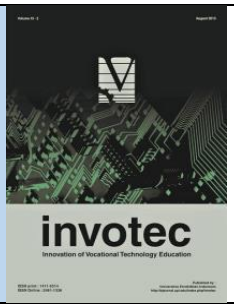
JURNAL UPI

Innovation of Vocational Technology Education

Available online at http://ejournal.upi.edu/index.php/invotec



Assessment of the Capacity Building Needs of Agricultural Science Teachers for Innovative Instructional Delivery in Secondary Schools in Rivers State, Nigeria

Anthony Imo Arthur Ekezie and Owo Offia Tugwell
Department of Vocational/Technology Education, Rivers State University, P. M. B. 5080 Port Harcourt, Nigeria

ARTICLE INFO

Article history:
Received: 12 June 2019
Received in revised form: 29 July 2019
Accepted: 25 August 2019
Available online: 31 August 2019

Keywords:
agricultural science,
capacity building,
innovative instruction,
teacher

Authors email:
offia.owo1@ust.edu.ng

ABSTRACT

The study was conducted to assess the capacity building needs of Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State, Nigeria. Descriptive survey research design with a sample of 28 Agricultural Science teachers drawn through purposive sampling from a population of 244 teachers in secondary schools drawn from both Andoni and Opobo/Nkoro Local Government Areas of Rivers State was used. Three research questions guided the study**.** A 20-item research instrument entitled "Capacity Building Needs of Agricultural Science Teachers Questionnaire (CBNASTQ)" was developed and used for the study. Likert 5-point mean rating scale was adopted. Cronbach's Alpha reliability method was used to determine the internal consistency of the CBNASTQ and a reliability coefficient of 0.81 was obtained. Mean and standard deviation were used to answer the research questions. The study revealed amongst others that Agricultural Science teachers need to improve on the skills acquired through continuous professional development. Based on the findings, it was recommended amongst others that Government should ensure the continuous capacity building of teachers through the organization of workshops, seminars, symposia, and conferences to enable them to interact with one another and acquire new skills.

1. Introduction

1.1 Significance of the main topics

Teaching is a profession that requires a great deal of competent personnel as teachers, instructors and administrators. Teachers and instructors who teach in secondary schools would not be able to give their best to the students unless they are competent in their job roles. Competencies can be used in human resource systems to identify actions that need to be taken to do a job well (Green 1999). Competency can be defined as an integrated set of personal characteristics, knowledge, skills, and attitudes needed for effective performance in various teaching contexts (Stoof

et al., 2002; Tigelaar, Dolmans et al., 2004). A competent teacher is one who has mastered the art of teaching, while an efficient teacher is one who can apply the art of teaching as instructed. An effective teacher is one who applies knowledge of the arts of teaching creatively and consequently enhances students' academic achievements. Therefore, effective instructional delivery in secondary schools demands teachers and instructors to have adequate competences to deliver instructions effectively to students. This is so true because they are the facilitators of learning and the students' achievements to a large extent is anchored on the competencies of the teachers. In relation to this, capacity building of teachers becomes very important since it serves to develop the teachers' competencies in diverse areas such as social, learning, technology-based competencies among others. Building teachers' capacities entails personal and professional development of the teachers for efficiency, effectiveness and quality knowledge transfer. Capacity building as defined by Fazekas and Burns (2011), is the process of helping local actors to acquire and use information relevant to successful policy implementation. Fullan (2011) posits that capacity building concerns competencies, resources and motivation. Individuals and groups who continuously develop their knowledge and skills by putting in so much time, energy and resources towards achieving improvement in their jobs and duties usually get things done effectively. And this is why building the teachers competencies as effective classroom managers, instructors and facilitators of learning is very crucial to the development of our educational system. In the school, the teacher is the main facilitator of teaching and learning activities. Teachers therefore, play an all-important role of stimulating and retaining students' interests in learning. They also integrate information coming from multiple sources and effectively utilize this information to solve teaching problems for the 21st century learners who are surrounded by so much distracting factors like internet, video games, mobile phones, and other digital media (Segers & Verhoeven, 2009). Teachers directly apply such teaching strategies like cooperative learning, inquiry learning and constructivist approach to help students think creatively and construct their own knowledge. These teachers need to update their knowledge to deliver quality instructions in the classroom. Quality instructional delivery cannot be realized in secondary schools without competent teachers. The success and development of every educational system as obtainable in any organization depends on the quality of its human and material resources. Of all these factors, the human resources appear to be the most important because without it, all other factors are inept. Human capacity building hinges absolutely on the educational system and of course, the teachers are the pivot of the education system.

