

CHAPTER 7

Perception, Awareness, and Attitude of Prospective UTME Candidates Towards Integrated Science Degree Programme in Taraba State

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Abstract

The study investigated the perception, awareness and attitude of prospective UTME candidates towards Integrated Science degree programme in Taraba State. Three research questions guided the study. The study adopted a survey research design. The population of the study was all the 16,686 candidates who sat for the UTME 2023 in Taraba State. A sample of 390 candidates was randomly selected across ten JAMB CBT centres in Taraba State. The sample size was determined using Taro Yamane's formula. Data were collected using a structured questionnaire tagged: Perception, Awareness and Attitude of UTME Candidates Towards Integrated Science Degree Programme Questionnaire. The data collected were analysed using mean, frequency count and percentage in answering the research questions. The result revealed that UTME candidates in Taraba State have a wrong perception of Integrated Science degree programme as the candidates perceived the course to be meant for students who are not able to study Biology, Chemistry or Physics at the university level. UTME candidates also have the wrong perception that Integrated Science is too difficult and that studying Integrated Science as a teaching course will limit them to teaching only at the junior secondary school. The finding also indicated that UTME candidates in Taraba State has low level of awareness of Integrated Science degree programme as 71.5% of UTME candidates in Taraba State are not aware of availability of Integrated Science degree programme in universities and that 100% of the UTME candidates did not choose Integrated Science as a course of study in the University. The findings further revealed that UTME candidates in Taraba State have negative attitude towards Integrated Science degree programme in universities. Based on the result, it was recommended that Joint Admission and Matriculation Board (JAMB) and Ministry of Education should create awareness among prospective UTME candidates on the availability of Integrated Science degree programme and other important courses in universities and that Integrated Science curriculum should be expanded to cover the senior secondary school level such that instead of arts and social science students choosing one compulsory science subject at the senior secondary school level, they will be offering Integrated Science which will provide them with a broader basic scientific knowledge that they need in their day to day life activities.

Introduction

Nations that are considered to be developed and largely civilized have achieved that status through the purposeful science education of their citizens. In recognition of the role of science and technology in national development, the Federal Republic of Nigeria (FRN) (2013) clearly states that science and technology should form the basis of our development and should influence our thinking and working processes. It is in this respect that the Federal Republic of Nigeria in the National Policy on Education (2013) has emphasized science and technology education as a foundation for the nation's socio-economic emancipation and proper integration into the prevailing global culture of science and technology. This is in line with Odoh (2006) who asserts that the strength of a nation depends on its level of technological development which is rooted in the level of scientific practice of such a nation.

The need for scientific and technological progress necessitates the inculcation of the spirit of enquiry and creativity in the Nigerian child. This could be achieved through the exploration of nature and local environment from the pre-primary level with a view to laying a solid foundation for scientific and reflective thinking in the Nigerian child. The resultant effect of this was the teaching of Integrated Science which is now referred to as Basic Science at the Basic Education level. This integrated approach to the teaching of science stresses the fundamental unity of science, de-emphasizes subject boundaries to make learners see the concepts and themes that embody science as a whole (Enuma, Agogo & Odoh, 2022). Integrated Science which has metamorphosed into Basic Science is a subject that introduces students at the basic school level to the rudiments of science and technology. At the inception of the 6-3-3-4 system of education, it was called Integrated Science. As opposed to the old-fashioned compartmentalization of science into biology, chemistry and physics, integrated science emphasizes the fundamental unity of science. It emerged as a result of researches into an approach to the teaching of science in lower schools that could sufficiently equip the products with relevant knowledge and skills to solve their personal and environmental problems. Hence, it addresses the inadequacies of the old science curricular in philosophy, principles, objectives, content and methodology of teaching. For example, the new course is relevant to the learners' needs and experiences, lays adequate foundation for subsequent specialist studies, adds cultural dimension to science education and helps students to acquire relevant scientific and technological knowledge and skills to deal with personal, societal and national needs and aspirations (Duyilemi, 2008).

