship between the government level of support for TVET and the shortage of highly skilled technical manpower?
3. What government interventions do they believe are needed to enhance acquisition of employability and entrepreneurial skills among students to improve the productivity of TVET graduates?

Chapter 3 focuses on the research design and procedures; the data collection and analysis methods; the instrument description; and the participant selection, identification, and invitation process. This chapter also describes the rationale for adopting the mixed-methods descriptive-design study and describes the site and population as well as the ethical considerations for this study.

**Research Design and Rationale**

The instruments for gathering information (data) for this study were self-administered structured questionnaires and semi-structured focus groups and telephone interviews. The instruments were utilized to gather information from Nigerians residing in the United States about their opinions and perceptions of the limited level of Nigerian government support for technical and vocational education and training within the
context of Nigeria’s educational system. As noted earlier, descriptive statistics of mean and percentages were employed to describe and analyze the scores on each variable associated with the study. It is, however, imperative to emphasize that this study was not intended to test any hypotheses (Creswell, 2005, 2011; Jacobs, 1999; Ravid, 2011) but to describe events in the topic as they are and to answer and analyze the research questions.

Although there are different types of mixed-methods descriptive-design studies, the type adopted for this study was “convergent parallel design” (Creswell, 2011, p. 540). Such a method was chosen because it enabled the researcher “to simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand a research problem” (Creswell, 2011, p. 540; see Figure 2). Data were collected from the participants in a single time period regardless of how long it took (Creswell, 2011; Johnson, Onwuegbuzie, & Turner, 2007; Teddlie & Tashakkori, 2009).

\[\text{Figure 2. Graphical representation of mixed methods: convergent parallel design.}\]

Using this method also ensured that both types of data would have equal status in sampling, data collection, and analysis (Johnson et al., 2007; Teddlie & Tashakkori, 2009). Thus, among the “basic rationale for this design is that one data collection form
supplies strengths to offset the weakness of the other form” (Creswell, 2011, p. 540).

It has been argued that “quantitative data provide for generalizability, whereas qualitative data offer information about the context or setting” (Creswell, 2011, p. 542; see also Lehner, 2011).

In summary, this section described the research design and rationale for adopting mixed methods for this study. It argued that the adopted methods enabled the researcher to examine and analyze the forces influencing the poor patronage of TVET in Nigeria as it relates to the shortage of highly skilled technical manpower, lack of employable skills and entrepreneurship skills among youths, rising youth unemployment, and its implication on national development. It has also argued that a more appropriate method for data collection and analysis in a situation such as the proposed study is the adoption of triangulation of both quantitative and qualitative methods (Denzin & Lincoln, 2005; Neuman, 2005). In conclusion, it argued that the strength of descriptive study design (with triangulation of quantitative and qualitative methods) is the main attraction.

**Site and Population**

**Population Description**

The population or “unit of analysis” (Creswell, 2011, p. 141) of the mixed-methods descriptive-design study was Nigerians in the United States. The analyses of previous works on the limited support for technical and vocational education and training (TVET) programs in Nigeria and technology-based educational institutions were mostly based on literature review and secondary data and thus lack original or primary data to back their claims (Adekola, 2009; Aina, 2009; Offor, 2007; Okoye, 1999). Therefore, the mixed-methods descriptive-design study fills the void by utilizing primary data.
The population of this mixed-method descriptive-design study comprised members (male and female) of Nigerian social clubs/organizations in the United States, of which this researcher is a member. One such organization is the Peoples’ Club of Nigeria International, which has a branch in San Francisco/Northern California. The Peoples’ Club of Nigeria International has 22 branches in the United States with over 3,000 members. This researcher is the Chief Protocol Officer of the San Francisco/Northern California Branch of the Peoples’ Club of Nigeria International (PCNI) with over 60 members.

Other community organizations this researcher belongs to include Igbo Development Union of Sacramento (IDUS) with over 60 members and the Sacramento Association of Nigerians (SAN) with over 70 members. The members of these organizations are well-educated Nigerians in various professions: school teachers, university professors, medical doctors, nurses, engineers, and laboratory technicians, among other categories of civil servants working for the State of California. The primary targets of the survey were members of these associations. Although this researcher is a member of these community associations or social clubs, his familiarity did not in any way affect the outcome of the survey. The researcher’s familiarity with the interviewees facilitated the data gathering process.

There are many other Nigerian associations and social clubs across the United States to which this researcher has direct (unhindered) access to its members. It is imperative to mention there are more than 1 million well-educated Nigerians in various professions who are residents in the United States. A majority of the individuals who grew up in Nigeria (and are now resident in the United States) were familiar with the
limited level of Nigerian government’s support for technical and vocational education and training (TVET) schools and programs and how this has contributed significantly to the shortage of highly skilled technical manpower and the slow growth and development of the Nigerian economy.

A good number of them also went through technical and vocational schools and colleges of technology in the early parts of their academic studies. Others acquired higher degrees (Ed.D. and M.A.) in vocational and technical education: Master of Science in Engineering and in Computer Networking Technologies as well as Ph.D. in economics and other related disciplines. Other rationales for conducting the study with Nigerians in Northern California included the following: (a) their willingness to participate in the study, (b) their interest in the topic, and (c) logistics – limited funds that prevented the researcher from expanding the study beyond Northern California where he lives.

Their exposure and experiences in the United States have increased their understanding and appreciation of the important role TVET can play in the growth and development of an economy; thus, they are in a better position to answer the questions raised in this study and provide solutions to the problems facing TVET in Nigeria than those back home in Nigeria lacking such an opportunity. They have internalized the values the Western world places on technical education and acquired best practices that can be beneficial to technical and vocational education and training (TVET) schools and programs in Nigeria.

The expected sample of population for the survey was 100 (n=100). Because the population is homogeneous, the sample size of 100 was assumed to be large enough for
the study and, therefore, very representative of the entire population (Creswell, 2011; Fowler, 2009). It was expected that about 80% of the participants would be male and 20% female. It was also expected that the participants would provide adequate data for the study. The data collected was utilized to answer the questions raised in this study and to describe the events taking place in technical and vocational education and training schools and program within the Nigerian education system.

**Site Description**

As noted earlier, the population of this mixed-methods descriptive-design study comprised members (male and female) of Nigerian social clubs/organizations in the United States of which this researcher is a member. According to their Constitutions/By-laws, the community associations or social clubs conduct their meetings every other month or trimonthly, and each member would be required to host the members once a year. The individual members could decide to host the meeting in their homes or at a hotel. So, there was no particular physical site where these organizations were located. To conduct this survey, individual members of the social clubs or community associations, many of whom had in-depth knowledge of technical and vocational education and training (TVET) and its problems, would be contacted during the scheduled meetings to participate in the survey.

Since the researcher is a member of the social clubs and community association, official permission to conduct the study was not required. It was made unambiguously clear that members were not mandated to participate in the survey, focus-group session, or interviews. In other words, participation in the study was purely voluntary. The survey, focus-group session, or interviews lasted for about 30 minutes, and thus did not
interfere with their regular activities. It was made clear to the participants that all data obtained from the survey would be coded by the researcher to protect their privacy. The study began only when all the necessary arrangements were fully made.

Site Access

As mentioned earlier, this researcher is a member of the social clubs and community association whose members were the main target of this mixed-methods descriptive study. Since the participants in this study were members of social clubs and community associations of Nigerians residing in the United States, there was no physical site where these organizations were located. Because there was no physical site or community there was no access problem. I had a genuine interest in these groups because they could provide me with the needed data for the research. In addition, as a member of the social clubs and community associations, I emphasized to the participants that the research was purely for academic purposes. More importantly, although the findings of the study would become public record after completion, the participants were assured that their identity would not be exposed. In other words, all personal information was strictly confidential. There was a need to ensure that both the participants and researcher were not maltreated throughout the course of conducting this survey.

The researcher picked up the completed questionnaires, the semi-structured interview, and the focus group materials directly from the participants. The tape-recorded focus group and interview materials were also in the custody of the researcher as the questions would be read out to the participants and their responses tape-recorded, transcribed, and coded by the researcher. As noted earlier, the participants were assured that their responses would be collated and summarized and that the findings would be
compiled in an aggregate form to protect their privacy. The structured questionnaires and the other survey materials had no provision for names or anything that could expose the identity of the participants.

**Research Methods**

**Description of Methods Used**

According to TerreBlanche et al. (2006), methodology refers to how a researcher approaches the practical task of discovering whatever they believe can be known about the chosen topic. For Ravid (2011), however, a research method “is designed to describe the plan of action and to clarify for the reader how the researcher is going to investigate the research question, and test the hypothesis” (p. 216). In other words, it is the general framework regulating a study.

In the descriptive-design study, mixed methods (triangulation of both quantitative and qualitative methods) were utilized in data collection (Lehner, 2011). The data collection methods consisted of structured self-administered surveys and questionnaires, semi-structured interview, and focus-group questions. Such collection methods were used to answer the questions about the topic (not to test hypotheses) from the point of view of the participants (Creswell, 2011; Ravid, 2011).

According to Creswell and Plano Clark (2011) and Creswell (2011), “a mixed methods research design is a procedure for collecting, analyzing, and mixing both quantitative and qualitative methods in a single study or a series of studies to understand a research problem” (Creswell, 2011, p. 535). In other words, a mixed method is an approach utilizing multiple data sources, multiple informants, and multiple methods to gather multiple perspectives on the same topic or issue. According to Creswell (2011)
and Patton (2002), mixed methods help a researcher gain in-depth knowledge or a more complete understanding of the phenomena.

For Blaikie (2003), the employment of multiple methods of data collection as well as the measure of an empirical phenomenon would help overcome the problems of bias and validity. It is also used to compare data to decide if it corroborates, and thus to validate research findings. Additionally, as a method, triangulation is said to increase reliability by reducing systemic or method error. Thus, this is one of the main rationales for adopting mixed-methods design for the study (Blaikie, 2003; Creswell, 2011; Patton, 2002).

Specifically, Babbie’s (2004) work highlighted the following advantages of using questionnaires in a survey: they are economical, unbiased, and more objective than face-to-face interviews. Questionnaires offer the possibility of anonymity and privacy to encourage more candid responses on sensitive matters. As Babbie (2004) indicated, a researcher should be aware that questionnaires are artificial and shallow and are challenging to apply in natural settings. It has been observed that questionnaires cannot measure future social actions; the questionnaires can only collect data on previous or theoretical actions. In addition, for Babbie (2004), surveys are appropriate for descriptive studies. Thus, it is an excellent approach for measuring attitudes and orientations in a large population.

The validity of survey research may be fragile, but it is strong on reliability (Babbie, 2004; Creswell & Miller, 2000). In addition, Berdie, Anderson, and Niebuhr (1986) noted that questionnaires are employed where information (data) to be collected
are not readily available from public records, scholarly publications, and other sources. In other words, questionnaires are utilized mostly to collect primary data.

To ensure the survey was both reliable and valid, the questions were written using easily understood language. The questions were also examined for validity – the degree to which an instrument measures what it is intended to measure or the criterion indicating the degree of accuracy of study conclusions (Polit & Beck, 2004, 2009). The questions were also examined for reliability of the instrument – the degree of consistency of dependability with which an instrument measures what it is designed to measure (Whittermore & Melkus, 2008). For the scores to be valid (Creswell & Miller, 2000), the data-collecting instrument should be reliable. In other words, the measuring instrument must be reliable for the results (or scores) to be accepted as valid and meaningful. This researcher needed to pilot-test the questionnaire to ensure it worked effectively (or assuring reliability of the instruments) before putting it into use (Creswell & Miller, 2000; Johnson & Christensen, 2008).

For Neuman (2005), raw information or data (from both quantitative and qualitative methods), as the name implies, are “unordered” (p. 344). They contain errors and missing values, and thus need to be formatted or “transformed” into an ordered error-free data set before they can be analyzed and used (Neuman, 2004, p. 344). The process involves recording the interviews, transcribing the text, coding the data (as in a qualitative study), and tabulating and entering the data in a data set (as in a quantitative study) (TerreBlanche et al., 2006). Each of the methods utilized in this data collection plan are described in the following section.
Quantitative methods: Structured self-administered surveys and questionnaires. Surveys are data collection methods normally utilized to obtain primary data from individuals in different locations or when there is need to collect quantitative data at the least possible cost from many people (Russ-eft & Preskill, 2009). According to the authors, close-ended or open-ended questions are carefully and clearly constructed for the respondents or participants to easily read, understand, and complete. The questions are often pilot-tested “to ensure the data’s validity and usefulness” (Russ-eft & Preskill, 2009, p. 213). The words survey and questionnaire are often used interchangeably. But for clarity, “the word survey generally refers to the method of data collection, [and] the word questionnaire refers to the actual instrument [the questions developed]” (Russ-eft & Preskill, 2009, p. 266). The process can be “paper, pencil, or computer-based tests” (Russ-eft & Preskill, 2009, p. 212).

Johnson and Christensen (2008) stated that “a questionnaire is a self-report data-collection instrument that each research participant fills out as part of a research study” (p. 170). In addition, a questionnaire is an instrument utilized to obtain primary information from participants in a study “about the thoughts, feelings, attitudes, beliefs, values, perceptions, personality, and behavioral intentions of research participants” (Johnson & Christensen, 2008, p. 170).

In the descriptive study, the questionnaires were organized in such a way that questions 3 through 17 were quantitative – “based on closed-ended items” (Johnson & Christensen, 2008, p. 177) – while eight semi-structured telephone interviews and focus-group questions were used to gather qualitative data from six respondents.
For “the questions on the instrument [the questionnaire]” (Creswell, 2011, p. 170), a Likert-type scale that ranged from 1 (disagree very strongly) to 5 (agree very strongly) was adopted to analyze the statistics. By definition, a Likert-type scale is a response scale in which participants respond to questionnaire items about their beliefs and attitudes by indicating varying degrees of passion between two extremes such as like/dislike and agree/disagree (Creswell, 2011). In descriptive research studies such as this, after participants answered the questions and the researcher collected and analyzed the data, the next step was to write a report to summarize and present the results or the description of the outcomes (Ravid, 2011, p. 211).

The instrument contained questions to determine if the Nigerian government has appropriate policies and strategies to improve the image of technical and vocational education schools and programs and how its policies motive youths to embrace the TVET programs. The programs are known to empower youths with relevant employability and entrepreneurial skills enabling them to secure paid employment or become small-scale entrepreneurs. With such skills, they can create employment for others and, in the final analysis, help to stimulate the weak Nigerian economy.

As noted earlier, a structured self-administered questionnaire has a good number of strengths and limitations to be considered. There are other methods with which a researcher can collect data for a study, but self-administered questionnaires appeared suitable for this study because there were limited resources (time and funding). However, because of this limitation a sample of 100 (n=100) was considered large enough and thus representative of the general population. It is pertinent to note that this method is normally adopted where the sample population is spread out over a
geographical area and where there is a need for ease of completion of a survey (Babbie, 2004). Such was the case with the mixed-methods descriptive-design study adopted here.

Simple descriptive statistics of mean and percentages were utilized in this mixed-methods design study to describe and analyze the extensive data collected. Data were collected from the opinions and perceptions of Nigerians residing in the United States. As noted earlier, semi-structured telephone interview questions and focus-group sessions were other data collection methods utilized in the study.

**Qualitative methods.**

*Semi-structured telephone interview questions.* Such a method is “another means for collecting rich, qualitative information” (Russ-eft & Preskill, 2009, p. 214). Semi-structured telephone interview questions allowed the participants freedom to tell the human side of the story, which may not be captured by answering the structured closed-ended questionnaire. Put differently, the semi-structured questions were utilized to extract information from the participants that could not be captured by “hard numbers” (Ruff-eft & Preskill, 2009, p. 362). It has been argued that qualitative data from such methods is often perceived as more credible than text-based quantitative data (Ruff-eft & Preskill, 2009). According to Ruff-eft and Preskill (2009), the method would give the researcher new insights about a particular topic or how a program affects individuals (p. 214). As noted, the semi-structured telephone interviews enabled this researcher to gather more detailed information from the participants about their opinions and beliefs regarding the forces influencing the limited level of the Nigerian government’s support for technical and vocational education and training (TVET) schools and programs as it
relates to the shortage of highly skilled technical manpower, slow growth and development of the Nigerian economy, and Nigeria’s under-development status.

As noted earlier, six individuals answered the eight questions in the telephone interview. The participants were well-educated individuals (male and female) with varied educational and professional backgrounds. The eight semi-structured questions were specially designed for the telephone interview, and there were some follow-up questions. The telephone interviews were tape-recorded; the text was transcribed verbatim and coded and analyzed to extract the main theme (Saldana, 2012). Finally, the data were integrated into the final results of the survey.

Semi-structured focus group interviews. Such a method is another means of collecting qualitative data for this study. According to Russ-eft and Preskill (2009), a focus-group interview “involves multiple interviewees” (p. 315); it consists of “participants who share a common experience and can collectively address” (p. 315) the issues posed in the questions. Most of the individuals who participated in the focus-group session were expected to have in-depth knowledge of the problems facing technical and vocational education and training (TVET) in Nigeria.