Building capacities also entails building abilities, relationships and values that will enable organizations, groups and individuals to improve on their performances and achieve effectively, their developmental objectives. Building capacity include strengthening the processes, systems and rules that influence collective and individual behaviours and performances in all developmental endeavours. Capacity development therefore is seen a process of change directed towards managing transformations. Peoples' capacities, institutional capacities and societal capacities change over time (Ekpiken, 2015). Capacity building as defined by Osuji (2014) is the allocation and

investment of resources; physical, intellectual or human especially when other intervening variables have failed within a given institutional or social contest. Furthermore, Chukwu (2009) in his opinion identified capacity building as skills/developments and knowledge needed by groups in order to participate fully in the labour market. Within the context of systemic reform, capacity is the ability of the education system to help all students meet more challenging standards. Capacity building in the views of Peretemode and Peremode (2005) is any planned activities that focus on increasing and enlarging the capabilities of employees so that they can successfully have greater or assume higher positions in the organizational hierarchy to better handle current responsibilities. For the development and realization of educational goals, quality education transcends building teachers' capacity for knowledge, skills, and curriculum but should also include building teachers' welfare and empowerment. In every level of the education system, low morale and motivation often lead to poor teacher performance and invariably affect students' learning outcome (Udofot, 2005). Diverse approaches are available to enhance the Agricultural Science teachers' capacities such as training, formal education, capacity building projects, networking, seminars, conferences amongst others. A training workshop usually can go as far as building human capacities at an awareness raising level. The concept of capacity building has become an important word in education reform discourse internationally both in developed and emerging economies (Egbo, 2011). Capacity is the ability to understand or do something and building is an increase in the amount of something over a period of time. Capacity is the ability of individuals, organizations or systems to perform their functions effectively, efficiently and sustainably. Thus, capacity building is the process by which individuals, groups, organizations, institutions and societies increase their abilities to perform core functions, solve problems, define and achieve objectives. It is an avenue for individuals, groups, organizations, institutions and societies to increase their abilities to understand and deal with their developmental needs in a broad content and in a sustainable manner (Goldemberg & Reid, 1998). According to the United Nations Education Scientific and Cultural Organization (2005), capacity building has moved from being a focus to concern individuals, individual training, the development of institutions and recently to complex systems philosophy when individuals' capacities are linked with those of institutions and systems at large. Recently capacity building definitions emphasized the continuing process of strengthening of abilities to perform core functions, solve problems, define and achieve objectives and understand and deal with developmental needs (UNESCO, 2005). Capacity building in this context refers to a set of activities and processes geared towards improving the competencies and capacities of Agricultural science teachers for innovative instructional delivery in secondary schools. Capacity building of teachers enables them to offer students the learning opportunities that will prepare them to meet world class standards in a given content area and successfully assume adult responsibilities for citizenship and work. It also empowers the individual teacher and community of educators to make complex decisions, identify and solve problems, to connect theory, practice and student outcomes (Chukwu, 2009). When the teachers' capacities improve, their productivity increased. Thus, the more they acquire more professional training to grow on their job roles, the

better their ability to engage in innovative teaching which impacts the lives of the students. This invariably will lead to increase students' academic achievements. In building the capacity of Agricultural Science teachers in Rivers State, Nigeria, the strategy should embrace the UNCED's aspirations and focuses on the educational goals and needs as enshrined in the National Policy on Education of 2013. In the words of Fullan (2011), capacity building concerns competencies, resources and motivation. From the foregoing, Capacity building of teachers could be seen as a veritable tool that can enable teachers to offer students, the learning opportunities that will prepare them to meet world class standards in a given content area and successfully assume adult responsibilities for citizenship and work. Innovative teaching can be defined as any process leading to creative learning by the implementation of new ideas, methods, tools, and contents, which can benefit learners and facilitate active learning and creativity of students (Ferrari, Cachia, & Punie, 2009; Zhu, Wang, & Engels, 2013). People tend to have their own views of the meaning of innovative teaching (Ferrari, Cachia, & Punie, 2009; Slabbert, 1994). Some of these innovative teaching processes emphasized the need for the development of cognitive abilities or emotional aspects of students, while others stressed on the innovative aspects displayed by teachers, either by the use of new methods and techniques or by managing the classroom environment effectively (Amabile, 1989; Slabbert, 1994). According to Martin and Ramsden (1994), innovative teaching practices of teachers are related to their perceptions of teaching and learning. Teachers' perception of innovative teaching often guides their decisions in the classroom and influence many aspects of classroom management and coordination including the degree of students' autonomy, interaction, and assessment in the classroom (Stipek et al., 2001). Modern teaching and learning approaches affect the way young people learn and understand especially in this current world of technology. In order apply innovative teaching in instructional delivery, it is imperative for teachers (Agricultural Science teachers inclusive) to continuously strive to improve on their knowledge base, thinking patterns, and evaluation systems (Darling-Hammond & Snyder, 2000). The teacher is seen as the source of creativity and innovation to learners. This is because no matter how good the policies of an educational programme appear; its effective implementation lies on the teachers (Ng & Smith, 2004). Thus, teachers need to be able to promote students' learning by appropriate application of innovative teaching approaches.