However, in the current 9-3-4 system of education, it is called 'Basic Science and Technology' and comprises four sub-themes. These include Basic Science, Basic Technology, Information and Communication Technology (ICT) and Physical and Health Education (PHE) (Nigerian Educational Research and Development Council, 2009). The theme 'Basic Science' represent what was called Integrated Science in the 6-3-3-4 system of education. Basic Science at the Upper Basic school level is a course of study which is devised and presented in such a way that students gain the concept of the fundamental unity of science, the commonality of

approach to problem of scientific nature and helps students to gain an understanding of the roles and functions of science in everyday life and the world in which they live (Sambo, Kukwi, Eggari & Mahmuda, 2014).

Basic Science is the foundation for the study of the core science subjects such as Biology, Chemistry and Physics at the senior secondary level of education. It provides students at the Upper Basic education level with the initial theoretical and practical frameworks which are inevitable prerequisites for their future study of science. Ekundayo (2012); Agogo and Ode (2017) maintain that Basic Science enables students to understand science concepts, principles, theories and laws which are further elaborated in the core sciences.

The introduction of Integrated Science into the Nigerian education system in the early 70s came with the requirement of training teachers who would teach the subject at the junior secondary school level. This led to the mounting of Integrated Science NCE programme in Colleges of Education. The integrated science graduates produced at the NCE level then did not have avenues in the universities for educational advancement because at that time there was no Integrated Science programme at the university level. It is pertinent to note that the non-availability of Integrated Science teacher education at the university level was a major factor that contributed to lack of interest, motivation and creativity in teaching and learning of Integrated Science. At the time that some Colleges of Education began Integrated Science courses, it was still difficult to recruit students for the course simply because students' reason that those who study Integrated Science as a teaching subject at that level may be restricted in their future academic advancement as long as no university in Nigeria offers a degree course in Integrated Science. As a result of the gap, students, parents and even teachers look down on Integrated Science.

To solve this problem, Nigerian Universities began to mount Integrated Science degree programmes and today, there are over 26 universities in Nigeria offering degree programmes in Integrated Science. The major aim of the Integrated Science degree programme is to train teachers who will teach Basic Science (Integrated Science) at the Basic Education level. The mounting of Integrated Science degree programmes by universities is highly commendable. However, there seem to be perception, awareness and attitudinal issues bedeviling the programme in Nigerian universities.

Perception is the organization, identification and interpretation of sensory information in order to represent and understand the presented information or environment (Akogun, Nwona & Obo, 2020). Students' perceptions of Integrated Science programme originate from past experiences, comprising both cognitive and affective dimensions (Aguilar, Rosas & Zavaleta, 2012). From a cognitive point of view, Aguilar, Rosas and Zavaleta, (2012) stated that perception relates to a person's knowledge, beliefs and other cognitive representations while from an affective domain it refers to a person's attitudes, feelings and emotions about Integrated Science. Perception is also understood broadly to include all visual, verbal

representations, metaphorical images and associations, beliefs, attitudes and feelings related to Integrated Science and Integrated Science learning experiences. Perceptions are regarded by Mohamed and Waheed (2011) as an important factor to be taken into account when attempting to understand and explain variability in student choice of course of study in the university.

There is a general perception that Integrated Science is a science subject only suitable for the less able, the least science-oriented students and those who do not intend to pursue science beyond the ordinary level (O-Level) stage (Nwona & Akogun, 2013). In other words, they perceived that Integrated Science is a course for students who are not able to study Biology, Chemistry or Physics at the university level and such students should study Integrated Science which they considered less difficult compared to others like Biology, Chemistry and Physics. This wrong perception is held by many prospective Unified Tertiary Matriculation Examination (UTME) candidates and parents. As a result, many of them do not select Integrated Science in their choice of course during UTME registration. They based their perception on the fact that Integrated Science is not among the list of academic disciplines such as biology, chemistry, physics and mathematics. They fail to understand that Integrated Science is an undifferentiated course designed to show the fundamental unity, wholeness and inter-relationships of the separate disciplines that make up science (Liga and Emaikwu, 2015).