It is pertinent to note that the size of the participant group in a focus-group session was reduced to a manageable number to enable each participant an equal “opportunity to speak up” (Russ-eft & Preskill, 2009, p. 315) or participate in the discussion. To that end, six individuals answered eight questions for the focus-group session. Like in the telephone interview, the participant population was comprised of well-educated individuals (male and female) with varied educational and professional backgrounds. The eight semi-structured questions were specially designed for the focus-group session.
(see Appendix A) and individual interviews (see Appendix B), and there were some follow-up questions. As in the telephone interview, the focus group session was also tape-recorded; the text was transcribed verbatim and coded and analyzed to extract the main theme (Saldana, 2012).

Although qualitative data collected from focus-group interviews takes more time to transcribe, code, and analyze than the survey (Russ-eft & Preskill, 2009, p. 317), they “provide more in-depth information than other methods” (Russ-eft & Preskill, 2009, p. 316). Put differently, focus-group participants provided “qualitative descriptions [stories from personal experiences] that would otherwise go unrepresented” (Russ-eft & Preskill, 2009, p. 316; see also O’Donnell, Lutfey, Marceau, & McKinlay, 2007). The data were integrated into the final results of the survey. The focus-group session took place in Dublin, California (Bay Area, Northern California) at the private office of one of the participants in the focus-group session.

Scholars have noted many rationales for utilizing mixed methods in data collection. According to Creswell (2011), Johnson et al. (2007), and Jackson (2009), one of the rationales is that data from structured or semi-structured questions are easy to analyze and allow for a greater variety of response from participants.

In a descriptive-design study, the gathering of information, descriptions, and explanations of the object of study are conducted without modifying the object of study. Additionally, a mixed-methods descriptive-design study could expose new areas of inquiry. In other words, such studies could highlight new areas for future research, measure the importance and prevalence of a given situation, measure trends, and assist in
generating new hypotheses that could be tested by alternative methods (Creswell, 2011; Ravid, 2011).

Another rationale for adopting a descriptive mixed-methods research design was to gain more information about the topic (to generate theories or hypotheses, not to test hypotheses). In descriptive studies, data-analysis procedures are said to be fast, accurate, and efficient. Statistical techniques are said to be objective, rational, and based on numbers. It has been noted that these approaches do not create bias for any particular hypothesis because the data are collected from a new study (Lehner, 2011).

Also, a descriptive mixed-methods design is appropriate for gathering data that describe events and then organizes, tabulates, depicts, and describes the data collected in a meaningful way (Creswell, 2011). It is imperative to note, however, that the method has its own downside; the responses participants could give in semi-structured questions are limited and the responses are challenging to analyze because the data must be coded. The research methods can only describe the data collected; they cannot draw any conclusions from the information regarding the manner of relationship with the variables (Jackson, 2009). Such limitations notwithstanding, its strengths are said to outweigh its weaknesses (Creswell, 2011; Johnson et al., 2007). A pilot study could be conducted by the researcher to help him/her clarify problematic areas of the questionnaire and adjust the measuring instrument accordingly. The pilot study would be conducted and controlled solely by the researcher.

**Data Analysis Procedures**

With regard to data analysis, simple descriptive statistics such as percentages and mean were used to describe, organize, and summarize the data (Creswell, 2011; Ravid,
However, percentages were used to explain the demographic information of the participants while the mean was used to analyze their level of employability and entrepreneurial skills (Ravid, 2011). By adopting structured questionnaires, semi-structured interview questions, and focus-group sessions as data collection instruments, the proposed mixed-methods design study sought to discover the beliefs and opinion of the participants. The information sought by this study was participants’ beliefs about the forces behind the lackluster public/government attitude toward technical and vocational education and training schools in Nigeria, what government policies are geared toward reversing the trend, and how the limited level of support for TVET has affected the growth and development of the Nigerian economy.

As noted earlier, a Likert-type scale, one of the most commonly used methods of measuring attitudes, was used in this survey (the scale was developed by Rensis Likert). A Likert-type scale contains a series of statements and a five-step option is usually provided with which the respondents express their opinion. In this study, the participants were clearly instructed to select from a series of numbers (1-5) the option they deemed fit to express their opinion on each question on items 3-16 (see Appendix C). The series of numbers (1-5) represented a range of agreement to disagreement: Strongly Agree is 5; Agree is 4; No Opinion is 3; Disagree is 2; and Strongly Disagree is 1 (Creswell, 2011).

The attitude scores for the five (1-5) ranges of options were computed, and the mean score (or average) of each item was determined. To compensate for numbers dropped off between the actual numbers on the scale, a percentage of the number of respondents in any of such items would be noted as well as the total scores. The process is explained in greater detail in Chapter 4, where the questionnaire items are displayed in
tables with the summary of the number of responses, total score, and percentages; this type of description is capable of providing vital information by segregating the main variables. It is pertinent, at this juncture, to note that in the study special computer data-analysis software was not utilized. Simple Microsoft Excel processing program sufficed.

However, to analyze the responses of the participants, some researchers would search “for over-lapping themes in the open-ended data” (if used) while others would “count the number of themes or the number of times that the participants mention the theme” (Creswell, 2011, p. 220). As noted earlier, information gathered from the qualitative method of data collection were collated and coded for proper analysis. As Merriam and Associates (2002) suggested, “a preliminary analysis” should be performed at the end of “each interview;” thus, the data would be “coded and recorded” until “themes” begin “to emerge” (p. 70).

While there is no consensus about the amount of data to code in qualitative research methods (Saldana, 2012), some authors – such as Lofland, Snow, Anderson, and Lofland (2006) – believe that every bit of the recorded text should be considered. However, others – including Seidman (2006) – argued that only the important part of the text deserves to be considered. Others, such as Poland (2002), argued that the amount of data collected was not the issue; they argued that what matters is that a researcher ensure that adequate data are “transcribed and formatted” (Saldana, 2012, p. 15).

Nevertheless, in the final analysis, data collected from all sources was combined and aggregated to protect the privacy of the participants. The input of the participants was expected to assist the researcher in understanding and describing the roots of the problems facing TVET schools and programs. The researcher wanted to determine how
such problems contribute to the following issues: the shortage of highly skilled technical manpower in Nigeria, a lack of employability and entrepreneurial skills among the graduates of TVET schools, the weak Nigerian economy, and the slow pace of national development. It was also expected that the gathered data would enable the researcher to determine which policy actions policymakers have failed to utilize to change the mentality of the general public toward TVET schools and programs and how to encourage youths to embrace job-skills programs.

It is pertinent to note that the questions in the mixed-methods descriptive-design study are original. The questions were specifically designed for this study (not borrowed from existing questionnaires). The questions were carefully crafted and honed with proper consideration given to the types of data the study needed from the population.

The researcher subjected the questions and the questionnaire (instrument) to a validation process. To achieve this objective, the researcher consulted with professors and graduates with in-depth knowledge of the topic as well as others in the area of social-science research to review the questions and the measuring instruments. It was expected that their comments and suggestions would enable the researcher to refine and simplify the questions.

The researcher thought the summation of the five options of the Likert-type scale would be an appropriate way to calculate the frequency counts and percentages (Creswell, 2011; Johnson & Christensen, 2008; Ravid, 2011). Finally, it was expected that the findings (results) of the descriptive study would answer the research questions and suggest possible solutions to the problems facing technical and vocational education and training (TVET) schools and programs in Nigeria.
Stages of Data Collection

In the adopted descriptive-design study, data collection was executed in stages to achieve the objectives of the study. The instruments employed in the descriptive study were designed to meet reliability and validity measures. As noted earlier, the researcher’s “unit of analysis” (Creswell, 2011, p. 141) was Nigerians residing in the United States who were members of community associations and social clubs as well as other professional associations. The process of data collection in the study spanned several weeks and involved the stages described in the following sections.

Data creation. Before collecting the data, the instrument had to be designed to answer the questions. It took about two weeks to complete the process. One of the important indices of good research was the study questions were clear and unambiguous and thus should be valid, objective, rational, and use a representative sample and reliable instruments (Creswell, 2011). For the mixed-methods study to yield valuable descriptive data leading to noteworthy conclusions and recommendations, the questionnaires must be valid (Whittemore & Melkus, 2008).

In the adopted mixed-methods descriptive-design study, a sizeable sample of 100 (n=100) were surveyed. Since the researcher wished to generalize the responses to the entire population, and for the conclusions to be accepted as valid, a representative sample, as noted above, was selected (Creswell, 2011). As Maxwell (2004) aptly observed, generalizability refers to the extent one can extend the account of a particular situation or population to persons or setting other than those directly studied.

Data transmission. To reduce the costs of mailing (Creswell, 2011; TerreBlanche et al., 2006), the survey questions or questionnaire were distributed and
collected in person by the researcher. Since the respondents included a mixture of
individuals, a “simple random sampling” was adopted (Russ-eft & Preskill, 2009, p. 350;
see also Creswell, 2011; TerreBlanche et al., 2006). Any respondents who were unable
to complete the questionnaire at the respective locations were allowed a maximum of two
to four days to complete the questionnaire at their respective homes.

It was necessary to give respondents time to reflect on the questions or to find
information needed to answer the questions. As Berdie et al. (1986) observed, allowing
respondents such great latitude could help some of them feel more comfortable in
providing reliable answers. However, it has been observed that allowing participants
more time than necessary to complete the questionnaires could cause some of them to
forget to complete and submit the questionnaire.

**Data preparation.** Preparation of data included text transcription after
interviews were completed. The completed questionnaires were collected by the
researcher from the respondents (or mailed to the researcher). The information was
collated and the text was transcribed and prepared for analysis.

**Coding and sorting of qualitative data.** Text transcription, coding, and analysis
commenced after the qualitative telephone interviews and focus-group discussion part of
the survey as well as tabulation of the quantitative data. The process is known to be time
consuming and can often take about two to three weeks. A comprehensive data-
management plan was needed from the onset of the research to organize the data
collection and handling processes. Experience has shown that problems can occur when
a detailed process is not followed. Thus, a well-thought-out plan for data management
reduced major data coding and sorting problems that can often occur in research.
**Conversion of data.** The transcribed text and codes were converted into meaningful themes and stored in flash drives for safety. How fast this was completed depended on the skills and competences of the researcher. Creation of backup electronic copies of all files was important. Electronic copies of the codes, data, and other related files were stored at a safe location. Hard copies of questionnaires were locked in safe cabinets.

**Input of quantitative data into computer Excel software.** Information or data are often entered into software programs for analysis. One must be certain of the accuracy of the data set. However, in this study, the researcher did not utilize any special Database Management System (DBMS) software. As mentioned earlier, simple Microsoft Excel software was used to perform descriptive statistical data analysis as well as to customize the data files.

**Controlling the process.** One of the most critical components of data management is protecting the identity of the participants. To that end, the researcher controlled every stage of the process to protect the privacy of the participants. As noted earlier, the participants were assured complete privacy; they were informed that their responses would be combined in an aggregate form without any trace of their identity. Thus, a detailed protocol across all stages of the research project assisted the researcher in obtaining accurate and complete data to answer the research questions.

**Ethical Considerations**

Ethical considerations are an important part of any research process. According to Polit and Beck (2004, 2009), ethical considerations refer to the moral standards a researcher should consider throughout the stages of research design and research
methods. In every study, the researcher is expected to respect human dignity and the right to fair treatment and privacy (Creswell, 2011). According to Polit and Beck (2004), the “researcher-participants relationship” (p. 76) should not be exploited. In the adopted mixed-methods design study, data collection procedures should be “ethical,” and thus respect the rights of the “individuals” at the sites (Creswell, 2011, p. 169).

As experts have observed, getting permission to gain access into the sites for data collection is just a fraction of the issues involved in ethical process (Creswell, 2011). The researcher should ensure there are structures in place for protecting the privacy, safety, security, and rights of the participants. To that end, Drexel University requires all doctoral students and their supervising Professors to file an Instructional Review Board (IRB). The IRB is “a committee of faulty who reviews and approves research so that the rights of humans are protected” (Creswell, 2011, p. 622).

There are some potential ethical issues involved in a mixed-methods design as was used in this study. Thus, permission letters to gain access to a site would clearly define that the purpose of the study would be purely academic, that the privacy of the participants would be protected, and that the study would not in any manner disrupt regular activities at the site of the study. To minimize any suspicions on the part of the participants, the letters clearly indicated that the findings would not be used for political purposes. The findings would be beneficial to technical and vocational education and training (TVET) schools and programs and, by extension, the growth and development of the Nigerian economy.
Summary

This chapter outlined and described the research methods, research design, and data collection procedures. The data collection methods utilized mixed methods or triangulation (a mixture of structured self-administered questionnaire, semi-structured telephone interview questions, and focus-group discussions). A focus-group discussion is an interaction between the researcher and the participants for qualitative data collecting (Creswell, 2010; Russ-Eft & Preskill, 2009).

In addition, this chapter described how to assure the safety and security of the researcher and participants, secure unhindered access to the study sites, avoid disruption of regular community or social club activities, and secure the privacy of the respondents. The study adopted a simple descriptive statistical data analysis of the mean (average) and percentages. Some of the reasons for employing triangulation (a mixture of quantitative and qualitative methods) with a descriptive-design study included describing the phenomenon without changing any variable, allowing for in-depth understanding of the research problems, and obtaining valid answers to the research questions.
Chapter 4: Findings, Results, and Interpretations

Introduction

This chapter of the descriptive mixed-methods design study presents the outcomes of the survey research titled *Technical and Vocational Education and Training (TVET): Understanding the Nigerian Experience*, as extracted from the opinions and perceptions of Nigerians residing in the United States. The problem facing TVET in Nigeria, as in many other developing nations, is we do not understand how Nigerians in the United States perceive the limited level of federal government’s support for TVET, which is perceived as an important subsector of the educational system. In particular, we do not understand how the government’s policy on education in general has affected the efforts of the students at the local TVET schools and colleges to acquire the required technical skills and knowledge enabling them to contribute their quota to the growth and development of the Nigerian economy.

The purpose of the research was to understand, through the opinions and perceptions of Nigerians in the United States, the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs. The significance of the study rests on the belief that societies with a good stock of highly skilled technical manpower and technological capabilities are known to produce high-quality goods and services while covering costs; such societies are also known to have a competitive edge over other countries in the global marketplace. This descriptive mixed-methods study was designed to discover answers to the following specific research questions:
1) How do Nigerians residing in the United States describe the levels of support for TVET education by the Nigerian government?

2) What opinions do Nigerians residing in the United States have of the relationship between the government level of support for TVET and the shortage of highly skilled technical manpower?

3) What government interventions do they believe are needed to enhance acquisition of employability and entrepreneurial skills among students to improve the productivity of TVET graduates?

The aims and objectives of this descriptive mixed-methods study were to utilize data gathered from the participants. The data were collected from six individuals who participated in focus-group sessions, personal interviews discussing the eight related semi-structured questions, and 100 structured self-administered questionnaires, (see Appendices A, B, and C respectively). The qualitative part of the survey was tape-recorded; the text was transcribed verbatim and coded and analyzed until the main theme emerged (see Figure 3).

Profile of the Participants

**Maduro.** Maduro had first-hand knowledge of the problems facing technical and vocational education and training in Nigeria. He earned his doctorate degree (Ed.D.) in vocational and technical education from one of the universities in Oklahoma in the early 1980s. He went back to Nigeria and taught for many years in some of the colleges of technologies before moving back to the United States. Since returning to the United States, he has been teaching in the Bay Area. He planned to establish a technical school when he finally returns home to Nigeria.
**Donald.** Donald was a product of technical and vocational education and training schools and programs. He attended Bida College of Technology in the late 1970s and graduated with an Ordinary National Diploma (OND). He taught at a number of commercial (technical) secondary schools in Nigeria for nearly a decade before relocating to the United States in the late 1980s. He continued his studies in the practical aspect of education in the United States. At the time of this study, he was a Computer Systems Engineer working for the Bay Area Rapid Transit and a doctoral candidate in cyber security.

**David.** David was a product of a technical college. He attended Yaba College of Technology during the early part of his academic studies. He earned a Higher National Diploma (HND) before he went to the university in the early 1980s and obtained a Bachelor of Science and a Master of Science in Petroleum Engineering. He worked with the Nigerian National Petroleum Corporation (NNPC) – the organization that is the oil hub of the Nigerian oil industry – for over 30 years. He relocated to the United States when he retired, but he consults with the NNPC.

**Nicole.** Nicole attended one of the universities in San Francisco and earned a Bachelor of Science in Biology in the early 1970s before she went back to Nigeria with her family. She also earned a Ph.D. in Environmental Biology at one of the universities in Nigeria and taught for over 25 years in colleges of education (technical). She moved back to the United States after she retired. Nicole was aware of the poor conditions of service facing technical-education teachers and the graduates of TVET schools in Nigeria.
Mickel. Mickel has a Ph.D. in developmental economics from one of the renowned universities in the United States. He retired as a full-fledged professor in Nigeria after teaching for nearly three decades. He was conversant with Nigeria’s poor investment in human-capital development (particularly in TVET), the resultant shortage of highly skilled technical manpower, and their implications in Nigerian economic growth and development. He relocated to the United States after retirement and, at the time of this study, consulted with the UNESCO and The World Bank.

Okezie. Okezie holds a Ph.D. in innovation and entrepreneurship. He worked in the Ministry of Education (vocational and technical unit) in Nigeria after his undergraduate studies, before coming to the United States. He was a project manager working in the implementation of some of the TVET programs in Nigeria’s Ministry of Education (technical/vocational education unit).

Iroko. Iroko holds a Ph.D. in Accounting. He attended a teacher-training college (technical) in Nigeria in the 1970s. He taught in the field of technical and vocational education for about 10 years before coming to the United States to further his education. At the time of this study, he was working as a Certified Public Accountant with a reputable energy company in Northern California.