Some of these innovative teaching strategies according to Redecker (2008) include student-centered learning and constructivist-oriented learning. Student-centered teaching and problem-based learning are seen as innovative teaching and learning strategies adopted by teachers to encourage students' usage of effective strategies for representing and processing new information in ways that lead to active learning and problem-solving (O'Sullivan, 2007; Whitman 1983). Young and Shaw (1999) are of the views that teaching should be sensitive to the individual student's self-concept and preferred role in the classroom**.** This means that Agricultural Science students needs to take responsibility for their learning through inquiry learning, collaborative learning, problem based learning, experiential learning, industrial visitations, amongst others.

The performance of Agricultural Science students in Nigerian secondary schools today are nothing to write home about in terms of practical skills acquisition in agricultural education practices. This can be seen in the students' nonchalant attitude to farming, fishing, and other Agro-based occupations. Many investigations by experts in the field of Agricultural education revealed that secondary school students are currently exhibiting dwindling interests in Agriculture (Esiobu, 2005). The colossal failure of students in the country's educational institutions is a clear indication of the fact that there are significant problems within the educational system. However, students' achievement in Agricultural Science depends on the teachers whose performances depend on their capacity and competence. According to Egbo (2011), there is a general perception that a significant number of Nigerian teachers are not well-equipped to deliver quality education for a number of interconnected reasons such as training-related issues, educational policy, educational structure, curricular, infrastructural limitations, low morale amongst others. This implies that students in Nigeria are not receiving the kind of education that will prepare them for lifelong global educational competitiveness of the 21st century that demands innovativeness, creativity, critical thinking, information communication technologies, ingenuity, adaptability and transferable skills acquisition (Egbo, 2011).

1.2 Previously related studies

In a related study by Koster et al. (2005), teacher competency is divided into five categories: Domain-specific knowledge, communication, organization, pedagogy, and attitude. Each competency can have several behavioral indicators which can be utilized for effective instructional delivery in classrooms.in the views of Luo and Li (1997), these competencies are manifested through teachers' teaching activities and behaviors in the classroom. That is, whether the teacher is competent in a particular area or not is demonstrated naturally while teaching. Some categories of individual characteristics are considered to underlie specific competencies and thereby contribute to effective performance (Luo & Li, 1997). According to Egbo (2011), different areas of capacity building in educational system include:

1.2.1 Building capacity for educational policy

Nigerian Government is aware of the need to engage qualified and competent teachers in relevant fields for the achievement of its national development objectives as well as meeting its commitment to international initiatives as Education for All (EFA), geared towards the achievement of basic education 2015, and the Millennium Development Goals 2020 projects. In view of this, the importance of capacity building of teachers in developing a viable, sustainable education system cannot be over-stressed. According to the Federal Republic of Nigeria (2013), all teachers in educational institutions across the country should be undergo mandatory professional development to be effective and productive in their duties. Furthermore, other Federal Government training institutions such as the National Economic Empowerment and Development Strategy (NEEDS) also

emphasized the importance of capacity building of teachers in education for increased productivity. According to Osuji (2014:10), all programmes for enhancing teachers' capacities and competencies for educational sustainability in Nigeria should focus on:

- Developing survival skills, becoming competent in basic skills and expanding teacher's instructional flexibility.
- Acquiring instructional expertise.
- Contributing to the professional growth of their colleagues.
- Exercising leadership in decision making for effective implementation of educational policies.

Therefore, effective capacity building of teachers' calls for those who are charged with teaching the nation's children, subsequently implementing the educational policies at all levels of the educational system should be treated with principles of social justice with their counterpart in other professions and organization (Osuji, 2014).