Similarly, students perceived Integrated Science degree course as being too difficult and too broad course since one has to study all of Biology, Chemistry and Physics. They argue that since Integrated Science degree programme derives its content from Biology, Chemistry and Physics, the combination of the three science subjects must be difficult to study. However, many of the problems experienced by students in learning Integrated Science concepts are learner dependent. Behar and Polat (2007) posited that the views of science held by students contribute to the difficulties they perceive about certain science concepts and topics, especially in Integrated Science. Nwona and Akogun (2013) also opined that learners experience learning difficulties that may be connected to their learning environment, background knowledge and study habits. They submitted that the cumulative effect of the factors listed above in addition to teacher and school environment factors could contribute immensely to the underperformance and low enrolment of students in Integrated Science courses in the university. The views above buttress the submissions of Ajayi (2007) and Adedayo (2008) that the poor enrolment into Integrated Science courses in tertiary institutions may not be unconnected with the students' perceptions and awareness of the course.

Prospective university students' awareness of Integrated Science degree programme in universities is of paramount importance in determining the number of candidates applying to be admitted into the course. Awareness is the quality or state of being aware, knowledge and understanding that something is happening or exists (Wolfgang, Christian, Peter & Hendrik, 2012). If candidates are not aware of the availability of Integrated Science programme in universities, they will not select Integrated Science in their choice of courses during UTME registration. There seems to be little or no awareness of the availability of Integrated Science

programme in universities based on the fact that only a few candidates choose Integrated Science in their UTME. Affirming this claim, Oludipe (2011) stated that even now that Integrated Science is being studied in some Universities, it is difficult to admit students for the course because every year only a few candidates choose the course in their UTME. In Taraba State in particular, some of the UTME candidates seem not aware that Integrated Science degree programme in the universities train teachers who will teach Basic Science at the Basic Education level. This calls for an investigation to avert the problem of a lack of qualified Basic Science teachers at the Basic Education level in the State.

Another factor that seems to be affecting Integrated Science degree programme in Nigerian universities is the attitude of students towards Integrated Science course. Many prospective Integrated Science teachers do not want to be associated with Integrated Science teaching. There is the psychological feeling of being sentenced to teach the junior classes only. Duyilemi (2008) in a contextual appraisal of Integrated Science education in Nigeria, drew attention to the problem of the status of the Integrated Science (Basic Science) teacher who might be considered a perpetual junior science teacher. However, the prospective Integrated Science teacher should note that a solid foundation is the key to success in the educational career of their students. The Basic Education level is where the foundation of science is laid and teachers who laid this foundation are very essential since success in science at the senior secondary school is dependent on the foundation of science laid at the Basic Education level through Basic Science. For instance, research by Edokpayi and Suleiman (2011); and Dike and Garba, (2017) show that students' Integrated Science academic performance is a predictor of later academic performance in Biology, Chemistry and Physics. This implies that students who performed excellently in Integrated Science are most likely to perform higher in science subjects at the senior secondary school level. The findings of these researches further affirmed the key role and the importance of the Basic Science teachers at the Basic Education level. Thus, if preparing-oriented, the prospective Integrated Science graduates will realize the importance of teaching at the junior secondary school and may change their attitude of not wanting to be a teacher at the junior secondary school. It is therefore imperative to investigate the perception, awareness and attitude of prospective UTME candidates towards Integrated Science degree programme in Taraba State.

Statement of the Problem

Since the introduction of Integrated Science which has metamorphosed into what is today call Basic Science in the Nigerian education system in the early 1970s, the subject continues to face the challenge of inadequate qualified teachers who are trained specifically to teach Basic Science. Initially, Colleges of Education mounted Integrated Science NCE programmes to trained teachers for the subject. But then, there was difficulty in recruiting students for the course simply because students reason that those who study Integrated Science as a teaching subject at NCE level may be restricted in their future academic advancement as long as there was no university in Nigeria that offers a degree course in Integrated Science.

With the mounting of Integrated Science degree programmes by many universities in Nigeria, one would expect that the problem of recruiting candidates for the course should be a thing of the past. However, every year, only a few candidates apply for admission into Integrated Science degree programme in Taraba State. This does not augur well for the science education development of the state since Basic Science is the foundation of science education in Taraba State in particular and Nigeria in general. This may be because the candidates have wrong perception or are not even aware of the existence of Integrated Science programme in the universities. It could also be because the candidates have negative attitude towards Integrated Science programme that makes them shy away from choosing the course in their UTME registration. Therefore, the researcher investigated the perception, awareness and attitude of prospective UTME candidates towards integrated science degree programme in Taraba State.