Agnes. Agnes attended a vocational/commercial (TVET) school after her secondary education in Nigeria and earned a diploma in Typing and Shorthand. She worked as a secretary in the technical unit of her organization before relocating to the United States with her husband. At the time of this study, she was pursuing a doctorate in vocational and technical education.
**Ikeji.** Ikeji is a Medical Doctor. He worked with many laboratory technologists and technicians in various hospitals in Nigeria before relocating to the United States. During his time in Nigeria, he discovered that many of the technicians trained at the local TVET schools lacked the skills needed to perform basic medical laboratory analysis. At the time of this study, he was practicing medicine as a resident in Northern California, after his residency in New York.

**O’Danny.** O’Danny holds a Ph.D. in business and another in economics. He taught at one of the universities in Northern California. Although he did not attend a technical school, he grew up under an uncle who attended a TVET school and learned the importance of technical education and practical skills.

**Ekezie.** Ekezie holds a DBA in Business Administration. At the time of this study, he was a business Professor. He was familiar with the myriad problems facing Nigeria’s colleges of technologies, universities of technologies, and technical schools.

**Okenna.** Okenna attended one of the colleges of technologies in Nigeria before relocating to the United States to continue his studies. At the time of this study he was a laboratory technologist in one of the hospitals in Northern California. He holds a Bachelor of Science degree in his field.

To ensure that enough individuals were reached to collect quantitative data, as the population of Nigerians in the United States is spread across the land, 120 questionnaires were distributed and 95 (79%) of the participants completed and returned their questionnaires. Therefore, this study utilized the triangulation of both qualitative and quantitative methods for data collection. Statistical data were meticulously analyzed with the Microsoft Excel program to ensure the objectives were achieved.
As noted earlier, three related research questions were used to guide this descriptive mixed-methods study. The discussions in Chapter 4 are structured around the data collected from the focus-group sessions, personal interviews, and the structured survey questionnaire. To recruit respondents for the qualitative part of the study, announcements were distributed to prospective participants regarding the semi-structured questions utilized in the focus-group sessions and personal interviews (see Appendix D). To recruit participants for the quantitative part of the study, an announcement was distributed with an invitation to participate in the survey questionnaire (see Appendix E).

The quantitative section consists of questions 1 and 2, which were utilized for background purposes such as collection of age and educational level information. The outcomes of questions 3 through 17 were organized, analyzed, and summarized in tabular forms using Frequency and Percentages. The participants had different educational levels and fell within different age groups, showing that the responses are from people with diverse opinions and perspectives (see Appendix F, Table 1).

The participants in the focus group and personal interviews were issued fictitious names to avoid exposing their identity. The names given to each of the participants are given along with their direct quotes. The findings of the qualitative section (the focus group and personal interviews) were coded (Saldana, 2012), analyzed, and integrated into the quantitative database for final analysis and discussion. In Vivo Coding was adopted because it is appropriate for interpreting “interview transcripts” (Saldana, 2012, p. 48) from the participants’ perceptions and viewpoints.
Findings

The findings of the descriptive mixed-methods study are presented in this section of the chapter. Three main themes emerged from the data collected and analyzed from the transcripts of the semi-structured focus-group sessions, personal interviews, and the structured survey questionnaire as perceived by Nigerians residing in the United States. The three main themes emerging from the findings are as follows: (1) Poor status of technical and vocational education and skills training (TVET) schools and programs in Nigeria; (2) Nigerian Government’s limited level of support for TVET schools and programs; and (3) Consequences of Nigerian Government’s poor investment in human-capital development. Each of the three major findings contains multiple sub-findings, as shown in Figure 3, which are described and analyzed in detail throughout Chapter 4.
Main Themes and Sub-findings

Understanding the Nigerian Experience with Technical and Vocational Education and Skills Training (TVET) Schools and Programs

Nigerian Government’s limited level of support for TVET schools and programs
- a) Inadequate funding for TVET schools and programs.
- b) Poor leadership, lack of vision and proper planning for TVET schools and programs.
- c) Lack of equipment/teaching and learning materials for TVET.
- d) Lack of proper training and motivation for TVET teachers/instructors.
- e) Inadequate supervision for TVET students in industrial attachment/training.

Poor Status of Technical and Vocational Education and Skills Training (TVET) Schools and Programs in Nigeria
- a) Low social acceptability for TVET schools/programs.
- b) Parents/Guardians send their children/wards to TVET as last resort.
- c) Local employers of labor preference for foreign trained or expatriate technicians.
- d) Poor quality of graduates of TVET schools and lack of good mixture of academic work and technical/practical training.

Consequences of Nigerian Government’s poor investment in human capital development
- a) Shortage of highly-skilled technical manpower.
- b) Poor infrastructure and institutions.
- c) Lack of employability and entrepreneurial skills among the youths.

Figure 3. Main themes and sub-findings of this study.

Poor Status of Technical and Vocational Education and Skills Training (TVET) Schools and Programs in Nigeria

The participants in this descriptive mixed-methods study identified some of the reasons or forces for the poor status of technical and vocational education and skills training (TVET) schools and programs in Nigeria. The participants reported that these forces have adverse effects on the image of TVET institutions and their programs in the society. The responses of the participants revolved around four key issues shaping the status of TVET schools and programs in Nigeria. The key issues are as follows: (a) Low social acceptability for TVET schools/programs; (b) Parents/Guardians send their
children/wards to TVET as last resort; (c) Local employers of labor and their preference for foreign trained or expatriate technicians; and (d) Poor quality of graduates of TVET schools.

**Low social acceptability for TVET schools/programs.** A majority of the study participants noted that poor public attitude toward technical and vocational education and skills training schools, and toward those who attend the schools, is one of the major reasons the institutions have poor status. They observed that parents are not enthusiastic about sending their children/wards to skills-training schools and youths do not take such schools seriously because of the lack of social acceptability. When asked to describe why the state of technical and vocational education and skills training (TVET) is fast deteriorating, one of the participants (a petroleum engineer) in the personal interview stated it was “because of social unacceptability of this field in Nigeria” (David).

Agnes underscored David’s concern when she said, “When we were growing up, the group that took to TVET was looked down upon as non-progressive” (Agnes). Another participant, Okezie (a laboratory technologist), also agreed that one of the main causes of the poor state of TVET schools was “social unacceptability,” adding that he had a friend who attended one of the institutions. Depending on their level of education and experience regarding technical and vocational education and skills training, the participants in this study had slightly different opinions and perceptions about the topic. David had practical experience with technical and vocational education, as well as people’s attitude toward the institutions and their programs. He started his higher education journey at a college of technology and worked as a petroleum engineer.
I will give you some instances. Majority of the people think that people who took to technical and vocational education in those days were not intelligent enough to go to regular secondary school or to attend the university. So, majority of the parents and guardians want their children and wards to become engineers, doctors, accountants, and all the socially high-sounding professions. In other words, they do not want their children to become carpenters, mechanics, auto repairers, plumbers, house builders (mason), and other fields that have anything to do with manual labor that are looked down [on] by the society. Because of [the] social unacceptability of this field, Nigeria is today lacking technical manpower and the economy is suffering as a result. (David)

As the discussion on the state of TVET progressed, Nicole (a teacher at one of the technical and vocational education schools in Nigeria) acknowledged that the previous speakers articulated the issue very well when she stated, “social unacceptability is a serious problem both in the area of local products and services and the state of Nigeria’s TVET” (Nicole). Another participant, Mickel (a professor of economics), had a bleak point of view regarding the conditions of technical and vocational education and skills training (TVET) in Nigeria:

The state of TVET institutions in Nigeria can be described as very poor or sordid at best. Low social appreciation of technical and vocational education and the productivity of those who work in those institutions are very low. Few parents would, under normal circumstances, allow their children to take to the…technical and vocational education and training as a means to achieve their academic ambition. Students and parents are discouraged by the low social acceptability of the field.

The findings from the questionnaire provided additional insights into the participants’ attitudes toward TVET. Statistical data in Table 2, Item 4 (see Appendix F), show that 31 participants (32.6%) disagreed and 64 (67.4%) strongly disagreed with the following statement: Most parents/guardians prefer sending their children/wards to TVET schools. In addition, data in Table 2, Item 3 (see Appendix F), show that 28 participants (29.5%) disagreed and 67 (70.5%) strongly disagreed with the following
statement: *The public perceives as intelligent students who attend TVET schools.*

Given the credibility and power of these data as well as the testimonies, it is evident that the perceptions and attitudes of the public toward technical and vocational education and training are discouraging factors contributing to the low social status of the TVET schools.

**Parents/Guardians send their children/wards to TVET as last resort.** When asked if the participants, as parents, would willingly convince or encourage their children/wards to enroll in technical and vocational education and skills training (TVET) schools and programs, a majority of them answered in a negative term because of the poor public attitude toward technical and vocational education and skills training schools and those who attend such schools. Thus, because TVET programs are tailored toward skills acquisition the Nigerian public does not perceive it as a noble venture or academic enough to attract the attention of most parents. Many of the participants would like their children/wards to become engineers, doctors, accountants, teachers, or any other high-sounding and socially respected professions. They would not encourage their children or wards to attend TVET schools to learn to become carpenters, house builders (masons), or to raise livestock and work with equipment and hand tool all their lives.

However, a few of the participants had a mixed reaction to the question. Thus, every parent has a slightly different viewpoint about the issue. But a majority of them are biased. A participant in the focus-group session (a laboratory technologist) specifically stated that he would encourage his children to take some technical and vocational education classes to prepare them for the world of work:
I will encourage my children to take some technical and vocational education classes in order to prepare them for the world of work. I will let them know that academic theory alone is not enough to fetch any person a viable employment at this time….Presently, my 9th grade daughter is taking a cooking class and I encourage her to take some more…at least it will help her to prepare some food for herself and her family in [the] future. (Okezie)

According to David (a petroleum engineer), the burden is on the parents and guardians to educate their children on the importance of technical and vocational education and skills training. However, he also noted:

I will not impose my will on any of my children, but I will educate them of the importance of technical and vocational skills…and the current trends in the job market….I will advise them to learn to translate their theoretical knowledge into productive and practical application….But, because of the mind-set in the Nigerian society, every parent would like their children/wards to attend regular schools or a university. The society does not have much respect for those who take to technical and vocational education. (David)

O’Danny (a best-selling author and consultant on business matters) adamantly stated he would not push his children to take to technical careers. However, he would properly inform them of its importance in this 21st-century economy.

I will inform my children of the importance of TVET in the 21st century knowledge-driven economy….I will let them….understand that employers are looking for individuals with a good mixture of academic as well as technical and practical skills…acquiring some technical skills will not prevent them from pursuing any other career of their choice. (O’Danny)

Another participant, Iroko (a certified public accountant), emphatically stated that he would not make any efforts to encourage his children to take the route of vocational and technical education during their academic venture:

Yes, technical skill is important at this time and age, but I will have a lot of trouble trying to push my children to get into a profession that is being looked down upon in the society….I am not one of those who will encourage their children to attend technical schools. I would like my children to become doctors, lawyers, [an] accountant like myself, or engineers, but not to become carpenters
and bricklayers….I would not put my children through that. I would like them to get a real education.

Findings from the questionnaire provided additional evidence on the general poor attitude of parents/guardians toward TVET. As noted earlier, data in Table, Item 4 (see Appendix F), show that 31 participants (32.6%) disagreed and 64 (67.4%) strongly disagreed with the following statement: Most parents/guardians would prefer to send their children/wards to TVET schools. Also, data from Table 2, Item 3 (see Appendix F), show that 28 participants (29.5%) disagreed and 67 (70.5%) strongly disagreed with the following statement: The public perceives as intelligent students who attend TVET schools. The conclusions drawn from blending the findings of the survey, focus group, and personal interviews indicate a lack of social acceptability of TVET schools and their graduates in Nigeria.

**Local employers of labor and their preference for foreign trained or expatriate technicians.** Findings show that local employers of labor are not impressed by the performance of technicians trained in local technical and vocational education and skills training (TVET) schools. As a result, many of them resort to hiring foreign-trained technicians, and the locally trained technicians are not happy. The many anecdotes from the focus group and personal interviews are very relevant and powerful.

David – who has worked with many locally trained technicians at the Nigerian National Petroleum Corporation (NNPC), an organization at the hub of the Nigerian oil industry – pointed out that over the years the NNPC “imports technicians from abroad to perform some special duties such as welding of the oil rigs” (David).

At NNPC, we get students from the local colleges of technology for the one-year industrial attachment. Most of them are hollow – they do not have the technical
skills and knowledge they are supposed to acquire at the technical colleges. Because many of those who attend the local colleges of technology lack technical skills, and because Nigeria lacks highly trained professional technicians to do the job, the NNPC imports technicians from abroad to perform some duties that require highly specialized technical skills, such as to weld oil rigs—this is costing the corporation a lot of money to pay the expatriates. Up till today, locally trained technicians are still being looked down upon as inferior to those imported from abroad, and those who are trained locally are furious, angry, and frustrated about that. (David)

Donald, a network engineer who participated in the focus-group session, was also not impressed by the performance of some of the locally trained technicians. The poor situation in the TVET schools also forced his organization into hiring the expensive foreign-trained technicians when he was back in Nigeria.

When you are empowered with proper skills and knowledge you are likely to perform well on the job. But many local employers of labor in Nigeria today are disappointed by the poor skills of local technical school graduates. As a result, they prefer to hire or are forced to hire expensive foreign-trained technicians—locally trained technicians are not happy about this development, but that is the reality on the ground. (Donald)

Several reasons have been given for this development, including lack of high-quality technical personnel, poor supervision of students on industrial attachment, corruption, and mismanagement of resources, among others.

To produce quality graduates, the TVET schools must be well-equipped—and staffed with highly qualified teachers. But as everyone knows, corruption is a problem here: the money allocated to these schools is being mismanaged. Another problem here is lack of supervision—Students sent out on industrial attachments to various corporations and agencies around the country are not being properly supervised by those assigned to do that. The students end up just hanging out there for one year doing nothing—at the end of the period—some of the students would forge papers claiming that they have completed their industrial attachment. The institutions or agencies responsible for this should properly monitor the students’ progress and endeavor to verify the documents they claim to have been issued them by the corporations where they did their industrial attachment. (Mickel)
Anecdotes from the participants in the focus-group sessions and personal interviews were corroborated by the statistical data from the structured survey questionnaire. For instance, data in Table 2, Item 7 (see Appendix F), show that 43 survey participants (45.3%) disagreed and 52 (54.7%) strongly disagreed with the following statement: *Proper attention is given to industrial attachment/training.* Industrial attachment/training provides students the opportunity to get on-the-job practical training, but this is impossible without proper supervision.

To ensure that technical and vocational education and skills training (TVET) schools and their programs can produce high-quality graduates who can compete effectively with foreign-trained technicians, proper attention should be focused on adequate funding to enable these schools to attract and retain a good stock of well-qualified teachers and instructors.

**Poor quality of graduates of TVET schools and lack of good mixture of academic work and technical/practical training.** The issue of poor-quality technicians trained in local technical and vocational education and skills training (TVET) schools has continued to resonate in this study, both in the qualitative and quantitative findings. Participants noted that there are many technical and vocational schools and colleges of technologies in Nigeria, but they have failed to produce competent technicians as obtained in the developed economies. Participants have acknowledged that not all the locally trained technicians are poor in skills and knowledge, but a majority of them are poorly trained. As a result, such technicians cause more damages to the assignments given to them because they lack the required technical skills to handle their jobs. David, a petroleum engineer with NNPC, made the following statement:
Although there are a few good ones [technicians], generally speaking, the public does not have any iota of respect for, and trust in, the locally trained technicians...because they lack the skills to handle the jobs...they spend many hours in classroom work, with little or no time for practical work in the lab because they lack the tools and equipment. (David)

Donald, who benefited from the skills and knowledge he acquired from a Nigerian college of technology in the early 1980s, wondered what has happened to the local technical colleges. Most of them now produce what David branded as “half-baked graduates.” Donald, however, interjected:

I went through [the] technical and vocational education system. When I came to the United States in the early 1980s, I benefitted from the skills and knowledge I acquired from Bida College of Technology. I did not have a hard time securing employment in related fields because I could pass the tests and exams without undue difficulty. Even when I enrolled in the University of San Francisco, I was given about 30 credit units from the classes I took at Bida College of Technology. Nigeria needs to pay close attention to technical and vocational education and skills training because the skills acquired from them will enable the youths to gain employment either in the private or public sector. (Donald)

Maduro, a participant in one of the personal interviews, acknowledged the important role TVET schools play in empowering youths with employability skills. But he approached the issue of TVET from a different point of view. According to him:

If the government will provide the local technical schools and their instructors with the tools/equipment they need...to properly mix academic work with practical lab activities, the graduates will acquire the needed skills and knowledge and thus can compete with foreign-trained technicians. (Maduro)

The poor quality of graduates produced by local TVET schools and the lack of a balanced mixture of purely academic work with technical/practical training are caused by a combination of many forces: inadequate funding, lack of modern teaching and learning technologies, a lack of proper motivation for teachers in terms of payment of basic salaries and benefits, and poor leadership vision and planning for TVET schools. Due to
the recursive nature of this study, these forces have been noted elsewhere in this chapter. However, findings show that poor conditions of service for teachers in TVET affects their morale and productivity as well as students’ learning and attitude toward technical and vocational schools and colleges.