1.2.2 Building teacher's knowledge and skills

Building teachers knowledge and skills is a crucial component of change and reform in education. Teachers need knowledge of subject matter, curriculum, students and subject-specific pedagogy in order to impact and help students to learn effectively. To do this, teachers' dimensions of capacity building have to be understood because the new global standards for education calls for the students to acquire deeper thinking and problem solving abilities, creativity and entrepreneurial skills. To help the students reach these new standards, Nigerian teachers must have a deeper and more flexible base than is needed for basic skills. In traditional in-service programs, while skills and knowledge interact and develop together, researchers have demonstrated a considerable gap between teacher's beliefs, (his disposition) about how they should be teaching to satisfy new educational reforms and their abilities to actually put it into practice (Federal Government of Nigeria, 2004). Enacting educational reforms requires a disposition to meet new students learning and to make a necessary change in the teacher's pedagogy. However, despite the extensive policy enactment and legislation, teacher education, and the teaching profession generally in Nigeria remain problematic. Therefore, it is pertinent to include teachers' capacity building as one of the requisite conditions for teacher certification and licensure (Egbo, 2011).

1.2.3 Curriculum and instruction (Pedagogy)

Like the focus on building teachers' capacity in knowledge and skills, improving the curriculum and instruction to reflect the present day global economy, serves as an essential strategy for bridging the gap in Nigerian educational system. In Nigerian school system today, some teachers have continued to adhere to the traditional pedagogical orientations that are based on learning skill. Some have not changed their orientation of role performances as simply transmitting their official knowledge to students, stressing that they are mandated to teach. Sometimes those who want to adopt empowering strategies as routine practices are constrained by lack of the pedagogical

knowledge to do so (Egbo, 2011). Teachers should be seen as facilitators in classrooms thereby providing opportunities for students to construct their own learning.

1.2.4 Provision of modern infrastructure

Capacity building of teachers goes with the availability of infrastructures for the teachers to teach effectively. For quality delivery of educational goals and sustainable development of Nigerian school system, the availability of modern infrastructures to meet the standard based reforms is imperative. Most of the facilities and educational infrastructures in most of the Nigerian institutions are dilapidated and absolute. Although a lot of improvements have been made by some state governments to upgrade these infrastructures, much is also needed especially in most of public owned schools in local/rural areas where some teachers have no chairs, tables, staffrooms, unequipped or no laboratories, libraries, lack of ICT's, Agricultural farms and lack of electricity etc. Building teachers' capacity means that policy makers/stakeholders in education must provide the necessary resource materials that are required to teach effectively by the teachers. Given the prevailing learning conditions of our educational institutions, it should not be surprising that there is a gap in educational policy and practice in Nigerian educational system.

1.2.5 Building of organizational capacity

Teachers practice and effectiveness is shaped in part by the contexts (society/community) in which they work and learn including the communities formed by their relationships with other professionals inside and outside the school system. There is an interdependence of organizational, structural and individual capacities of the teachers which implies that reform strategies should seek to build organizational capacity of various educational institutions and the stakeholders/organizations responsible for quality to bridge the gap in educational policies aimed at promoting the teachers' capacity building. The organizational development in educational sector should be concerned with the elaboration of management structures, processes and procedures, not only within the school system but also the management relationship between the different educational organizations and sector (i.e. public, private and community) through partnership, networking. Institutional and legal framework development should be strengthened by making legal and regulatory changes to enable these stakeholders, organization, institutions and agencies at all levels to enhance their capacity in coping with the challenges. Doing this, they will also have the capacity to develop and impact on human resources (teachers) in the educational system. Building organizational/institutional capacity will help to develop in the teachers a community of practice that will facilitate the sustainability of the programmes/policies and their results.

1.2.6 Building teacher's capacity through welfare and empowerment

For the development and realization of educational goals, quality education transcends building teachers' capacity for knowledge, skills, and curriculum but should also include building teachers' welfare and empowerment. Nigerian teachers are the most traumatized and the most de-

motivated in the world from the primary to the tertiary level. They are de-motivated right from the time they were recruited into the profession through their training to the period of deployment. Even when they retire from the service they are not paid their retirement entitlement. This phenomenon does not only affect the job performance of the Nigerian teacher but also pose serious mental stress to the affected persons. If it is true that the teacher is the key person in the education system whose training could mar or improve the education results, it could be argued that the much talked about qualitative education in Nigeria now and in future would be an illusion if the conditions of service of the teachers are not improved. Building the teachers' capacity therefore goes with the availability of infrastructures for effective teaching. Hence, building Agricultural Science teachers' capacity in knowledge and skills may translate into effective instructional delivery in Agricultural Science.