Research Questions

The study was guided by three research questions:

1. What is the perception of UTME candidates towards Integrated Science degree programme in the university?
2. What is the level of UTME candidates' awareness of Integrated Science degree programme in the university?
3. What is the attitude of UTME candidates towards Integrated Science degree programme in the university?

Research Method

The study adopted a survey research design. The population of the study was all the 16,686 candidates who sat for the UTME 2023 in Taraba State. A sample of 390 candidates was randomly selected across ten JAMB CBT centres in Taraba State. The sample size was determined using Taro Yamane's formula. Data were collected using a structured questionnaire tagged: Perception, Awareness and Attitude of UTME Candidates Towards Integrated Science Degree Programme Questionnaire. The questionnaire has twelve items. Four items each were on perception, awareness and attitude towards Integrated Science degree programme. With the help of five research assistants, copies of questionnaire were administered to the UTME candidates at the CBT centres while they were waiting to take their examination or after they finished taking their examination. The 390 copies of the questionnaire were administered during the eight days of UTME 2023. The data collected were analysed using mean, standard deviation, frequency count and percentage in answering the research questions.

Results

Research Question One

What is the perception of UTME candidates towards Integrated Science degree programme in the university?

Table 1: Perception of UTME Candidates Towards Integrated Science Degree Programme in University

SN	Item statement	SA	A	D	SD	Mean	Remarks
1	Integrated science degree will limit one to teaching only the junior classes in secondary school	150	134	59	47	2.99	agreed
2	Integrated science is a course for students who are not able to study Biology, Chemistry or Physics at the university level.	124	148	74	44	2.90	agreed
3	My friends and mates will look down on me if I choose to study a degree in Integrated Science	108	139	58	84	2.68	agreed
4	Integrated Science degree is a too difficult course since one has to study all of Biology, Chemistry and Physics.	98	152	100	40	2.78	agreed

Results in Table 1 shows that the UTME candidates rated all the items with mean above 2.5 which implies that the respondents agreed with all the four items. It therefore means that the UTME candidates perceived Integrated Science degree programme as a teaching course that will limit those who study it to teaching the junior secondary school classes only. The UTME candidates also perceived Integrated Science degree programme as a course suitable for students who are not able to study Biology, Chemistry or Physics at the university level. Result in Table 1 further revealed that the UTME candidates perceived that their friends and mates will look down on them for choosing to study a degree in Integrated Science. Table 1 also revealed that the UTME candidates perceived Integrated Science degree programme as a too difficult course since one has to study aspects of Biology, Chemistry and Physics.

Research Question Two

What is the level of UTME candidates' awareness of Integrated Science degree programme in the universities?

Table 2: Level of UTME Candidates Awareness of Integrated Science degree programme in Universities

SN	Item statement	YES		NO	
		Freq.	Percentage	Freq.	Percentage
5	Are you aware that there is an Integrated Science degree programme in Nigerian Universities?	111	28.5%	279	71.5%
6	Are you aware that Integrated Science degree programme trained teachers to teach Basic Science at primary and secondary school levels?	68	17.4%	322	82.6%
7	Are you aware that integrated science degree programme trained science teachers to have knowledge of Biology, Chemistry and Physics?	186	47.7%	204	52.3%
8	Did you choose Integrated Science degree programme in your UTME course selection?	0	0%	390	100%

Result in Table 2 shows that 28.5% of the UTME candidates are aware that there is Integrated Science degree programme in Nigerian Universities while 71.5% are not aware. Also, 17.4% of the UTME candidates are aware that Integrated Science degree programme trained teachers to teach Basic Science at primary and junior secondary school levels while 82.6% of the candidates are not aware. Table 2 revealed that 47.7% of the UTME candidates are aware that Integrated Science degree programme trained science teachers to have knowledge of Biology, Chemistry and Physics while 52.3% are not aware of this. Table 2 further revealed that 100% of the UTME candidates did not choose Integrated Science as a course of study in the University.

Research Question Three

What is the attitude of UTME candidates towards Integrated Science degree programme in the university?