**Nigerian Government’s Limited Support for TVET Schools and Programs**

The participants in this study identified the Nigerian government’s limited support for TVET schools and programs as an issue negatively impacting both the quality of skills acquired by TVET graduates and the infrastructure and institutions driving the Nigerian economy. Five major areas concerning the Nigerian government’s limited level of support for TVET schools include the following: (a) inadequate funding for TVET schools and programs; (b) poor leadership, lack of vision, and proper planning for TVET schools and programs; (c) lack of equipment/teaching and learning materials for TVET; (d) lack of proper training and motivation for TVET teachers; and (e) inadequate supervision for TVET students in industrial attachment/training.

**Inadequate funding for TVET schools and programs.** A majority of participants in this study, if not all of them, identified inadequate funding for technical and vocational education and training (TVET) schools as among the main issues facing the sector. The participants argued that without adequate funding, the institutions would not have the financial wherewithal to procure teaching and learning material enabling them to produce highly skilled technical manpower to drive the economy. As a result, the country would remain perpetually underdeveloped.
For Maduro, an expert in technical and vocational education, Nigeria cannot develop as it should without giving serious attention to TVET schools and their programs.

The Nigerian government is not investing enough money in…technical and vocational education and training (TVET) schools and programs…for the development of the country. These are the main problems facing Nigeria today. Without investing in technical education, Nigeria will not train enough individuals with practical skills and knowledge…the people cannot be productive, and the economy will not thrive. No economy, even those of the advanced economies, will work well without highly skilled technical manpower. (Maduro)

Participants also argued that the problem with Nigeria is not that the government lacks the money to invest in technical and vocational education but that the leaders are mismanaging the material and financial resources at their disposal. Such mismanagement leads to starving the institutions of the funds needed to train and empower youths with technical skills to improve the economy as well as their living conditions. According to Agnes:

I don’t understand why the government has refused or failed to fund [the] technical education that is the backbone of the economy. When you educate a child and empower the child with life-long technical skill you are also educating and empowering the entire nation. Therefore, providing adequate funding for technical and vocational education and training schools and programs is imperative, because no society can function well without having enough people with highly skilled technical manpower. I am an advocate of proper funding for technical and vocational education and training (TVET) in Nigeria. (Agnes)

It appears the jury has reached a unanimous verdict on proper funding for TVET. Many other factors affect TVET schools, but the issue of poor funding revolves around poor leadership and governance as well as lack of vision. The refusal of the government to adequately fund the local technical schools has a negative impact on the domestic economy. As Mickel observed:
Lack of funding for or lack of emphasis on technical and vocational education and skills training is among the main reasons the society lacks highly skilled technical manpower. In my opinion, the government is not investing enough in technical and vocational education and science-based technology education. Lack of funding for technical and vocation education also affects R&D as well as technological innovation. The economy is not performing as it should because Nigeria lacks emphasis on technical skills and knowledge. The economy will not move forward with the citizens acquiring the needed technical skills to fix the infrastructure and institutions that drive the economy.

The participants argued that those managing the affairs of Nigeria do not seem to understand the importance of technical education or how to plan for the future development of the economy. According to the participants, the government cannot effectively plan for the future development of the country without investing heavily in technical/technological education. David stated:

From experience as an engineer, no society can develop or function well without long-term investment in technical education and science-based technology education. I don’t understand why Nigeria should be dragging its feet on making good investment in technical and vocational education.

As the participants noted, Nigeria currently has a lot of problems because the government pays lip service to almost everything it does, including the issues facing technical and vocational education and skills training schools and programs. They noted that since Nigeria is not investing enough in this important segment of the educational system, the economy will not be viable and the society will thus be unable to compete effectively in the global market place. Ekezie (a business professor) made the following statement:

Nigeria has many colleges of technologies, university of technologies, as well as technical schools; but no one is properly funded….without adequate funding, they cannot produce quality graduates because they will lack the necessary equipment/tools….functional laboratories and highly qualified teachers to produce high quality graduates.
Donald, who attended one of the colleges of technologies in Nigeria in the early 1980s before relocating to the United States, lamented over the lack of proper funding for TVET. He stated:

I know that the conditions of things in Nigeria’s technical and vocational education and skills training schools are now horrible, because they lack adequate funding from the federal government and the private sector. But I did not know that things have become so terrible. I nearly cried when I visited Nigeria recently and went to my former technical school. Things are really very bad. During my days at the school, we used to get hands-on skills training from the lab as well as from the private sectors where we went for internship. The skills we acquired there helped many of us to become self-reliant or to secure paid employment… But today, nothing works; the labs are not functional and teachers are sometimes not paid for months.

Findings from the survey questionnaire support the viewpoints of the participants in the focus-group sessions and personal interviews. Data show there is inadequate funding for technical and vocational education and skills training (TVET) schools and programs. The data concur with the findings that local TVET schools and colleges lack functional workshops and labs for practical application of lessons studied in the classroom. Inadequate provisions of learning and teaching materials in technical and vocational schools as well as equipment/tools for hands-on activities in the labs reflects the poor funding for TVET schools.

For instance, data in Table 2, Item 5 (see Appendix F), show that 24 respondents (25.3%) agreed and 71 (74.7%) strongly agreed with the following statement: There is inadequate provision of training/teaching materials in technical/vocational schools because of lack of funding. Also, data in Table 4, Item 13 (see Appendix F), show that about 25 respondents (26.3%) disagreed and 70 (73.7%) strongly disagreed with the following statement: Government policies ensure adequate funding for TVET schools.
The conclusions drawn from the findings are that the provision of adequate training and teaching materials as well as the hiring and retaining of competent teachers and instructors for TVET schools and programs are impossible without proper funding. Thus, proper investment in TVET is imperative.

**Poor leadership and lack of vision and proper planning for TVET schools and programs.** The opinions and perceptions of the participants are almost unanimous regarding the major reasons the Nigerian government is not investing enough money in technical and vocational education and training (TVET) schools and programs: poor leadership, lack of vision for the future of the country, and lack of proper planning for the schools. The participants strongly agreed that without good leadership and proper planning, the TVET schools will not produce good-quality graduates and, as a result, the economy will not thrive and create employment.

For instance, as Nicole (a professor of environmental Biology) observed during the focus group session, “The Nigerian government is not investing enough in TVET schools and programs because of…lack of vision on the part of the leaders and lack of planning for the development of the country. This is because they [the leaders] are selfish” (Nicole). Mickel agreed with Nicole, stating:

The problem with Nigeria is that the leaders are corrupt…corruption has created a sinkhole in the society, such that any money earmarked for any development project will disappear….Essentially, they [the leaders] care only about what will get into their pocket and not how to empower the youths with high quality education and improve the living conditions of the general population. The leaders are not accountable to the people.

Agnes, another participant, expressed a similar concern. However, she emphasized a lack of vision and proper planning on the part of the leaders, “The Nigerian
leadership lacks vision and proper planning strategy for the future development of the society” (Agnes). Iroko lamented on the lack of government support, stating:

The government is not investing enough in technical and vocational education and science-based technology education because of lack of vision and poor planning. In the 1970s and late 1980s, the government was sending secondary school graduate[s] overseas/ abroad to acquire technical skills. Most of them came back home equipped with the skills and knowledge which helped to boost the economy. But today, most of the leaders in Nigeria are corrupt with impunity…which beclouds their vision. Nigeria should adopt and adapt what has worked elsewhere into planning the economy.

Okenna, who had a wide-ranging experience with TVET, was equally concerned about the poor leadership, lack of vision, and proper planning for TVET schools and programs that has stalled the development of the Nigerian economy. “My opinion is that the people in government are seriously lacking the vision, courage/will, and planning strategies, to move the country and its economy forward” (Okenna).

Participants in focus-group sessions and personal interviews highlighted the poor attitudes of the leaders toward TVET institutions, and statistical data from the survey questionnaire seemed to agree with them. Data in Table 4, Item 13 (see Appendix F), concur with the concern of the respondents in the focus-group session and personal interviews. Approximately 25 respondents (26.3%) disagreed and 70 (73.7%) strongly disagreed with the following statement: Government policies ensure adequate funding for TVET schools.

The conclusions drawn from the findings in Table 4, Items 13 through 17 (see Appendix F), indicate the government is not doing enough to clean up the image of the TVET institutions. The participants’ opinions and perceptions reflect the poor policy of the government toward TVET schools and their programs. The quality of the decisions
the government makes and the people it delegates to implement them will determine
the quality of the graduates of TVET schools and their programs.

**Lack of equipment/teaching and learning materials for TVET.** Findings from
the focus group, personal interviews, and the survey questionnaire indicated participants
strongly agreed that “lack of equipment/teaching and learning materials” is a serious
problem facing technical and vocational education and skills training (TVET) schools in
Nigeria. Many participants described the situation as grim, and thus observed it is
negatively impacting the teaching and learning process in those institutions as well as the
quality of their graduates. Participants also noted those limitations are constraining the
teaching and learning capabilities of teachers and students.

Mickel, who participated in one of the personal interviews, briefly traced the
history of TVET in Nigeria and discussed some of the challenges facing the Nigerian
economy. He made the following statement:

Technical and vocational education and skills training (TVET) schools and
programs in Nigeria have a long history. The technical schools and programs
have not been effective for various reasons. I even remember the study by the
Ashby Commission in the 1960s, which warned that Nigeria needs [a] certain
number of skilled technical manpower in order to develop economically. But,
like many other things, Nigerian leaders did not take the commission’s findings
very serious. Today, technical schools as well as colleges of technologies in
Nigeria are lacking modern teaching and learning instructional technologies to
produce high-quality technicians to drive the economy.

Nicole, another participant in the focus group, described how the technical skills
and knowledge her classmates acquired by attending some of the colleges of technologies
helped them become creative, innovative, self-reliant, and productive.

Some of my friends attended some of the colleges of technologies after secondary
school in Nigeria to further their studies. Many of them started doing something
productive with the skills and knowledge they acquired from TVET schools and
program because the schools were well-equipped. They started practicing one form of vocational trade or another immediately after graduation because the skills and knowledge they acquired empowered them to be creative, innovative, and self-reliant. Some of them established their own workshops or cottage industries...in their homes, and others located at rented properties. But things have changed; TVET schools in the society have been neglected, just like every other thing in the society. (Nicole)

Agnes, who participated in the focus group, also spoke in the same vein. She noted that in the early days, technical and vocational education and skills training (TVET) schools and programs were properly equipped with the right tools and teachers, employed hands-on field experience in the subject matters. But today, things are “no longer at ease” (Agnes) with the institutions. Agnes made the following statement:

In the past...technical and vocational education schools and programs were well-funded and equipped with proper tools and equipment to teach students practical application on the job [of] what they learned in the classroom...But today, things have fallen apart and TVET has faded away from the society. From experience, those who went through the system are no longer acquiring the same level of technical skills they used to in order to be productive; because the schools lack the necessary equipment and tools, such as laboratories with competent technicians in charge....We are discussing this issue at the right time, because Nigeria is at the cross-roads. When I was in secondary school back in Nigeria, I had a friend who went to what was then called commercial school and learned typing and shorthand...she was employed right away after graduation...she was secretary to a manager...of a big corporations because she could type and write in short-hand.

Donald, who attended one of the technical institutions before coming to the United States in late 1980s, concurred with Agnes when he interjected:

I attended Bida College of Technology and graduated with an Ordinary National Diploma (OND). I studied business computer and programming that were purely for practical application on the job. Our labs were properly equipped and maintained....But today, nothing works at the schools. Those who had the talent and technical skills, such as typists, programmers...personal computer technicians...carpenters, masons [builders/bricklayers]...were self-employed and productive. They were making things the society needed....and contributing to the wellbeing of the society.
Like Donald, David attended technical college and acquired useful technical skills before he went to the university to continue his education and earn his engineering degrees.

I went to Yaba College of technology during the early part of my academic studies and obtained Higher National Diploma, after which I went to the University of Lagos in the early 1980s and obtained a B.Sc. and a M.Sc. [in] Petroleum Engineering. In those days, Yaba College of technology was properly equipped and staffed, and the technical skills and knowledge I acquired there enabled me to secure a job with the Nigerian National Petroleum Corporation (NNPC), which is an organization that is the oil hub of [the] Nigerian oil industry. But, because technical schools are no longer given the attention they deserve, those who attend technical schools today are lacking the technical skills and knowledge they are supposed to acquire at the technical colleges.

For Ikeji, a medical doctor who participated in one of the personal interviews, teachers in technical and vocational schools cannot perform magic without the necessary teaching and learning technologies.

From experience, I know that the conditions of things in Nigeria’s technical and vocational education and skills training schools are horrible because they lack adequate funding from the federal government and the private sector. Majority of the lab technicians we work with cannot perform basic laboratory analysis because the schools and teachers lack the tools and equipment for hands-on technical skills training. (Ikeji)

As noted before, statistical data from the survey questionnaire support the viewpoints of the participants in the focus-group session and personal interviews. For instance, data in Table 2, Item 6 (see Appendix F), indicate that 44 respondents (46.3%) disagreed and 51 (53.7%) strongly disagreed with the following statement: There is adequate provision of equipment/tools for hands-on activities in TVET schools. Also, statistics in Table 4, Item 14 (see Appendix F), show that 30 respondents (31.6%) disagreed and 65 (68.4%) strongly disagreed with the following statement: Government equips public TVET schools with modern teaching and learning technologies. Such
findings indicate a consensus that proper funding will enable TVET schools to purchase the necessary teaching/learning tools and equipment enabling them to produce high-quality graduates, which will bolster the Nigerian economy.

**Lack of proper training and motivation for TVET teachers/instructors.**

Participants in this study identified lack of proper motivation, in terms of payment of salaries and benefits as well as training, as among the major reasons TVET schools and colleges of technologies cannot hire and retain competent and talented teachers and instructors. Participants also described the adverse implication of poor working conditions on the morale and productivity of teachers and instructors as well as the quality of graduates. Such conditions are a serious challenge for technical schools and colleges of technologies in Nigeria with many consequences on the Nigerian economy.

For example, Nicole described how the government has lost sight of the human component in teaching by not providing adequate training and motivation for teachers in TVET institutions.

It is difficult for anybody to describe the problems facing these institutions to those not familiar with these problems. Poor working conditions for TVET teachers paint the picture of inequality between them and their counterparts in the university system. I have been teaching at a technical federal government’s college of education for over 25 years with a Ph.D. in Environmental Biology, and the highest grade level of promotion I can reach here is that of Chief Lecturer. But any person with a Ph.D. who has been teaching at the University system the same number of years would have been promoted to a full-fledged Professor. (Nicole)

Another participant in one of the personal interviews also agreed that lack of motivation for technical and vocational education teachers, in terms of adequate salary and training, is killing the Nigerian economy. David made the following statement:
Teachers in technical and vocational education schools and colleges are not...well trained generally, as well as in their subject matter, and they are not well paid or properly motivated. Even the curriculum is not well designed to meet the demand of the 21st century economy. The schools lack laboratory equipment for practical work, and they end up spending most of their time learning theory instead of doing hands-on lab activities that will empower them with the skills and knowledge they need to perform well on the job or to become self-employed.

As we have seen, poor conditions of service for teachers in Nigeria’s TVET schools and colleges, as compared to the teachers in the University system, were a big concern for the study participants. For them, it does not seem that school leaders and policymakers have made it their priority to properly motivate and train the teachers to improve the quality of TVET graduates. Donald noted with disappointment, “teachers are not properly motivated by way of training and payment of basic salaries and benefits. They cannot perform well under this sordid condition.”

Data from the survey questionnaire strongly agreed with the opinions and perceptions of the participants in the focus-group sessions and personal interviews. For instance (as noted above), in Table 4, Items 15 (see Appendix F), 46 respondents (48.4%) disagreed and 49 (51.6%) strongly disagreed with the following statement: Government ensures that highly skilled technical teachers/educators are employed at the TVET schools. In Item 16, 30 respondents (31.6%) disagreed and 65 (68.5%) strongly disagreed with the following statement: TVET teachers are satisfied with their salaries and promotional opportunities. Also, data in Table 4, Item 17, (see Appendix F), show that 26 respondents (27.4%) disagreed and 69 (72.6%) strongly disagreed with the following statement: Holders of Higher National Diploma (HND), working in the civil
Service or public sector, receive equal pay and promotional opportunities as their counterparts with Bachelor’s Degree from the university.

Such numbers are significant. In many ways, these findings indicate the poor working conditions facing the teachers as well as the graduates of technical and vocational education and training schools. Specifically, the data revolve around the issue of attitudes of the government and policymakers toward TVET schools and their programs.