1.3 Purpose and research gap of the study

The study was conducted to determine the capacity building needs of Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State. By implication, the study tries to assess different competencies possessed by Agricultural Science teachers for quality innovative teaching in Secondary Schools in Rivers State. Prior to this time, several studies have been carried out by different authors on teachers' competencies and need for their professional development through capacity building in different geographical locations and on diverse subjects and contexts. However, none of these previous studies was carried out on the capacity building needs of Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State, South-South geopolitical zone of Nigeria. Therefore, the need for Agricultural Science teachers in secondary schools in Rivers State of Nigeria to embrace professional development to improve on their competencies to deliver effectively, innovative instructions to students is the missing link that necessitates this present study titled "Assessment of the Capacity Building Needs of Agricultural Science Teachers for Innovative Instructional Delivery in Secondary Schools in Rivers State".

1.4 Research questions

- What are the technology competencies needed by Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State?
- What are the social competencies needed by Agricultural science teachers for innovative instructional delivery in secondary schools in Rivers State?
- What are the learning competencies needed for innovative instructional deliver agricultural teachers in secondary schools in Rivers State?

2. Materials and Methods

The study adopted descriptive survey research design. This design was considered suitable for the study because questionnaire was used to collect data from Agricultural Science Teachers. The population of the study was 36 Agricultural Science Teachers obtained from the 17 Secondary Schools in Andoni and Opobo/Nkoro Local Government Areas of Rivers State. Out of the 17 schools in these two Local Government Areas, 13 of them (10 in Andoni and 3 in Opobo/Nkoro Local Government Areas in Rivers State) are used for the study. Purposive sampling technique was used to select 28 Agricultural Science teachers from the study population and used as the study sample. A 20-item instrument titled "Capacity Building Needs of Agricultural Science Teachers Questionnaire (CBASTQ)" was developed by the researchers and used for data collection. The test instrument which was composed on a 5-point Likert mean rating scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD) corresponding to numerical values of 5,4,3,2 and 1 respectively was divided into two sections. The first part takes care of the respondents' personal and demographic data while the second part contains items bordering on the three research questions that guided the study. The instrument was face and content validated by 2 experts in Agricultural Education from Rivers State University, Port Harcourt. Their corrections and suggestions were incorporated into the final stage of the instrument's development. Cronbach's Alpha reliability method was used to determine the internal consistency of the CBASTQ and a reliability coefficient of 0.81 was obtained which proved that the instrument was very reliable. Three research assistants were engaged to help the researchers in the administration and retrieval of the questionnaire. 36 copies of the instrument were given out from which only 28 yielding 77.8% of the total questionnaire were successfully retrieved and used for data analysis. Data collected for the study were analyzed using mean and standard deviation.

A criterion mean of 3.00 was used for decision making. Any item having a mean rating of 3.00 and/or above was regarded as needed competencies while any item with mean rating less than the criterion mean was regarded as not needed. Also, any item with a standard deviation of 1.96 or below revealed that the respondents were close to the mean and not too far from one another in their responses.

3. Results

The results were analyzed according to each research question posed by the researchers which guided the study.

- **Research Question 1:** What are the technology competencies needed by Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State?

Table 1. Technology competencies needed by agricultural science teachers for innovative instructional delivery in secondary schools in rivers state

S/N	Item	Criterion Mean	($\overline{X}$)	SD	Remarks
1	Agricultural Science teachers need electronic white board to teach the students.	3.00	2.11	1.13	Disagree
2	Agricultural Science teachers need computers and other ICT gadgets to teach students.	3.00	3.39	1.40	Agree
3	Agricultural Science teachers use the internet for research and e-learning.	3.00	3.86	1.27	Agree
4	Agricultural Science teachers need to adopt e-learning strategy to deliver quality teaching to students.	3.00	2.57	1.37	Disagree
5	Agricultural Science teachers need multi-media gadgets in instructional delivery in secondary schools.	3.00	3.07	1.53	Agree
6	Agricultural Science teachers need modern farm tools and equipment to teach students in secondary schools.	3.00	3.00	1.51	Agree

Table 1 above shows that Agricultural Science teachers display strong technological competencies in their instructional delivery in secondary schools as indicated by the mean rating values whose figures were above the criterion mean of 3.00 with exception of items 1 and 4 with values (2.11 and 2.57) respectively. The implies that Agricultural Science teachers in secondary schools in Rivers State are technologically competent to deliver innovative instructions to students.