Table 3: UTME Candidates Attitude towards Integrated Science Degree Programme in Universities

SN	Item statement	SA	A	D	SD	Mean	Remark
9	I do not want to study Integrated Science degree programme	183	156	40	11	3.31	agreed
10	I will only accept to study Integrated Science degree programme if I am not offered admission in my preferred course	164	142	58	26	3.13	agreed
11	I do not like Integrated Science degree programme	120	118	78	74	2.73	agreed
12	I will be proud to introduce myself as an undergraduate in Integrated Science degree programme	40	89	138	123	2.11	disagreed

Result in Table 3 indicates that UTME candidates rated items 9, 10, and 11 above 2.5 cut-off mean which indicate agreement with the three items. The candidates however, rated item 12 below the cut-off mean of 2.5 which indicate disagreement with the item. The result implies that UTME candidates in Taraba State have negative attitude towards studying Integrated Science as a course in the university as indicated on item 9 and 11. It also means that the candidates have negative attitude towards Integrated Science as it is not their preferred course of study and they are not proud to be associated with studying Integrated Science.

Discussion of Findings

Findings arrived at in this study are discussed in this section. The study investigated the perception, awareness and attitude of prospective UTME candidates towards integrated science degree programme in Taraba State. The findings of the study were discussed based on the research questions that guided the study.

Findings revealed that UTME candidates in Taraba State have wrong perception of Integrated Science degree programme as the candidates perceived the course to be meant for students who are not able to study Biology, Chemistry or Physics at the university level. UTME

candidates also have the wrong perception that Integrated Science is too difficult and that studying Integrated Science as a teaching course will limit them to teaching only at the junior secondary school. This finding corroborates that of Edokpayi and Suleiman (2011) who also found that study have the perception that Integrated Science was meant for those who are less intelligent that cannot study biology, chemistry or physics at the university level. The finding is also in agreement with that of Nwona and Akogun (2013) who revealed that students perceived Integrated Science as a difficult course. These wrong perceptions of Integrated Science may be because the candidates lack information about the aims and objectives of Integrated Science. It is also worthy of note that learning difficulties that may be experienced during learning of Integrated Science concepts are not because the concepts are too difficult but may be as a result of the learning environment, learning habits and the instructional strategies.

The findings indicated that UTME candidates in Taraba State has low level of awareness of Integrated Science degree programme as 71.5% of UTME candidates in Taraba State are not aware of availability of Integrated Science degree programme in universities and that 100% of the UTME candidates did not choose Integrated Science as a course of study in the University. This finding agrees with the assertion by Oludipe (2011) that even now that Integrated Science is being studied in some Universities in Nigeria, it is difficult admitting students for the course because every year only few candidates choose the course in their UTME registration. The finding further confirm the claim by Wolfgang, Christian, Peter and Hendrik (2012) that students' awareness of a course in universities is of paramount importance in determining the number of candidates applying to be admitted into the course.

The findings further revealed that UTME candidates in Taraba State have negative attitude towards Integrated Science degree programme in universities. Majority of the candidates agreed they did not like Integrated Science as a course and as such did not want to study Integrated Science at the university level. This finding corroborates that of Dike and Garba, (2017) who also found that students show negative attitude towards Integrated Science course. The negative attitude towards Integrated Science could be as a result of the wrong perception the candidates have about Integrated Science due to lack of information about the aims and objectives of the course. If the candidates are enlightened on the aims and objectives of Integrated Science degree programme and the importance of lay a solid foundation for the study of science at the junior secondary, it may help to correct the wrong perception and thus change their attitude towards Integrated Science.

Recommendations

The following recommendations are made:

1. Joint Admission and Matriculation Board (JAMB) and Ministry of Education should create awareness among prospective UTME candidates on the availability of Integrated Science degree programme and other important courses in universities.

2. Integrated Science curriculum should be expanded to cover the senior secondary school level such that instead of arts and social science students choosing one compulsory science subject at the senior secondary school level, they will be offering Integrated Science which will provide them with a broader basic scientific knowledge that they need in their day to day life activities.
3. Departments of Integrated Science should enlighten the public on the aims and objectives of Integrated Science programme and correct the wrong perception about the course.

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