Inadequate supervision for TVET students in industrial attachment/training. Participants have noted that one of the problems with Nigeria and its development programs is lack of proper supervision of students sent on apprenticeship with local master craftsmen or those on internship with big corporations. Such avenues are important for youths in technical and vocational education and training schools, or those on apprenticeship with local master craftsmen, to acquire on-the-job practical skills and knowledge. But the policymakers of Nigeria need a serious mindset reorientation to make the right policy decisions regarding TVET for the wellbeing of the society. Agnes made the following statement:

When I was growing up in Nigeria in the 1960s, we used to have local blacksmiths…individuals who used their skills and local tools to fashion out beautiful products…from crude metals. Parents used to send their boys on apprenticeship. During that period, the young ones would serve individuals who were experts in one vocation or the other so as to learn the trade and…those who have the talent would develop into renowned entrepreneurs and create employment for others. My uncle was a blacksmith, and he was always busy making things from scrap metals. This group of skilled artisans is no more…everybody wants a paper qualification and to make quick money, through fair or foul means.
Participants also recognized that students from technical schools and colleges, who are often sent out on one-year industrial attachments to various corporations and agencies, lack proper supervision by their schools or individuals assigned to perform the task. As David observed:

Another problem facing TVET students is lack of supervision in industrial attachments. Those sent out on one-year industrial attachments to various corporations and agencies…are not being properly supervised by their schools and individuals assigned to perform the supervision. The students would end up just hanging out there for one year doing nothing…at the end of the period some of the students would forge papers claiming that they have completed their industrial attachment.

Data from the survey questionnaire support the opinions of the participants in the focus-group sessions and personal interviews on issues related to industrial attachment. For example, data in Table 2, Item 7 (see Appendix F), show that 43 respondents (45.3%) disagreed and 52 (54.7%) strongly disagreed with the following statement: Proper attention is given to industrial attachment/training. In other words, they did not agree that students from technical and vocational education and skills training who are sent on one-year industrial attachment receive proper attention.

Findings also show that lack of proper attention given to students in industrial attachment/ training is one of the reasons graduates of TVET schools and programs in Nigeria lack employability and entrepreneurial skills, which would enable them to secure viable paid employment or become self-reliant. Industrial attachment, as the participants argued, provides students an opportunity to learn on the job.
Consequences of Nigerian Government’s Poor Investment in Human-capital Development

A majority of the participants, if not all of them, strongly agreed that the Nigerian government does not invest enough in human-capital development (education and health), particularly in technical and vocational education and training (TVET) schools and their programs. Participants identified numerous consequences of this neglect: (a) shortage of highly skilled technical manpower, (b) poor infrastructure and institutions, and (c) lack of employability and entrepreneurial skills among youths. Participants also noted how the lack of Nigerian government’s investment in TVET has slowed the pace of training of enough skilled-technical manpower, the growth and development of the Nigerian economy, and the improvement of living conditions of the citizens.

Shortage of highly skilled technical manpower. Participants in the focus group as well as in the personal interviews observed that the politicians do not appear to understand the importance of investment in human-capital development. Participants argued that without investment in human capital, the society will not train enough individuals with technical skills and knowledge to boost the economy and, as a result, the country will remain perpetually underdeveloped. Ekezie found the political apathy indefensible and made the following statement:

The Nigerian government is not investing enough money in human-capital development (education and health), and particularly technical and vocational education and training (TVET) schools and programs, so as to produce enough highly skilled technical manpower for the growth and development of the Nigerian economy.

Maduro, who has a doctorate degree in technical and vocation education, strongly agreed:

The leaders do not seem to understand that human capital is the backbone of every economy….developed, developing, and underdeveloped. The problem with
Nigeria is not lack of money to invest in human-capital development. The problem is that the leaders are corrupt with impunity….Corruption has created a sinkhole in the society…any money earmarked for development projects will disappear….The leaders do not seem to worry about how to empower the youths with high technical skills and quality education or how to improve the economy because the resources allocated to the education sector is being mismanaged.

Agnes shared a similar viewpoint:

Investment in education and health care, which is the backbone of the economy, is essential….When you educate a child and empower the child with a life-long technical skill, you are educating and empowering the entire nation.

Okenna also agreed when he observed:

The government is not investing enough in human-capital development (education and health care), particularly technical and vocational education and science-based technology education. No society can develop economically…without highly skilled manpower as well as technological capability.

For Iroko (an accountant):

The government cannot effectively plan for the future development of the country’s economy without investing heavily in human-capital development and more importantly…technical/technological education and health care. From experience, no society can develop…without long-term investment in technical education, health care, and science-based technology education. I have lived in the United States for more than three decades, and I know this for a fact.

Mickel (a Professor of economics) crowned the participants viewpoints on investment in human-capital development with the following statement:

The federal government is not investing enough on human-capital development (education and health), and it is not doing enough to improve the image of technical and vocational education and skills training schools and programs. Available statistical data show that Nigeria invests less than 1%, or about that, of its GDP (Gross Domestic Product) on human-capital development [this figure depends on the data one is looking at]. Since Nigeria is not investing enough on this important segment of its educational system, there is the tendency for the society to experience a shortage of technical manpower to boost the economy. Investment in human capital is a strategic policymaking issue because it controls every facet of the economy, including the infrastructure and institutions that drive the economy.
As noted earlier, data in Table 3 (see Appendix F) indicate how poor patronage of TVET schools and their programs, as well as a shortage of highly skilled technical manpower, can affect the growth and development of the Nigerian economy. In particular, data in Table 3, Item 8 (see Appendix F), show 21 respondents (22.1%) disagreed and 74 (77.9%) strongly disagreed with the following statement: *Shortage of high-skilled technical manpower is not related to the poor patronage of TVET schools.* In addition, data in Table 3, Item 12 (see Appendix F), indicate that 15 participants in the survey (15.8%) disagreed and 80 (84.2%) strongly disagreed and with the following statement: *Shortage of high-skilled technical manpower does not affect the economy.*

The conclusions drawn from blending the findings from the various data-collection techniques applied in this study are that a shortage of highly skilled technical manpower is related, in many ways, to the poor patronage of TVET schools and their programs. A shortage of skilled technical manpower has an adverse impact on the growth and development of the Nigerian economy. Findings show it is the skills and knowledge possessed by the people that determine the quality or health of an economy.

**Poor infrastructure and institutions.** Respondents identified lack of skilled technical manpower, as mentioned earlier, as a main cause of poor infrastructure and institutions in Nigeria. Participants also observed that these factors are the drivers of any modern economy. For the participants, functional infrastructure and institutions means good roads, constant supply of fuel, regular supply of electricity and potable water, and a functional legal system. In addition, they noted that no modern economy can function well without them (see Appendix F, Table 3). As Ekezie observed:
The Nigerian economy lacks the necessary driver...enough individuals with
technical skills and knowledge...functional infrastructure and institutions to keep
the economy going. That is one of the consequences of limited government
support for technical and vocational education and training. As a business
professor, I am quite aware that no economy...will work well without highly
skilled technical manpower...to work on the infrastructure that drives the nation’s
economic activities.

Nicole made the following statement:

The limited level of government’s investment in human-capital
development...has negatively affected the training of skilled technical manpower.
That means poor infrastructure and institutions as well as poor growth and
development of the economy.

According to David:

The Nigerian economy is not performing well today because there is a lack
of...emphasis on the development of technical skills in the country. This has
affected all the sectors of the economy, including...R&D, technological
innovation, as well as the nation’s infrastructure and institutions.

Mickel stated:

From an economic viewpoint, since Nigeria is not investing enough on human
capital, which is an important segment of its educational system, the economy
may remain unviable. This is because investment in human capital is a very
strategic policymaking part of economic development. It controls every facet of
an economy...including infrastructure and institutions as well as entrepreneurial
and employability skills that drive the economy.

O’Danny observed:

In Nigeria today, university graduates roam the street because they lack the skills
and knowledge to secure paid employment. If you don’t have the basic
foundation, you cannot compete in the present tight labor market. And because of
poor infrastructure and ineffective institutions, foreign firms dread to invest in the
Nigerian economy. The judiciary is also very corrupt; if you have a case in the
court, corruption can drag it on for years. If you give a contractor a mobilization
fee for a contract, he/she will take it and run, knowing fully well that the society
lacks an effective legal system. That means, also, that you, as an individual, lack
an effective and efficient legal recourse.
Maduro stated:

In the mid-1980s, the federal government sent many individuals abroad to acquire technical skills, which was then called middle-level manpower training. Among the reasons given by the government…for sending that many youths abroad was that it believed that the middle-level manpower training has the potential to drive the economy. Some of them were sent to Romania, Italy, and Ireland…Some of them came back after they finished their technical-skills training, while others stayed behind and switched over to other programs. Those who came back were employed in various types of industries. But many of those industries and firms folded up when the Nigerian economy went sour, because the infrastructure and institutions were allowed to rot away and the youths were thrown into the job market….the educational system is not flexible enough to enable them to gain admission into the University and pursue their graduate studies.

Data in Table 3 (see Appendix F) show how the lack of highly skilled technical manpower affects the state of the infrastructure and institutions in Nigeria and, by extension, the Nigerian economy. Specifically, data in Table 3, Item 9 (see Appendix F), show that 40 respondents (42.1%) agreed and 55 respondents (57.9%) strongly agreed with the following statement: *Lack of highly skilled technical manpower means poor infrastructure and institutions.*

The conclusions drawn from the findings of the study are many. One conclusion drawn from the opinions and perceptions of the participants is that the poor infrastructure and institutions constitute a bottleneck to the growth and development of the Nigerian economy. Another conclusion is that lack of investment in infrastructure and institutions contributes to their dilapidated conditions as well as the pitiable state of the Nigerian economy.

**Lack of employability and entrepreneurial skills among the youths.**

Participants identified various consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and skills training
(TVET). They observed it will be difficult, if not impossible, for the poorly educated and unskilled youths in Nigeria to secure paid employment or become self-reliant in the 21st-century economy without acquiring the employability and entrepreneurial skills employers need.

David observed:

The best way to improve the Nigerian economy is to give the youths practical technical skills and knowledge to enable them [to] secure paid employment or become self-reliant. Today in Nigeria, youth unemployment is skyrocketing because many of them lack the type of skills and knowledge needed by the 21st-century economy driven by information and technological innovation. Technical and vocational education is an area in the general educational system, which needs to be refocused. I say refocused because many people do not seem to know…what happened in the late 1970s and early 1980s when the federal government were sending secondary students abroad to acquire technical skills. It was called middle-level manpower training. But things have changed, and today the government is paying lip service to this subsector of the educational system. This has resulted in a shortage of highly skilled technical manpower, high youth unemployment, and social crises.

For Mickel:

Technical schools and colleges of technologies in Nigeria today are lacking modern teaching and learning instructional technologies to produce high-quality technicians as well as to empower the youths with employability skills to secure paid employment or to become self-reliant, and thus help to drive the economy. In developed economies, such as the United States, Britain, and Germany, technical education occupies an important position in their educational system as well as in their economic development policies. The emerging economies, or the so-called BRICS (Brazil, Russia, India, China and South Africa) and the Asian Tigers, could not have become the economic hub of the world today without their long-term investment in technical and science-based technology education. In South Korea and Germany, for instance, every big corporation has its own technical-training outfits, which give their own workers the specific training and skills they need to be productive. This is not the case in Nigeria. Nigeria’s engineers trained in the local Universities appear not to possess the technical skills relevant to the economy.
Nicole strongly agreed with Mickel:

I concur with the last speaker. Let’s move on! The government is not doing enough to improve the image of technical and vocational education and its programs. How can the youths enroll in the TVET schools to acquire employability and entrepreneurial skills when the government is not properly funding the institutions? Also, it is discouraging that the society is not appreciating their skills and knowledge. These are issues that need to be resolved if the government is serious about having the youths patronize the schools…to have them to contribute their quota in boosting the growth and development of the economy.

Agnes regretted that:

In the past, technical and vocational education schools and programs were well-funded and properly equipped with the tools and equipment to teach students practical application on the job [of] what they learned in the classroom, and the teachers were experts in their subject matters. But today things have fallen apart, and all these have faded away from the society.

Donald grumbled over the neglect of TVET:

Technical and vocational education and training (TVET) are no longer being taken very serious in Nigeria. Employers seem to prefer people with university degree to those with Diploma from colleges of technology or technical and vocational institutions. They [employers] often complain that local TVET graduates are unprepared for the world of work because they are lacking the needed employability and entrepreneurial skills.

Maduro interjected:

If the government will provide the local technical schools and their instructors with the tools/equipment they need, the graduates will acquire the needed skills and knowledge, and thus they can compete effectively with foreign-trained technicians and seize the economic opportunities available in the society to improve their living conditions. Technical and vocational education was accorded high regard in the 1970s as well as in the early 1980s….inherent inconsistency in policymaking in the society, poor leadership and governance, the governments of recent times have pushed technical and vocational education and training to the backburner on their priority list.

Data from the survey questionnaire seemed to concur with the opinions and perceptions of the respondents in the focus-group session and personal interviews
regarding the issue of lack of employability and entrepreneurial skills among youths.

For instance, data in Table 3, Item 10 (see Appendix F), show that 33 respondents (34.8%) agreed and 61 (64.2%) strongly agreed with the following statement: *Lack of employability skills prevents students/youths from securing paid employment.* In addition, data in Table 3, Item 11, indicate that 36 respondents (37.9%) agreed and 59 respondents (62.1%) strongly agreed with the following statement: *Lack of entrepreneurial skills prevents students/youths’ from being self-employed* or becoming self-reliant.

The findings depict evidence relevant to the study because they demonstrate the impact of the Nigerian government’s decision-making process on the economy. Participants noted that employability and entrepreneurial skills empower youths to secure paid employment in the public and private sector of the economy. It shows that being self-reliant can enable youths to improve their living conditions as well as take the risks to become creative and innovative in creating employment for others in the society. The opinions and perceptions of the respondents showed that adequate investment in technical and vocational education and skills training are imperative because they enable the society to produce enough skilled technical manpower to move the Nigerian economy forward. Tables 1 through 4 are displayed in Appendix F.

**Results and Interpretations**

This section discusses the results of the descriptive mixed-methods study as extracted from the findings in the preceding section, as well as interprets each of the results. Three results of the study, pertinent to the literature on technical and vocational
education and skills training (TVET), are discussed. The discussions and interpretations of the results form the foundation for the recommendations presented in Chapter 5.

**Result 1: The poor status of technical and vocational education and skills training (TVET) schools and programs in Nigeria**

The poor status of TVET schools and programs contributes to the low social acceptability for TVET schools/programs, which discourages parents and youths from patronizing the schools and their programs. Put differently, the poor social status of TVET in Nigeria scares away youths and parents from patronizing the skills-training schools and programs. The consequences of these neglects are indicated in the participants’ anecdotes as well as in the statistical data cited throughout this chapter.

Although the inferior status assigned to TVET by the society – relative to the superior status of the regular university system – is erroneous, it tends to pose a serious challenge to those who otherwise would have benefitted from it. Thus, because of the incorrect assumptions about the schools and their programs, everyone wants to attend the regular secondary school and the University to acquire paper qualifications that are, more often than not, devoid of the technical skills and knowledge required to secure paid employment or become self-reliant in the 21st-century economy.

The research findings concur with previous studies. According to Oni (2006) and Dike (2009c), while technical and vocational education has continued to thrive in many advanced and emerging societies, a majority of Nigerians, including the leaders and parents, have an untoward attitude toward TVET and its related careers. According to the study of Awang et al. (2011), there is a faulty general perception in Nigeria that technical
and vocational education is meant for individuals who are either not intelligent enough to gain admission into regular university institutions or are incapable of withstanding the rigors of formal academic programs. It is wrongly believed that this group is only good at working with hand tools such as hammer, screwdriver, spanner, or wrench (Aina, 2009). Those in related careers are therefore assigned a low social status (Adekola, 2009; Adekola et al., 2007).

For instance, data in Table 2, Item 3 (see Appendix F), show that 28 participants (29.5%) disagreed and 67 (70.5%) strongly disagreed with the following statement: *The public perceives as intelligent students who attend TVET schools*. In addition, data in Table 2, Item 4 (see Appendix F), show that 31 participants (32.6%) disagreed and 64 (67.4%) strongly disagreed with the following statement: *Most parents/guardians prefer sending their children/wards to TVET schools*. Such statistical data are powerful and relevant evidence in the study.

The federal government and the main stakeholders are not making serious efforts to clean the image of the local TVET institutions (Moja, 2000; Oni, 2008). Another problem facing technical and vocational education and training in Nigeria is employers’ preference for regular university graduates with Bachelor’s degrees (BS/BA) over graduates of Polytechnics with Higher National Diploma (HND), and thus the reason for the pay disparity between the graduates (Moja, 2000; Oni, 2008). For instance, data in Table 4, Item 15 (see Appendix F), show that 46 respondents (48.4%) disagreed and 49 (51.6%) strongly disagreed with the following statement: *Government ensures that highly skilled technical teachers/educators are employed at the TVET schools*. Such statistical data and explanations are powerful and relevant evidence in the study.
Participants in the focus-group sessions and personal interviews also identified lack of proper motivation in terms of payment of salaries and benefits, as well as in training and development, as among the major reasons TVET schools and colleges of technologies cannot hire and retain competent, talented teachers and instructors. In addition, participants described the adverse implications of such deficiencies on the morale and productivity of the teachers and instructors as well as on the quality of TVET graduates.

For instance, in Table 4, Item 16 (see Appendix F), findings show 30 respondents (31.6%) disagreed and 65 (68.5%) strongly disagreed with the following statement: TVET teachers are satisfied with their salaries and promotional opportunities. Also, data in Table 4, Item 17 (see Appendix F), show that 26 respondents (27.4%) disagreed and 69 (72.6%) strongly disagreed with the following statement: Holders of Higher National Diploma (HND) working in the civil service or public sector receive equal pay and promotional opportunities to their counterparts with Bachelor’s Degrees.