- **Research Question 2:** What are the social competencies needed by Agricultural science teachers for innovative instructional delivery in secondary schools in Rivers State?

Table 2. Social competencies needed by agricultural science teachers for innovative instructional delivery in secondary schools in rivers state

S/N	Item	Criterion Mean	($\overline{X}$)	SD	Remarks
1	Agricultural science teachers easily get along with others.	3.00	3.78	1.40	Agree
2	Agricultural science teachers have good communication skills for innovative teaching.	3.00	3.54	1.27	Agree
3	Agricultural science teachers engage in informative interaction with students and colleagues.	3.00	3.39	1.57	Agree
4	Agricultural science teachers in secondary schools like working as a team.	3.00	3.07	1.22	Agree
5	Agricultural science teachers pays attention to individual students' needs.	3.00	3.64	1.26	Agree
6	Agricultural science teachers make teaching practically interesting to the students.	3.00	2.52	1.32	Disagree
7	Agricultural science teachers help students to construct their own learning.	3.00	4.04	1.32	Agree

From table 2 above, the respondents believed that all items whose values are above the criterion mean of 3.00 are social competencies displayed by Agricultural Science Teachers for Innovative Instructional Delivery in Secondary Schools. However, they disagree with item 6, whose mean value is 2.52, this mean that Agricultural Science teachers do not make teaching an interesting experience to students.

- **Research Question 3:** What are the learning competencies needed by Agricultural science teachers for innovative instructional delivery in secondary schools in Rivers State?

Table 3. Learning competencies needed by agricultural science teachers for innovative instructional delivery in secondary schools in rivers state

S/N	Item	Criterion Mean	($\overline{X}$)	SD	Remarks
1	Agricultural Science teachers use learning resources in an active manner in instructional delivery in secondary schools.	3.00	3.46	1.55	Agreed
2	Agricultural Science teachers utilize new teaching strategies in instructional delivery in secondary schools.	3.00	3.64	1.49	Agreed
3	Agricultural Science teachers usually make judicious use of instructional time allotted to them.	3.00	3.18	1.31	Agreed
4	Agricultural Science teachers evaluate their teaching effectively.	3.00	3.54	1.30	Agreed
5	Agricultural Science teachers teach with practical experience.	3.00	3.14	1.53	Agreed
6	Agricultural Science teachers learn creatively to develop their innovative teaching skills.	3.00	3.82	1.23	Agreed
7	Agricultural Science teachers engage in research work to maximize efficiency and productivity.	3.00	3.04	1.35	Agreed

From table 3 above, it was observed that all the stated items have their mean ratings above the criterion mean. Thus, both the highest and least mean values corresponding to 3.82 for item number 6 and 3.04 for item number 7 are greater than the criterion mean which is 3.00. This implies that Agricultural Science teachers had acquired learning competencies for innovative instructional delivery in secondary schools in Rivers State.

4. Discussion

The table 1 revealed some of the technological competencies required by Agricultural Science teachers for innovative instructional delivery in secondary schools in Rivers State. This finding was in agreement with Zhu and Wang (2014) who posit that teachers should take part in active learning in which case, they need to use the Internet to search for and extract information effectively. Zhu and Wang (2014) further stressed that teachers should endeavor to use appropriate Information Communication Technology (ICT) tools and multimedia in education not only to boost their innovative skills in digital technology but also to register their strict compliance to global best practices in the

field of education. This study finding is also in line with Obanya (2012) who posits that the success of every education process depends on the wisdom and knowledge of the teacher and on the teachers' sensitivity to the students as no education system in the world can rise above the quality of its teachers. This wisdom can be enhanced through relevant technology applications.

Table 2 revealed that Agricultural Science teachers displayed social competencies in secondary schools which help the students to learn effectively by engaging the students on effective interactions. This claim was supported by Zhu and Wang (2014) who pointed out that persistence, effective communication, democratic leadership, fairness amongst other qualities are ways teachers exhibit social competencies in classrooms. Similarly, the study finding was in support of Martin and Ramsden (1994) who postulate that innovative teaching practices of teachers are related to their perceptions of teaching and learning. In the same vein, the study corroborates Stipek et al. (2001) who stated that teachers' perception of innovative teaching often guides their decisions in the classroom and influence many aspects of classroom management and coordination including the degree of student autonomy, interaction, and other forms of assessment in the classroom. Therefore, social interactions among students and teachers should be initiated by Agricultural Science teachers to enable students learn some soft skills that would make them productive in the world of work.