Such statistical data and anecdotes show that the policymakers have not properly handled Nigeria’s quest for economic growth and development, evident in its limited level of support for technical and vocational education and skills programs and science-based technology education. Evidence shows that this is a serious challenge facing the Nigerian economy. Nigeria is currently suffering from a shortage of highly skilled middle- and high-level technical manpower to build and maintain the critical infrastructure and institutions driving the economy and create employment for the teeming population. The findings have underscored the results of previous studies (Anya, 2011; Okoye, 1999), which noted that Nigeria needs to give TVET institutions the
attention they deserve. Scholars have vehemently argued that technical and vocational education and training is the missing link in Nigeria’s development program.

**Result 2: The Nigerian Government’s Limited Level of Support for TVET Schools and Programs**

Findings of this study confirmed that the Nigerian government’s limited level of support for TVET schools and programs is a major challenge for the TVET schools and the economy. The participants identified the Nigerian government’s limited support for TVET schools and its programs as issues negatively impacting both the quality of the skills of TVET graduates as well as the infrastructure and institutions. Such are the forces determining the health of the Nigerian economy.

The issues identified by the participants in this study concerning the Nigerian government’s limited level of support for TVET schools and programs are concentrated in five major areas: (a) inadequate funding for TVET schools and programs, (b) poor leadership and governance, (c) lack of vision and proper planning for TVET schools and programs, (d) lack of equipment/teaching and learning materials for TVET, and (e) lack of proper training and motivation for TVET and inadequate supervision for TVET students in industrial attachment/training.

The concern that Nigeria has not accorded priority attention to technical and vocational education and training (TVET) – perceived worldwide as an indispensable vehicle for effective socioeconomic transformation in both developed and developing nations (UNESCO-UNEVOC, 2010) – makes this descriptive mixed-methods study much more compelling. Findings show that the Nigerian government is not investing enough money in technical and vocational education and training (TVET) schools and
programs for the country’s economic growth and development. Such claims are supported by previous works in the topic (Anya, 2011; Okoye, 1999).

Inadequate funding for and lack of emphasis on technical and vocational education and skills training are among the reasons the society lacks highly skilled technical manpower. Evidence shows the government is not investing enough in technical and vocational education and science-based technology education. In addition, findings show lack of proper funding for technical and vocational education has affected R&D as well as technological innovation. Findings also show that the Nigerian economy is not performing well today because the educational system lacks emphasis on the acquisition of technical skills and knowledge. Evidence shows the economy will not move forward without enough of the citizens acquiring the necessary technical skills and knowledge as well as employability and entrepreneurial skills.

The education system was revised by the National Policy on Education (2004), leading to the integration of prevocational and technical subjects into the nation’s school curriculum at the junior-secondary level and full-blown vocational and technical subjects at the senior-secondary level (Ofoha, 2011). However, because of poor leadership and governance (as well as other problems already noted above) the efficacy of the new skill-based secondary-school curriculum, which was supposed to empower youths with employability and entrepreneurial skills, was in doubt (Awogbenle & Iwuamadi, 2010). When the program was finally assessed, it was revealed that the policy was poorly implemented (Ofoha, 2011).

The finding that there is inadequate funding for technical and vocational education and skills training (TVET) schools and programs is supported by previous
studies in the topic (Oni, 2006, 2008). Evidence shows that without adequate provision of learning and teaching materials, the TVET schools will lack the necessary equipment/tools and personnel for hands-on activities and will be unable to produce highly skilled technical manpower. For instance, data in Table 2, Item 5 (see Appendix F), show that 24 respondents (25.3%) agreed and 71 (74.7%) strongly agreed with the following statement: *There is inadequate provision of training/teaching materials in technical/vocational schools” because of lack of funding.* Also, data in Table 4, Item 13 (see Appendix F), indicate that 25 participants (26.3%) disagreed and 70 (73.7%) strongly disagreed with the following statement: *Government policies ensure adequate funding for TVET schools.* The conclusion drawn from the findings is the provision of adequate training and teaching materials for the TVET schools and programs is impossible without proper funding.

As mentioned earlier, another problem facing TVET in Nigeria is lack of supervision of students in industrial attachments. According to the findings, those sent out on one-year industrial attachments to various corporations and agencies are not being properly supervised by their schools and the individuals assigned to do the work. Such a finding is supported by both the participants’ anecdotes as well as statistical data from the survey questionnaire.

For example, data in Table 2, Item 7 (see Appendix F), show that 43 respondents (45.3%) disagreed and 52 (54.7%) strongly disagreed with the following statement: *Proper attention is given to industrial attachment/training.* Put differently, they did not agree that technical and vocational education and skills training students sent on one-year industrial attachment receive proper attention. As noted earlier, industrial attachment
provides students an opportunity to learn from experienced workers on the job. Obviously, this is one of the reasons graduates of TVET schools and programs in Nigeria are lacking the employability and entrepreneurial skills that would enable them to secure viable paid employment or become self-reliant.

Previous studies also found that without the provision of modern teaching and learning technologies, the TVET schools in Nigeria cannot produce advanced technical manpower and knowhow (Dike, 2009c). However, Hanushek’s (2005) work observed that advanced technical manpower and knowhow “may lead to higher rates of innovation and invention, make everybody more productive by helping firms introduce new production methods, and lead to more rapid introduction of new technologies” (p. 16). Nonfunctional infrastructure and regulatory institutions, as well as lack of employability and entrepreneurial skills, are noted as other bottlenecks to economic growth and development (Dogara, 2009).

**Result 3: Consequences of the Nigerian Government’s poor Investment in Human-capital Development**

Findings confirmed those of previous studies, which showed that the Nigerian government’s poor investment in human-capital development is a bottleneck to the socioeconomic development of the society (Anya, 2011; Dike, 2012). Participants in this study identified three issues as their major concerns: (a) a shortage of highly skilled technical manpower, (b) poor infrastructure and institutions, and (c) lack of employability and entrepreneurial skills among youths.

The responses of the participants to the eight semi-structured focus-group and personal-interview questions, as well as findings from the survey questionnaires, shed
more light on the widespread ill-conceived opinions and perceptions of Nigerians regarding technical and vocational education and skills training (TVET) schools and colleges (Dike, 2009a; Oni, 2006). Participant anecdotes and the results of the survey questionnaires demonstrated that the Nigerian government’s limited support for technical and vocational education and science-based technology education is among the major reasons for the shortage of highly skilled technical manpower in the society, the people’s low level of productivity, and Nigeria’s poor pace of economic growth and development.

For instance, data in Table 3, Item 8 (see Appendix F), show that 21 respondents (22.1%) disagreed and 74 (77.9%) strongly disagreed that a shortage of high-skilled technical manpower is not related to the poor patronage of TVET schools. Additionally, data in Table 3, Item 12 (see Appendix F), indicate that 15 respondents (15.8%) disagreed and 80 (84.2%) strongly disagreed that a shortage of high-skilled technical manpower does not affect the economy.

Also, data in Item 9, which dealt with the lack of highly skilled technical manpower and poor infrastructure and institutions, show that 40 respondents (42.1%) agreed and 55 (57.9%) strongly agreed that lack of highly skilled technical manpower means poor infrastructure and institutions. In addition, data in Item 10 show that 33 participants (34.8%) agreed and 61 (64.2%) strongly agreed that lack of employability skills prevents students/youths from securing paid employment. Relatedly, data in Item 11 show that 36 participants (37.9%) agreed and 59 (62.1%) strongly agreed that lack of entrepreneurial skills prevents students/youths from becoming self-reliant.

The participants’ survey responses (as seen from the statistical data) concur with the comments of the participants in the focus-group session and personal interviews as
well as previous works in this area (Maclean & Wilson, 2009; UNESCO & ILO, 2002; UNEVOC, 1996), confirming that the shortage of highly skilled technical manpower has the tendency to affect all facets of the Nigerian economy. Thus, because of the shortage of skilled manpower the society lacks competent bricklayers, carpenters, painters, auto mechanics, laboratory and pharmacy technicians, electrical/electronic technicians, and skilled vocational nurses (Dike, 2009c; Oni, 2006, 2008).

According to the participants, the agricultural sector is also a victim of the shortage of highly skilled technical manpower because toiling all day in the field with knives, hoes, and shovels would not feed the country’s 167 million or more people. Reports show that because of the shortage of technical manpower and technological capability, about 60% of the Nigerian population is farmers. Yet the nation cannot adequately feed its teeming population (The Economist, 2013). Thus, support of TVET is imperative because it would enable the society to train enough skilled technical manpower to engage in mechanized farming using tractors and other modern equipment and tools. Support of TVET would also enable the skilled technicians to build and maintain the critical infrastructure and institutions to drive the economy and create employment.

According to Lewis (2004), empowering the people with relevant job skills and knowledge would enhance their productivity and national development because the progress of any society lies on the quality of its education, institutions, infrastructure, and worker productivity (Lewis, 2004; see also Dike, 2012).

More than 90% of the respondents in this study agreed that the federal government of Nigeria is not investing enough on human-capital development, defined
here as education and health care. A significant number of participants in the focus group and personal interviews also agreed that the government is not doing enough to improve the image of technical and vocational education and skills training schools and programs. Participants’ opinions and perceptions almost unanimously agreed that “Nigeria invests less than one percent,” or thereabouts, of its GDP (Gross Domestic Product) “on human-capital development” (Mickel).

Participants concluded that since Nigeria is not investing enough in this important segment of the educational system, the economy will not be viable and the citizens, particularly the poorly educated youths, will be unable to acquire the necessary technical skills the 21st-century economy needs. The inability to acquire necessary skills will equally affect their productivity and their capability to compete effectively in the global market. The participants in this study added that “investment in human capital is a very strategic policy because it controls every facet of the economy” (Mickel).

The viewpoints of the respondents in this study are consistent with those of the ancient human- and social-capital thinkers such as Schumpeter (1942), Schultz (1993), and Becker (1993). Participant perspectives also reflect the works of contemporary thinkers such as Hanushek and Kym (1995) and Bell and Pavitt (1995), who confronted the issues of human-capital development and technical and vocational education for decades. Such scholars recognize the critical role human-capital and physical-capital development play in workers’ productive capabilities, the economic health and prosperity of a nation, and the overall living conditions of the people.

Human capital, as a term, was said to have been invented by Schultz (1961), in his seminal work Investment in Human Capital, to describe the contribution of education,
human capabilities, and technical skills to an individual workers’ productivity and future earnings. Schultz’s (1993) work, first published in 1961, dealt with increasing returns on investment in schooling. The concept of investment in human capital has brought about some changes in economic thought.

According to Schultz (1961), investment in human-capital development plays a pivotal role in a country’s economic development. Schultz (1961) stated that education enhances an individual’s ability to positively deal with disparity in changing economic conditions. In addition, he observed that human capital consists of the accumulation of all past investments in education, on-the-job training, and health (among other factors) which increase an individual’s productivity and earnings (Schultz, 1961, 1993).

Although Shultz (1961) coined the term *human capital*, Becker (1993), first published in 1964, is said to have popularized the concept. Thus, Becker is today widely known for his work on human-capital development. He observed that human-capital theory tends to draw a distinction between general education and specific training. In his 1964 seminal work, Becker found the key focus of human capital-theory is how education increases human productivity by improving human knowledge and skills and increases an individual worker’s productive capacity, future income, and lifetime earnings.

Given these findings, it can therefore be argued that the Nigerian government’s limited level of support for TVET, or its neglect of this important subsector of its educational system, has a far-reaching consequence on the health of the nation’s economy. In their meeting in Bonn, international experts of UNESCO (2004) recognized the importance of education in national development. They declared that “since
education is considered the key to effective development strategies, technical and vocational education and training must be the master key that can…improve the quality of life for all and help achieve sustainable development” (UNESCO, 2004, p. 107).

Nigeria’s scholars and analysts in the field of human-capital development and social-capital theory, taking a cue from the seminal works of Shultz and Becker, have observed that a worker’s productive capability is determined by many factors including human skills and ability, health, motivation, and job satisfaction. For instance, Anya (2011) and Dike (2012) noted that the majority of the sociopolitical and economic issues facing Nigeria today can be attributed to its poor investment in human-capital development and physical-capital development. The findings of this research are anchored on this perspective; no nation can talk about skilled technical manpower, technological innovation, planning, growth and development, and the creation of employment opportunities to improve the lives of citizens without bringing education (formal, non-formal, and informal) or learning into the equation (Perkins et al., 2001).

The shortage of technical manpower (this research emphasizes technical and vocational education and skills training) has the tendency to impede an individual’s productivity, national productivity, and the economic growth and development of a nation. Thus, human-resource development has an essential role to play in the economic health of a nation (Perkins et al., 2001). The participants in this study collectively gauged and assessed the distributive consequences of the Nigerian government’s limited level of support for TVET and its poor investment in human capital and thus concluded that they are inimical to national development.
Chapter 4 has systematically presented the findings of this descriptive mixed-methods study. In addition, it has displayed and blended both the qualitative and quantitative information of the study. A detailed analysis of the data and interpretation of the results was also presented.

Three main themes emerged from the study: (a) the poor status of technical and vocational education and skills training (TVET) schools and programs in Nigeria, (b) the Nigerian government’s limited level of support for TVET schools and programs, and (c) the consequences of the Nigerian government’s poor investment in human-capital development. The three major themes contained 12 sub-findings. After analyzing and evaluating the all data, this researcher was not disappointed by the results of the triangulation of both the qualitative and quantitative methods because they yielded powerful evidence as well as significant results.

Each of the sub-findings was discussed, and the results were interpreted and compared with previous studies on the topic. Participants strongly agreed there is a shortage of highly skilled technical manpower in Nigeria and that technical and vocational education and skills training (TVET) has the potential to train a good stock of highly skilled technical manpower, which could play an essential role in the socioeconomic development of a nation. Also, the findings show that the Nigerian government does not invest enough money in human-capital development, defined here as education and health, with particular attention given to technical and vocational education and training (TVET) schools and their programs. The findings noted that the neglect of this sector hampers the pace of the economic development of the nation.
In addition, the respondents in this study strongly agreed that the hallmark of TVET schools and colleges is their emphasis on empowering youths with employability and entrepreneurial skills, preparing them for the world of work by enabling them to secure paid employment or become self-reliant. The result of each sub-finding was discussed and interpreted, and the interpretations were ingrained in the findings of pertinent literature. Finally, the interpretations of the findings laid the foundation for the recommendations in Chapter 5.
Chapter 5: Conclusions and Recommendations

Introduction

Chapter 5 presents the conclusions and recommendations arrived at from an in-depth analysis of the findings of this descriptive mixed-methods study. It also presents suggestions for further studies. The three research questions guiding this study, presented in Chapter 1, are addressed herein by utilizing the results evolving from the aggregate data from the qualitative and quantitative analysis employed in this study, with reference to the pertinent literature on technical and vocational education and skills training (TVET). With an in-depth analysis of a combination of the eight focus-group and personal-interviews questions as well as the survey questionnaires, the researcher set out to understand – from the opinions and perceptions of Nigerians residing in the United States – the forces behind the Nigerian government’s limited level of support for technical and vocational education and skills training (TVET) in Nigeria.

Specifically, the purpose of this mixed-methods descriptive study was to discover the opinions and perceptions of Nigerians in the United States regarding the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and skills training (TVET) schools and programs. As noted earlier, TVET schools and programs are important parts of the general-education system in advanced economies because they have the potential to train a stock of highly skilled technical manpower needed for building and maintaining the infrastructure and institutions that drive an economy and enhance the pace of national development. Additionally, it shows that investment in human-capital development and in science-
based technology education leads to technological innovation and economic growth and development through research and development (R&D).

A majority of the previous studies on technical and vocational education and skills training (TVET) schools and programs in Nigeria were based on literature review and secondary data. Missing from previous research was an original study integrating the opinions and perceptions of Nigerians residing in the United States to discern the forces behind the Nigerian government’s limited level of support for technical and vocational education and skills training (TVET) in Nigeria. Such a study was unprecedented, making this descriptive mixed-methods study much more compelling.

Three main themes and 12 sub-findings emerged from the study after aggregating the viewpoints of the participants as they observed and discussed the problems facing technical and vocational education and skills training (TVET) schools and programs in Nigeria. The findings, recommendations, and conclusions are anchored on the themes that emerged from the study. The three main themes are as follows: (a) the poor status of technical and vocational education and skills training (TVET) schools and programs in Nigeria, (b) the Nigerian government’s limited level of support for TVET schools and programs, and (c) the consequences of the Nigerian government’s poor investment in human-capital development.

To understand the Nigerian experience, the findings and results of this study are situated within pertinent literature on TVET schools from countries that have benefitted from it socially and economically. The analysis of the three major themes and the sub-findings involved interpreting the challenges facing TVET schools in Nigeria. Such challenges include inadequate funding leading to a lack of teaching and learning
technologies, a lack of employability and entrepreneurial skills among youths, and skyrocketing youth unemployment and poverty. Other challenges include the lack of training, hiring, and motivating TVET teachers and instructors; a poor image of TVET schools and their students; and issues of social unacceptability. Yet more challenges include poor public patronage, low youth enrollment in the TVET schools and their programs, and a shortage of highly skilled technical manpower to build and maintain the infrastructure and institutions driving the Nigerian economy.

Conclusions drawn from the results and findings of the research questions are deeply rooted in the opinions and perceptions of the participants. Therefore, what follows is a discussion of the conclusions extrapolated from this descriptive mixed-methods study as well as answers to the three research questions guiding the study. The researcher provides recommendations on how to tackle the myriad challenges facing TVET schools and programs and the Nigerian economy, as well as recommendations for further research. This chapter ends with final thoughts on the study.