Table 3 shows that Agricultural Science teachers can demonstrate learning competencies by engaging in continuous lifelong learning for professional development. This could be possibly pursued via enrollment in higher degree programmes, participation at academic conferences, seminars and symposia for the development of their competencies. This finding agrees with Green (1999) who stated that learning competencies in human resource systems helps to identify actions required to be taken to carry out effective job via research and development. The finding was further supported by Zhu and Wang (2014) who posit that teachers view learning competency as a prerequisite for innovative teaching. In other words, the teacher needs to have the ability to learn for himself first before transferring the acquired knowledge to students. One of the ways by which the teacher ensures quality teaching and learning in school is through continuous participation in lifelong learning programmes for capacity building and professional development.

Thus, Agricultural Science teachers need continuous professional development in the areas of technological, social and learning competencies to enable them deliver quality innovative instructions to students in secondary schools in Rivers State of Nigeria.

5. Conclusion

Teachers professional training and development enable them to acquire more skills and competence in their teaching job. In-service training improves upon the teachers' teaching method, class control, supervision of students, knowledge of subject matter and use of instructional materials thereby enhancing teaching effectiveness and quality outcomes. Innovative teaching which encompasses teachers' abilities to apply new ideas, methods, tools, and contents, etc. to the benefit

of learners requires human capacity development. Therefore, lifelong learning programmes for secondary school Agricultural Science teachers is a sure way of developing their technological, social and learning competencies and as such should be encouraged by all stakeholders in the education sector. It should be noted that whenever teachers demonstrate competencies in their work roles, students learn easily and effectively by building their potentials through creative learning. Based on the findings of the study, the following recommendations are suggested:

- Government should ensure adequate professional development of Agricultural Science teachers through the organization of workshops, seminars, symposia and conferences to enable them interact with one another and learn new teaching strategies and concepts applicable to their subject areas.
- Agricultural science teachers in Secondary Schools in Nigeria should learn to engage in active learning through relevant technological and multimedia tools in order to update their knowledge in their subject of instruction for optimal productivity.
- Teachers of Agricultural Science in secondary schools in Nigeria should endeavor to carry out personal and collective research in the field of Agriculture to ensure quality instructional delivery in classrooms and to improve on the economy of the nation.
- Nigerian Agricultural Science teachers should teach students with practical examples as applicable in real life situations to enable them have a clear picture of what the subject entails.
- Agricultural Science teachers in Nigeria should endeavor to carry out periodic personal evaluation of their teaching to ensure improvement in instructional delivery.
- Agricultural Science teachers in Nigeria should always source for quality instructional materials and use same while teaching to make learning more interesting and worthwhile to the students.

References

Amabile, T. M. (1989). *Growing Up Creative*. New York: Crown.

Chukwu, C. L. (2009). *Capacity Building of Teachers, Challenges and Opportunities: Implication for Educational Sustainability*. A Paper presented at the University of Ibadan, Faculty of Education International Conference on Education for Sustainable Development (ICESD), May, 18-22.

Darling-Hammond, L., and Snyder, J. (2000). Authentic Assessment of Teaching in Context. *Teaching and Teacher Education*, 16, 523-545.

Egbo, B. (2011). *Teacher Capacity Building and Effective Teaching and Learning: A Seamless Connection*. Proceedings of the International Conference on Teaching, Learning and Change (C), International Association for Teaching and Learning (IATEL), Co-published by: Human Resource Management Academic Research Society.

Ekpiken, W. E. (2015). Capacity Building Strategies for Teachers and Sustainable Development in Universities in Cross River State of Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 6(7), 286-292.

Esiobu. (2005). *Gender Issues in Science and Technology Education Development*. In: Science and Technology Education for Development, Uvowi, U.M.O. (Ed.). Lagos: NERDC Press (pp. 137-156).

Fazekas, M., and Burns, T. C. (2011). *Getting it Right: Capacity Building for Local Stakeholders in Education*. A Background Paper for the OECD/Poland Conference tagged: "Effective Governance on the Local Level" held in Warsaw, Poland. April, 16-17.

Federal Government of Nigeria. (2004). *National Economic Empowerment and Development Strategy (NEEDS)*. Abuja: National Planning Commission.

Federal Republic of Nigeria. (2013). *National Policy on Education*. Lagos: NERDC Press (p. 18).

Ferrari, A., Cachia, R., and Punie, Y. (2009). *Innovation and creativity in education and training in the EU member states: Fostering creative learning and supporting innovative teaching*. Literature review on innovation and creativity in E & T in the EU Member States (ICEAC). JRC Technical Note, JRC 52374. European Commission—Joint Research Centre—Institute for Prospective Technological Studies. Retrieved from: http://jrc.es/EURdoc/ JRC52374_TN.pdf. 6/05/2019.

Fullan, M. (2011). *The Moral Imperative Realized, Corwin Press and Ontario Principals Council*. Thousand Oaks, CA and Toronto.

Goldemberg, J., and Reid, W. (1998). *Issues and options: The clean development mechanism*. New York: United Nations Development Programme (UNDP).

Green, P. (1999). *Building robust competencies*. San Francisco, CA: Jossey-Bass.

Koster, B., Brekelmans, M., Korthagen, F., and Wubbels, T. (2005). Quality Requirements for Teacher Educators. *Teaching and Teacher Education*, 21, 157–176.

Luo, S. H., and Li, H. Z. (1997). *Teachers' Competency Theory*. Jinan: Shandong Educational Press.

Martin, E., and Ramsden, P. (1994). *Evaluation of the performance of courses in teaching methods for recently appointed academic staff*. Canberra: Australian Government Publishing Service.

Ng, A.-K., and Smith, I. (2004). *Why is there a Paradox in Promoting Creativity in the Asian Classroom?* In S. Lau, A. N. N. Hui, and G. Y. C. Ng (Eds.), Creativity: When East meets West (pp. 87–112). Singapore: World Scientific.

O'Sullivan, M. (2007). The Reconceptualisation of Learner-Centred Approaches: A Nambian Case study. *International Journal of Educational Development*, 21(3), 173–193.

Obanya, P. (2012). *Education and Reforms*. Keynote Address presented at the 25th Annual Conference of the Philosophy of Education Association of Nigeria PEAN, held in Delta State University, Abraka, Nigeria.

Osuji, C. U. (2014). Capacity Building of Teachers as A Strategy in Bridging the Gap in Nigerian Educational System. *African Education Indices*, 7(1), 1-15.

Peretemode, V. F., and Peremode, O. (2005). *Human Resource Management: Principles, Practices and Policies*. Lagos: Onosomegbowho Ogbinaka Publishers Ltd.

Redecker, C. (2008). *Review of Learning 2.0 Practices: JRC-IPTS*. Retrieved from: http://jrc.es/EURdoc/JRC49108.pdf 30/04/2019.

Segers, E., and Verhoeven, L. (2009). Learning in a Sheltered Internet Environment: The Use of Web Quests. *Learning and Instruction*, 19, 423–432.

Slabbert, J. A. (1994). Creativity and Education Revisited: Reflection in Aid of Progression. *Journal of Creative Behavior*, 28, 61–69.

Stipek, D. J., Givvin, K. B., Salmon, J. M., and MacGyvers, V. L. (2001). Teacher's beliefs and practices related to mathematics instruction. *Teaching and Teacher Education*, 17, 213–226.

Stoof, A., Martens, R., van Merrienboer, J., and Bastiaens, T. (2002). The Boundary Approach of Competence: A Constructivist Aid for Understanding and Using the Concept of Competence. *Human Resource Development Review*, 1, 345–365.

Tigelaar, D. E. H., Dolmans, D. H. J. M., Wolfhagen, I. H. A. P., and van der Vleuten, C. P. M. (2004). The Development and Validation of a Framework for Teaching Competencies in Higher Education. *The International Journal of Higher Education and Educational Planning*, 48(2), 253-268.

Udofot, M. A. (2005). *Ensuring Qualitative Teachers for Sustainable Nigerian Education System*. A lead paper presented at the Nigerian Primary and Teacher Education Association (T) Asaba, Delta State, June 13-17.

UNESCO, U. (2005). *Decade of education for sustainable development: 2005-2014*. Draft International Implementation Scheme.

Whitman, N. (1983). Teaching Problem Solving and Creativity in College Courses. *AAHE - ERIC/Higher Education Research Currents*, 2-7.

Young, S., and Shaw, D. (1999). Profiles of Effective College and University Teachers. *Journal of Higher Education*, 70 (6), 670–686.

Zhu, C., and Wang, D. (2014). Key Competencies and Characteristics for Innovative Teaching among Secondary School Teachers: A Mixed-Methods Research. *Asia Pacific Education Review*, 15, 299-311.

Zhu, C., Wang, D., and Engels, N. (2013). What Core Competencies are related to Teachers' Innovative Teaching? *Asia-Pacific Journal of Teacher Education*, 41(1), 9-27.