**Conclusions**

The focal point of this study was to explore the opinions and perceptions of Nigerians residing in the United States to discern the forces behind the Nigerian governments’ limited level of support for technical and vocational education and skills training (TVET) schools and programs in Nigeria. This study also sought to discover the consequences of such limited government support. The findings of this study provide the means to understand and appreciate Nigeria’s experience with TVET schools and their programs.
The three research questions guiding the study are as follows:

1. How do Nigerians residing in the United States describe the levels of support for TVET education by the Nigerian government?

2. What opinions do Nigerians residing in the United States have of the relationship between the government level of support for TVET and the shortage of highly skilled technical manpower?

3. What government interventions do they believe are needed to enhance acquisition of employability and entrepreneurial skills among students to improve the productivity of TVET graduates?

The three research questions formed the focal point of this descriptive mixed-methods study. It is also important to mention that eight supporting questions were discussed by participants in the focus-group session and personal interviews. Such questions are essential because their aggregate findings provide a holistic answer to the topic. However, Research Question 1 appears to be the center point for the study, as the study itself was designed to understand how Nigerians residing in the United States describe the limited level of Nigerian government’s support for TVET schools and their programs.

Five essential findings emerged from the discussion of the question: (a) inadequate funding for TVET schools and programs; (b) poor leadership, lack of vision, and improper planning for TVET schools and programs; (c) lack of equipment/teaching and learning materials for TVET; (d) lack of proper training and motivation for TVET teachers/instructors; and (e) inadequate supervision for TVET students in industrial
attachment/training. The findings generated significant data forming the foundation of the conclusions of this descriptive study.

Results and findings from Research Questions 2 and 3 also produced interesting and relevant data from the participants’ viewpoints. Conclusions emerging from Research Questions 2 and 3 strengthened the answers to Research Question 1. For instance, conclusions from Research Question 2 provided answers to the issues of low social acceptability for TVET schools/programs and poor public patronage of TVET, while conclusions to Research Questions 3 provided answers to the consequences stemming from the limited level of government support for TVET schools and programs – such as the shortage of highly skilled technical manpower, poor infrastructure and institutions, and the lack of employability and entrepreneurial skills among youths. The three research questions and their conclusions are interrelated; they support and reinforce each other. Each of the research questions, with the associated conclusions, is discussed below.

**Research Question 1: How do Nigerians residing in the United States describe the levels of Support for TVET Education by the Nigerian Government?**

Does the public perceive students who attend TVET schools as intelligent? One finding of the study was that the people look down on TVET students as inferior or not intelligent enough to attend regular secondary school. Others think they cannot withstand the rigors of regular university education. Students attending TVET schools are looked down upon as non-progressive and as failures academically.

A conclusion arrived at from this finding is that the limited government support (or absence of support) for TVET schools has consigned those attending the schools and
colleges to low social status. Such a stigma tends to prevent youths and parents from
taking the schools and their programs seriously. In addition, this leads to low youth
enrollment in TVET programs. The public’s misconception of TVET schools and
programs as academic failures may affect students’ learning capabilities, prevent the
schools and programs from attracting quality students and teachers/instructors, and thus
hinder the growth and success of the schools and their programs.

Evidence shows that such opinions and perceptions are completely wrong; many
of the TVET graduates have moved on to the University and earned higher degrees.
Other talented individuals started practicing one form of vocational trade or another
immediately after graduation because the skills and knowledge they acquired empowered
them to be creative, innovative, and self-reliant. The skills and knowledge acquired from
TVET schools and programs enabled some to establish their own workshops as well as
cottage industries at their homes or at rented properties.

**Do most parents/guardians prefer sending their children/wards to TVET
schools?** Another major finding of this study was that most parents in Nigeria only send
their children/wards to TVET schools as a last resort because of its poor public image.
As a result, most parents want their children/wards to attend regular secondary schools as
well as the University and become real professionals. Findings show that a majority of
parents want their children to become doctors, lawyers, accountants, teachers, or any
other big-name careers recognized by the society.

A conclusion extrapolated from the findings is that the failure of the government
to give technical and vocational education and training schools and programs the
attention they deserve is among the major forces behind the poor patronage of TVET
schools and programs in Nigeria. Lack of proper information or awareness about the importance of the TVET schools and programs may have caused the “confusion and distrust” (Agnes) in the society. In addition, distrust is one of the major forces behind the poor patronage of TVET schools and programs and their low social status in Nigeria.

**Is there inadequate provision of training/teaching materials in technical/vocational schools?** Another significant finding of the study showed there is an inadequate provision of learning and teaching materials in technical and vocational schools and programs in Nigeria. Also, teachers in TVET schools are the least respected in the teaching profession; thus, the reason for their lower social standing. In particular, the TVET teachers are not properly motivated in terms of payment of salaries and benefits when compared to their counterparts with the same qualification in the university system. More often than not, the teachers are not paid their basic salaries for months, negatively affecting their morale and productivity. They cannot perform their duties to the students effectively without proper motivation and the provision of necessary learning and teaching tools and equipment.

A conclusion drawn from such facts is that the lack of provision of modern teaching and learning technologies has prevented the teachers from producing high-quality graduates. Another conclusion is that such deficiencies have posed real challenges to teaching and learning in the institutions. The teachers and students cannot perform miracles without the necessary learning and teaching resources. One way to improve the productivity of the nation’s TVET teachers is to provide better conditions of services (train them well and update their skills) and adequate funding for the TVET
institutions to procure the needed teaching and learning tools. Such provisions will boost their morale and increase their productivity.

**Is there adequate provision of equipment/tools for hands-on activities?** One of the significant findings of this study is the government does not ensure adequate funding (as noted above) or provide the necessary equipment and tools in the labs for practical application the lessons learned in the classroom. Findings show that local TVET schools lack enough workshops and laboratories. The few that are available are not functional because they are not properly maintained. Findings show that workshop activities directed by well-trained and competent technicians ensure that students acquire the necessary technical skills enabling them to move forward in life.

It can be concluded that under such sordid working conditions, teachers at the technical schools will only produce low-quality technicians who cannot compete effectively with high-quality foreign-trained technicians. Another conclusion one can draw is that the TVET institutions are producing what are locally branded as half-baked technicians. If such technicians are unskilled, it is because they lack the tools and equipment needed to produce the highly skilled technical manpower that can build and maintain the nation’s infrastructure and institutions driving the economy.

The problem is that Nigeria cannot compete effectively in the knowledge-driven 21st-century global economy without producing highly skilled technical manpower and acquiring technological capability. Findings show that TVET schools and science-based technology education hold the key to Nigeria’s development programs. Thus, the society cannot become an industrialized nation without technological capability.
Is proper attention given to industrial attachment/training? Findings show that students sent on regular one-year industrial attachments to firms and industries to acquire on-the-job training are not properly supervised by those assigned to monitor the in-service training programs. Findings show that since the students and teachers at the local TVET schools are facing serious challenges of limited resources, such as lack of proper funding and provision of learning and teaching tools and equipment, the need to send TVET students to actual industrial sites where they can learn from experts in their chosen trade becomes imperative. But the purpose is defeated if they are not properly supervised to ensure they are really learning.

Thus, the main purpose of industrial attachment or training, as participants have noted, is to expose students to real working conditions and afford them the opportunity to learn from experienced and knowledgeable individuals actually doing the work. As one study participant noted:

During the period of apprenticeship, the young ones would serve under individuals who were experts in one vocation or the other, so as to learn their trade and became self-reliant. The students who have the talent would learn and develop into renowned entrepreneurs; this would enable them to set up their own small business enterprises, improve their own living conditions, and at same time create employment for others. (Agnes)

The conclusion drawn from this statement is that most of the students who are not properly supervised at the industrial training site end up not acquiring the technical and practical skills the internships were meant to provide. Without acquiring the specific technical skills they need, they cannot become effective on the job after graduation. Worse, failure to track the progress of the students sent out on industrial training would
render the program ineffective because the fund allocated to it and the energy and efforts dissipated in planning the program would be a waste.

**Research Question 2: What opinions do Nigerians resident in the United States have of the relationship between the government level of support for TVET and the shortage of highly-skilled technical manpower?**

**Is the shortage of high-skilled technical manpower not related to the poor patronage of TVET schools?** One of the major findings of this study is that a shortage of highly skilled technical manpower is related to the poor patronage of TVET schools and colleges in Nigeria. A conclusion drawn from this finding is as long as the poor patronage of TVET schools and programs remains, there will always be a shortage of highly skilled technical manpower in the society. The consequence of this shortage will be enormous because it affects all facets of the Nigerian economy. For instance, a shortage of highly skilled technical manpower will affect the infrastructure and institutions driving the economy because they will not be maintained.

Another conclusion that can be drawn is that the society will face a shortage of technical manpower to tackle the problems facing the agricultural sector. With a shortage of highly skilled workers, the nation will not have the technical manpower to produce enough food for the population and to create employment for the millions of unemployed youths in the society. The participants concluded that highly skilled technical manpower would enable an economy to become productive because higher productivity gives a nation the advantage of economies of scale, which would lower the costs of production as well as the prices of its goods and services.

**Does the lack of highly skilled technical manpower mean poor infrastructure and institutions?** The recursive nature of this study causes an issue to reappear. As
noted earlier, findings show that lack of highly skilled technical manpower mean poor infrastructure and institutions. A conclusion deduced from this is the provision of highly skilled technical manpower would enable the society to build and maintain the critical infrastructure and institutions to drive the economy and create employment for its citizens. Empowering the people with relevant technical skills and knowledge would enhance their productivity and national development because the progress of any society lies on the quality of its education, the health of its institutions and infrastructure, and the workers’ productivity. Put differently, the conclusion can be drawn that the economic progress of any society depends on the effectiveness of its institutions and infrastructure.

**Does lack of employability and entrepreneurial skills prevent students/youths from securing paid employment or being self-reliant?** One of the significant findings of this study is that a majority of Nigerian youths lack employability and entrepreneurial skills. The citizens of any nation are expected to acquire certain levels of employability and entrepreneurial skills to function well in the 21st-century economy. One of the participants in the study noted that “the skills and knowledge acquired in this area are needed to build and maintain the nation’s dilapidated infrastructure (roads, bridges, electricity/power, and others), which drive the economy” (Okezie).

Findings show that those who acquire technical skills through technical and vocational education and training can become experts in house building, carpentry work, auto mechanics, contractors of all shields, and entrepreneurs; thus, they become self-employed and make a decent living. Some of the participants in the study lived through this experience. A conclusion can be drawn that this lack of employability and entrepreneurial skills prevents youths from being creative and innovative. Also, it
hampers their ability to secure paid employment, become self-reliant, and create employment for others.

Findings show that for youths to contribute meaningfully to national development, they should be empowered with employability and entrepreneurial skills. Such skills enable them to improve their productivity and compete effectively in both the domestic and global economy. A lack of employability skills will keep youths unemployed for a long time. As a result, some of them can begin to criminally innovate to make ends meet. A majority of the participants in this study noted that many of the unemployed youths in Nigeria today are involved in one form of criminal activity or another, such as kidnapping for ransom and petty theft to make a living.

**Research Question 3: What government interventions do they believe are needed to enhance acquisition of employability and entrepreneurial skills among students in order to improve the productivity of TVET graduates?**

**Do government policies ensure adequate funding for TVET schools?**

As noted in Chapter 4, findings show that the Nigerian government’s policy does not ensure adequate funding for TVET schools. Also, it shows that the government is not investing enough money in human-capital development (education and health), particularly in technical and vocational education and training (TVET) schools and their programs. As mentioned in previous sections, this prevents youths from acquiring the employability and entrepreneurial skills that will enable them to become self-employed.

In addition, findings show that in the past technical and vocational education and training (TVET) schools and programs were well funded and properly equipped with tools and equipment to teach students how to apply what they learned in the classroom on the job. Also, adequate funding for TVET schools enables the institutions to hire and
retain teachers who are experts in their subject matter. With their anecdotes, participants described how the government used to send secondary-school graduates abroad to acquire technical skills, which helped to boost the economy. But “things have fallen apart” (Agnes), and TVET schools are neglected. Some participants described the conditions of Nigeria’s technical and vocational education and skills training schools as horrible because they lack adequate funding from the federal government and the private sector. As a result, they cannot maintain the structures, properly motivate the teachers, and procure teaching and learning materials.

Many forces have contributed to the sordid condition of things at the TVET institutions. Such forces include corruption, lack of vision on the part of the leaders, and lack of effective strategic planning and policy for the growth and development of the economy. Findings show that the political leaders do not serve the people; they care only about what gets into their own pockets.

A conclusion can be drawn that the Nigerian economy lacks the necessary driver, such as functional infrastructure and institutions, which keeps the economy vibrant. Therefore, participants argued that without investing abundantly in technical and science-based technology education, Nigeria will be unable to train enough technical manpower to drive the economy. As a result, the economy will remain weak and unproductive.

Another conclusion can be drawn that without adequate funding for TVET schools, they will be devoid of financial resources to upgrade programs and acquire modern teaching and learning equipment and tools to empower the students with technical skills. Consequently, most of the schools will continue to use obsolete technology incapable of providing the graduates the type of technical skills they need to
forge ahead in the 21st-century economy. Findings show that no economy, even the advanced economies, will work effectively and efficiently without a good stock of highly skilled technical manpower. Therefore, effective government policy toward TVET institutions is imperative.

Does the government equip public TVET schools with modern teaching and learning technologies; does the government ensure that highly skilled technical teachers/educators are employed at the TVET schools; and are TVET teachers satisfied with their salaries and promotional opportunities? As noted earlier, the recursive nature of this study causes an issue to come around 360 degrees. Therefore, it is necessary to mention that the following concerns have been discussed in the preceding sections: government policy does not ensure highly skilled technical teachers/educators are employed at the TVET schools, the government does not equip public TVET schools with modern teaching and learning technologies, and TVET teachers are not satisfied with their salaries and promotional opportunities (also see Appendix F, Table 4, Items 14 through 16). Thus, it suffices to add here that a majority of participants in the focus-group session and the personal interviews observed that the “poor working conditions facing TVET teachers paint the picture of inequality between the technical education teachers and their counterparts in the university system” (Nicole).

A conclusion can be drawn from the findings that the poor working conditions negatively affect the morale and productivity of the TVET teachers and the quality of graduates they produce. Also, the sordid conditions have negative implications on the growth and development of the Nigerian economy. Therefore, bridging the gap in salary, benefits, and promotional opportunities between the teachers working at the technical
educational institutions and those at the university system is imperative. As Guthrie, Harris, Simons, and Karmel (2009) observed:

TVET teachers have to be seen and acknowledged as the professionals they are, given their crucial role in sustaining and developing the skills of their nations’ workforces, and this means that their status and levels of reward in some societies need to be addressed. (p. 861)

Do holders of Higher National Diploma (HND) working in the public sector receive pay and promotional opportunities equal to their counterparts with Bachelor’s Degrees? Findings show that the working conditions of those holding higher national diploma (HND) in the public sector, such as pay and promotional opportunities, are different from that of their counterparts with Bachelor’s Degrees from the university. A majority of participants in the focus group and personal interviews strongly disagreed that holders of Higher National Diploma (HND) working in the public sector receive pay and promotional opportunities equal to their counterparts with Bachelor’s Degrees. (Also see Appendix F for statistical data in Table 4, Item 17).

The graduates of technical and vocational schools and colleges with HND (a four-year program) who joined the civil service and expected to receive the same pay scale and equal promotional opportunities commensurate with those of BA/BSc holders are always disappointed and discouraged, in spite of the fact that they are all four-year programs. Worse, HND holders are also not offered direct admission into the University to pursue their graduate program like their counterparts with BA/BSc degrees. They are required to take extra courses/classes before they are admitted to pursue their graduate studies. Such obstacles hinder the academic progress of HND graduates. Some of the
HND holders have abandoned their diplomas (or left their jobs) in frustration and went to the University to start from scratch to earn a BA/BSc and higher degrees.

David, a participant in one of the personal interviews, told the story of how one of the locally trained technicians working in his unit at the NNPC could not withstand the humiliation and frustration of being looked down upon as inferior to the technicians imported from abroad. As a result, he quit his job and went to London to continue his education and earned a Ph.D. in Petroleum Engineering before returning to Nigeria to become a university professor. Such an anecdote is the tip of the iceberg of the problem this group is facing in Nigeria.

A conclusion can be drawn that the federal government should remove the pay disparity and harmonize the working conditions of HND holders and BA/BSc graduates. Also, the conditions of admission into the university should be equalized for qualified HND holders who want to pursue their graduate studies. Another conclusion is that the humiliations (low social status, among others) they face after graduation prevents others from enrolling in the colleges of technology because their skills are not recognized in the society.

Conclusions drawn from this study have enabled us to understand the Nigerian experience with technical and vocational education and skills training (TVET) schools as well as the issues facing graduates of colleges of technology in Nigeria. The opinions and perceptions of the participants in this study may change the attitude of the government toward TVET education and reorient the mentality of the society at large. Resolving the challenges facing TVET schools and colleges and those facing the Nigerian economy is imperative. Resolving such challenges demands a new and better
leadership and governance, vision and planning strategy, and adopting a better method of managing the enormous human and financial resources available in the society.

**Recommendations**

Findings show that the Nigerian government’s poor investment in human-capital development and, in particular, its limited level of support for technical and vocational education and skills training (TVET) and science-based technology education have contributed to the shortage of highly skilled technical manpower in Nigeria. Such lack of support has also led to the dilapidated conditions of the nation’s infrastructure and institutions driving the economy. The society cannot build and maintain the structures while lacking the highly skilled technical manpower required to so.

Recommendations offered here are primarily to assist the Nigerian government, as well as the administrators of the local TVET institutions and colleges of technology, in better policy formulation and implementation. This section also provides recommendations for further study. The recommendations given here are based on the findings from the survey questionnaire, the focus group, and the personal interviews conducted with Nigerians residing in the United States. Individuals in different research settings may have additional recommendations, given their unique experiences and circumstances.

**Recommendations for Political Leaders and Policymakers**

The need to understand the Nigerian experience with technical and vocational education and skills training (TVET) schools and programs has made this research much more important. The findings of this study are expected to enable the leaders and
policymakers to formulate and implement appropriate policy toward TVET schools in Nigeria. The leaders and TVET policymakers in Nigeria are encouraged to consider the following recommendations, which are by no means exhaustive:

1. Adequate funding for TVET schools: Although education in Nigeria is generally underfunded, technical and vocational education and skills training (TVET) schools and colleges are grossly affected. The TVET schools and their programs cannot produce highly skilled and competent technicians without adequate funding or financial wherewithal.

2. Laundering image of TVET schools: As the participants suggested, the government and the major stakeholders of TVET schools and colleges should join hands and launder the image of technical and vocational education and skills training (TVET) schools. It is imperative to raise awareness of the role the institutions play in training highly skilled technical manpower in the society.

3. Motivating TEVT teachers and instructors: Qualified teachers employed at the technical and vocational education facilities should be properly motivated. The teachers should be well motivated by way of better payment of salaries, benefits, and promotional opportunities commensurate with those of their counterparts in the university system. Such motivations will enable the local TVET schools to attract and retain high-quality teachers and instructors.

4. Providing adequate training for TVET teachers: TVET teachers should be properly trained in their subject matter and in the use of modern teaching and learning technologies. Also, the government should ensure the TVET schools
get adequate funding, enabling the teachers to upgrade their teaching methods and technical skills through professional development.

5. Taming corruption and resource mismanagement: Embezzlement of public funds is a common occurrence in the society. More often than not, the funds allocated to TVET schools and colleges are mismanaged by corrupt school administrators and political leaders.

6. Changing public mentality toward TVET: Political leaders and policymakers should change their attitude toward technical and vocational education. A change in attitude will enable them to give this subsector of the educational system the attention it deserves and to change the mindsets of parents and youths toward TVET schools and their programs.

7. Providing stipends for needy TVET students and low-cost loans to new graduates: According to the participants, this will help to attract poor but qualified students to patronize TVET schools. The government should also make low-cost loans available to local TVET school graduates to enable those with entrepreneurial skills and talents to setup their own small-scale enterprises.

8. Raising awareness about the importance of technical and technology education: It is important to define the importance of technical and technological education. In addition, raising awareness will help dispel the incorrect notion that TVET schools and programs are for those who are academically inferior.
9. Adequate investment in human-capital development: Findings show that the Nigerian government does not invest enough in human-capital development. Without adequate and long-term investment in human-capital and physical-capital development, the society will face dire a shortage of highly skilled technical manpower. Such a shortage will also hamper the growth and development of the economy and Nigeria’s quest to become an industrialized nation.

10. Mixture of TVET programs with entrepreneurial skills development: The local TVET schools and colleges should include a good dose of entrepreneurial and employability skills training and development in their curriculum to give their graduates the technical skills to become creative, innovative, and self-reliant.

**Recommendations for Further Studies**

This researcher recommends that additional study be conducted in a different setting to provide further information relating to the findings and conclusions of this descriptive mixed-methods study. This study was conducted on Nigerians residing in the United States and should therefore be replicated on Nigerians residing in Nigeria to see whether it will produce additional information about the challenges facing TVET schools in Nigeria.

In addition, further studies should focus on the implication of the social unacceptability of TVET skills, the poor patronage of TVET schools and their programs, and the implications of the shortage of highly skilled technical manpower in the society.
Despite its limitations, this researcher believes this study has expanded the frontier of knowledge by adding to the existing literature on TVET schools and programs in Nigeria.

**Overall Summary**

This chapter highlighted and reiterated the purpose of the research as well as its problem. In addition, it described how it arrived at its conclusions, recommendations, and suggestions for further study. The recommendations were developed out of the research findings and conclusions. Efforts to understand the Nigerian experience with TVET schools and their programs propelled this researcher to analyze the opinions and perceptions of Nigerians residing in the United States regarding the consequences stemming from the Nigerian government’s limited level of support for TVET schools and programs.

This chapter noted that the findings show the local TVET institutions lack adequate funding, modern teaching and learning technologies, and functional workshops for practical application of the lessons learned in the classroom. They also lack well-trained and properly motivated teachers and instructors. This study emphasized that TVET teachers in Nigeria are poorly paid and, more often than not, the government is months behind in the payment of their salaries and benefits. The major consequences of these problems are low morale of the teachers, low productivity, a shortage of highly skilled technical manpower, poor infrastructure and institutions, and a lack of employability and entrepreneurial skills among youths. All these consequences have negative implications for the Nigerian economy and the people’s living conditions.

As the long trip through this study comes to an end, this researcher reflects on the numerous anecdotes of the participants. Mickel (an economist) observed:
Nigeria cannot do so much economically without a good number of people with highly skilled technical manpower…people with the knowledge and skill to move the economy forward. Nigeria cannot become an industrialized society without investment in human-capital and physical-capital development, as well as producing a good stock of highly skilled technical manpower and acquiring technological capability.

Given this observation and similar stories from other participants, this researcher wonders why the Nigerian government has failed to adequately invest in human-capital development and to properly fund TVET schools and science-based technology education. This researcher cannot fail to express his gratitude to the participants in this study for acknowledging that Nigeria’s quest to become an industrialized nation can be achieved only if the leaders and policymakers focus on long-term investment in human-capital development and on good leadership and governance. Without a major shift in the government’s policies, values, beliefs, and attitudes toward TVET schools and colleges, Nigeria will continue to dream of becoming an industrialized nation.
List of References


Appendix A: Proposed Protocol for Focus-Group Discussion

Time of Focus Group Interview:
Date:
Place:
Interviewer: Victor E. Dike
Focus Group Questions (semi-structured format)

1. Are you aware of the role of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria in empowering the youths with employability skills? If so, please describe.

2. Describe your experiences, if any, or that of somebody you know, with Technical and Vocational Education and Training (TVET) schools and programs in Nigeria.

3. From your opinion and perception, what is the state (I mean the condition of things) of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria’s educational system?

4. What is your opinion and perception about Technical and Vocational Education and Training (TVET) schools and programs in Nigeria? (I know you may have touched on these issues in the previous questions, but if you have anything to add, please do.)

5. How will the skills and knowledge acquired through Technical and Vocational Education and Training (TVET) schools and programs in Nigeria empower the graduates to gain viable paid employment or become self-employed?

6. How will you convince your children to enroll in Technical and Vocational Education and Training (TVET) schools and programs?

7. Is the Nigerian government investing enough money in human-capital development (education and health), particularly Technical and Vocational Education and Training (TVET) schools and programs?

8. We are down to the last question – number eight. The question is: What are your recommendations for improving the state (conditions) of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria?
Appendix B: Proposed Protocol for Individual Interviews

Time of Interview:
Date:
Place:
Interviewer: Victor E. Dike
Interview Questions (semi-structured format)

1. Are you aware of the role of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria in empowering the youths with employability skills? If so, please describe.

2. Describe your experiences, if any, or that of somebody you know, with Technical and Vocational Education and Training (TVET) schools and programs in Nigeria.

3. From your opinion and perception, what is the state (I mean the condition of things) of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria’s educational system?

4. What is your opinion and perception about Technical and Vocational Education and Training (TVET) schools and programs in Nigeria? (I know you may have touched on these issues in the previous questions, but if you have anything to add, please do.)

5. How will the skills and knowledge acquired through Technical and Vocational Education and Training (TVET) schools and programs in Nigeria empower the graduates to gain viable paid employment or become self-employed?

6. How will you convince your children to enroll in Technical and Vocational Education and Training (TVET) schools and programs?

7. Is the Nigerian government investing enough money in human-capital development (education and health), particularly Technical and Vocational Education and Training (TVET) schools and programs?

8. We are down to the last question – number eight. The question is: What are your recommendations for improving the state (conditions) of Technical and Vocational Education and Training (TVET) schools and programs in Nigeria?
Appendix C: Proposed Protocol for Survey Questionnaires

Please choose the best answers that apply to you and circle one correct Letter (A, B, C, or D, et cetera)

1. Your Age:
   A. 18-20
   B. 30-40
   C. 50-60
   D. 70-and above

2. Your Level of Education:
   A. Ordinary National Diploma (OND)
   B. Higher National Diploma (HND)
   C. Bachelor’s Degree
   D. Master’s Degree or Higher

Please show how strongly you agree or disagree with each statement or question below. Circle only one number on the 1-5 Likert scale. Five (5) on the scale stands for your strongest agreement and 1 means no agreement at all. Think about how the poor patronage of TVET schools and programs relates to the shortage of highly skilled technical manpower, poor infrastructure and institutions, lack of job and entrepreneurial skills among the youth, rising youth unemployment, and the growth and development of the Nigerian economy when reading the questions.

THE LIKERT SCALE

5 = Strongly Agree
4 = Agree
3 = Neutral or No Opinion
2 = Disagree
1= Strongly Disagree

Limited level of support for technical and vocational education and skills training (TVET) schools and programs in Nigeria

3. The public perceives as intelligent students who attend TVET schools
   5  4  3  2  1

4. Most parents/guardians prefer sending their children/wards to TVET schools.
   5  4  3  2  1
5. There is inadequate provision of training/teaching materials in technical/vocational schools

6. There is adequate provision of equipment/tools for hands-on activities

7. Proper attentions is given to industrial attachment/training

Shortage of highly skilled technical manpower and the growth and development of the Nigerian economy

8. Shortage of high-skilled technical manpower is not related to the poor patronage of TVET schools.

9. Lack of highly-skilled technical manpower means poor infrastructure and institutions.

10. Lack of employability skills prevents students/youths’ from securing paid Employment.

11. Lack of entrepreneurial skills prevents students/youths’ from being self-employed

12. Shortage of high-skilled technical manpower does not affect the economy.

Nigerian government’s policies towards technical and vocational education and skills training (TVET) schools and programs

13. Government policies ensure adequate funding for TVET schools.


15. Government ensures that highly skilled technical teachers/educators are employed at the TVET schools.

16. TVET teachers are satisfied with their salaries and promotional opportunities.

17. Holders of Higher National Diploma (HND) working in the public sector receive equal pay and promotional opportunities with their counterparts with Bachelor’s Degree.

Thank you!
Appendix D: Announcement to Prospective Interview Participants

As a doctoral student at Drexel University in the Educational Leadership and Management program, I am conducting a study of Technical and Vocational Education and Training (TVET): Understanding the Nigerian Experience. I would appreciate your input!

For this study, I would like to interview six (6) community organization/social club members individually and another six (6) community organization/social club members individually in a focus-group session.

The purpose of this mixed-methods descriptive-design study is to discover the opinions and perceptions of Nigerians in the United States (students, teachers, and other professionals) regarding the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs.

Your participation in this study is completely voluntary and your confidentiality will be strictly protected by any means possible. Please let me know by phone or email no later than September 30th if you are willing and available to participate in this study. Thank you very much for your kind consideration.

Victor E. Dike
Adjunct Faculty, National University (Sacramento Center)
(916) 267-5868
Vd79@drexel.edu
Appendix E: Announcement to Prospective Survey-Questionnaire Participants

As a doctoral student at Drexel University in the Educational Leadership and Management program, I am conducting a study of *Technical and Vocational Education and Training (TVET): Understanding the Nigerian Experience*. I would appreciate your input!

This survey questionnaire was particularly designed for this descriptive-design study.

The purpose of this mixed-methods descriptive-design study is to discover the opinions and perceptions of Nigerians in the United States (students, teachers, and other professionals) regarding the consequences stemming from the Nigerian government’s limited level of support for technical and vocational education and training (TVET) schools and programs.

Your participation in this study is completely voluntary and your confidentiality will be strictly protected by any means possible. Please return your survey no later than September 30th. Thank you very much for your kind consideration.

Victor E. Dike
Adjunct Faculty, National University (Sacramento Center)
(916) 267-5868
Vd79@drexel.edu
Appendix F: Tables

Table 1

**Participants’ Demography**

<table>
<thead>
<tr>
<th>Items</th>
<th>Demography</th>
<th>Frequency Count (F)</th>
<th>Percentage (%)</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Age</td>
<td>18-20</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>30-40</td>
<td>42</td>
<td>44.2</td>
<td>35</td>
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<tr>
<td></td>
<td>50-60</td>
<td>50</td>
<td>52.6</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>70-and above</td>
<td>03</td>
<td>03.2</td>
<td>70.5</td>
</tr>
<tr>
<td>2 Level Of Education</td>
<td>Ordinary National Diploma (OND)</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Higher National Diploma (HND)</td>
<td>08</td>
<td>08.4</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Bachelor’s Degree</td>
<td>36</td>
<td>37.9</td>
<td>-</td>
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<tr>
<td></td>
<td>Master’s Degree or Higher</td>
<td>51</td>
<td>53.7</td>
<td>-</td>
</tr>
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<td>Total</td>
<td></td>
<td>95</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

Total number of questionnaire distributed: n=120; total number returned: n=95 (79%).

Table 2

**Frequency Counts and Percentages showing limited Level of Support for Technical and Vocational Education and Skills Training (TVET) Schools and Programs in Nigeria**

<table>
<thead>
<tr>
<th>Items</th>
<th>Question</th>
<th>Frequency Counts and Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>The public perceives as intelligent students who attend TVET schools.</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>F (%)</td>
</tr>
<tr>
<td>4</td>
<td>Most parents/guardians prefer sending their children/wards to TVET schools.</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>There is inadequate provision of training/teaching materials in technical/vocational schools.</td>
<td>71</td>
</tr>
<tr>
<td>6</td>
<td>There is adequate provision of equipment/tools for hands-on activities.</td>
<td>44</td>
</tr>
<tr>
<td>7</td>
<td>Proper attention is given to industrial attachment/training.</td>
<td>43</td>
</tr>
</tbody>
</table>

Grading system-Likert Scale: 5= Strongly Agree; 4= Agree; 3= Neutral or No Opinion; 2= Disagree; 1= Strongly Disagree.

Total number of questionnaire distributed: n=120; total number returned: n=95 (79%).

**Key**: F=Frequency Count; %=Percentage.
Table 3

Frequency Counts and Percentages showing Shortage of Highly Skilled Technical Manpower and the Growth and Development of the Nigerian Economy

<table>
<thead>
<tr>
<th>Items</th>
<th>Question</th>
<th>Frequency Counts and Percentages</th>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Shortage of high-skilled technical manpower is not related to the poor patronage of TVET schools.</td>
<td>- - - -</td>
<td>21</td>
<td>22.1</td>
<td>74</td>
<td>77.9</td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>Lack of highly-skilled technical manpower means poor infrastructure and institutions.</td>
<td>55 57.9 40 42.1 - - -</td>
<td>95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Lack of employability skills prevents students/youths’ from securing paid employment.</td>
<td>61 64.2 33 34.8 - - -</td>
<td>95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Lack of entrepreneurial skills prevents students/youths’ from being self-employed.</td>
<td>59 62.1 36 37.9 - - -</td>
<td>95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Shortage of high-skilled technical manpower does not affect the economy</td>
<td>- - - -</td>
<td>15 15.8 80 84.2 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grading system – Likert Scale: 5= Strongly Agree; 4= Agree; 3= Neutral or No Opinion; 2= Disagree; 1= Strongly Disagree.
Total number of questionnaire distributed: n=120; total number returned: n=95 (79%).
Key: F=Frequency Count; %=Percentage.

Table 4

Frequency Counts and Percentages showing Nigerian Government’s Policies toward Technical and Vocational Education and Skills Training (TVET) Schools and Programs

<table>
<thead>
<tr>
<th>Items</th>
<th>Question</th>
<th>Frequency Counts and Percentages</th>
<th></th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Government policies ensure adequate funding for TVET schools.</td>
<td>25 26.3 70 73.7 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Government equips public TVET schools with modern teaching and learning technologies.</td>
<td>30 31.6 65 68.4 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Government ensures that highly skilled technical teachers/educators are employed at the TVET schools.</td>
<td>46 48.4 49 51.6 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>TVET teachers are satisfied with their salaries and promotional opportunities.</td>
<td>30 31.6 65 68.4 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Holders of Higher National Diploma (HND) working in the public sector receive equal pay and promotional opportunities with their counterparts with Bachelor’s Degree.</td>
<td>26 27.4 69 72.6 95</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grading system – Likert Scale: 5= Strongly Agree; 4= Agree; 3= Neutral or No Opinion; 2= Disagree; 1= Strongly Disagree.
Total number of questionnaire distributed: n=120; total number returned: n=95 (79%).
Key: F=Frequency Count; %=Percentage.