

## LEVEL OF CORRESPONDENCE OF INFORMATION TECHNOLOGY CONTENT WITH THE SPECIFICATIONS OF UPPER BASIC SCIENCE AND TECHNOLOGY CORE CURRICULUM IN EBONYI STATE

Destiny Onyebuchi Ekoyo<sup>1\*</sup>, Okechukwu Sunday Abonyi<sup>2</sup>

<sup>1</sup>Department of Science Education, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

<sup>2</sup>Department of Science Education, Alex Ekwueme, Federal University, Ndufu -Alike, Ikwo, Ebonyi State, Nigeria

### Corresponding Author: Destiny Onyebuchi Ekoyo

Department of Science Education,  
Nnamdi Azikiwe University,  
Awka, Anambra State, Nigeria

### Article History

Received: 08 / 01 / 2026

Accepted: 13 / 02 / 2026

Published: 27 / 02 / 2026

**Abstract:** The study investigated the level of correspondence of information technology content with the specifications of upper basic science and technology core curriculum in Ebonyi state. One research question and a null hypothesis guided the study. The study employed programme evaluation research design. The population of the study include all the four hundred and eleven (411) public and private upper basic education schools and all the two thousand, four hundred and sixty-six (2466) information technology teachers in Ebonyi State. The sample for the study comprised of forty-two upper basic education schools and two hundred and forty-six information technology teachers in Ebonyi State. The schools were drawn from a total of four hundred and eleven public and private upper basic schools in Ebonyi State. The instrument that was used in collecting data for this study was Information Technology curriculum implementation evaluation checklist (ITCIEC) developed by the researchers from the information technology core curriculum contents. The research question was answered using frequencies, ratio and percentage. Hypothesis was tested using chi-square. The findings revealed that most IT content aligned with the core curriculum; four areas showed non-correspondence (Historical Development of Computers Upper Basic I, Basic Programmes and Internet Environment Upper Basic II, Computer Viruses Upper Basic III). In Upper Basic I, four of five topics were taught; Upper Basic II had only two of three per topic; Upper Basic III taught four of six. Chi-square  $2.27 < 14.61$ ; thus, no significant dependence on school ownership. From the findings recommendation and conclusions were made.

**Keywords:** Curriculum Content and Information Technology (IT).

**How to Cite in APA format:** Ekoyo, D. O. & Abonyi, O. S. (2026). LEVEL OF CORRESPONDENCE OF INFORMATION TECHNOLOGY CONTENT WITH THE SPECIFICATIONS OF UPPER BASIC SCIENCE AND TECHNOLOGY CORE CURRICULUM IN EBONYI STATE. *IRASS Journal of Multidisciplinary Studies*, 3(2), 65-70.

## Introduction

Curriculum content and its implementation shape how well information technology (IT) education serves learners. Today, the rapid spread of information and communication technologies into daily lives and work places makes strong IT education essential. When IT topics in classrooms match the core curriculum, students are exposed to fundamental ideas, coding logic, digital citizenship, and computational thinking that matter for higher education and modern careers (Anugwo and Ekoyo, 2019). Accurate alignment of IT supports teachers as they plan, scaffold, and deliver lessons that are appropriate for students' ages and that follow a logical sequence. This coherence helps students build on what they already know and steadily develop more advanced skills (Bell and Foiret, 2020).

A well-structured curriculum map also benefits field practice, project work, and teamwork. When learning goals, teaching methods, and assessment strategies are connected, students experience a smoother progression through IT concepts (Agugoesi et al. 2022). This alignment is not just about checking boxes; it is about creating a unified approach to teaching IT that supports lifelong learning and practical problem-solving. An integrated curriculum helps teachers design activities that connect IT with broader science and technology objectives, enabling students to apply computational thinking to real-world problems.

This is an open access article under the CC BY-NC license

In short, curriculum content and its implementation influence how effectively IT knowledge is built across grades (Cooper, 2022).

In the Nigerian context, several factors affect how IT content is delivered and perceived at the Upper Basic level. The availability and quality of instructional materials, access to reliable technology, and the ability of schools to provide ongoing professional development for teachers all shape how faithfully the core curriculum is interpreted and put into practice (Agugoesi et al. 2022; Ebere and Somyo, 2017). The administrative structure around curriculum implementation ranging from school leaders to district authorities can either reinforce a coherent instructional trajectory or introduce inconsistencies. Local school cultures, how resources are distributed, and how assessment practices align with standards further shape students' experiences in IT education. When these factors work together, teachers can deliver integrated IT instruction; when they do not, content may be taught in a disjointed way, hindering students' progression of knowledge and skill (Cooper, 2022).

More so, policy discussions and program reviews often stress the importance of coherent curricula and the systems that sustain them. A well-articulated curriculum goes beyond a syllabus; it functions as a framework that coordinates learning objectives, instructional activities, and evaluative criteria across



classrooms and schools (Ekpenyong and Oboqua 2021). No wonder Head (2020) asserted that when IT is smoothly integrated with wider science and technology goals, students can see interdisciplinary connections, apply computational thinking to real-life problems, and develop transferable competencies for lifelong learning. So it could be said that this alignment, is therefore an ongoing process of curricular refinement, teacher collaboration, and reflective practice that responds to learners' evolving needs and the realities of the local educational ecosystem (Eze et al., 2020; Eze et al., 2022).

According to Kofi and Opoku (2021) teachers are central to turning curriculum documents into classroom practice. The authors maintained that their professional knowledge, confidence with IT tools, and instructional strategies determine how content comes alive in daily lessons. This could be the reason why Obikezie et. al. (2022) averred that professional development that focuses on curriculum alignment, integration of IT resources, and assessment for learning is essential for improving outcomes. When teachers have clear guidance on expected content, appropriate materials, and time to collaborate with colleagues, they are better positioned to deliver cohesive, contextually relevant IT instruction that supports the core curriculum aims.

Therefore, assessment practices offer another lens to evaluate alignment. If assessments match the core curriculum's IT expectations, they provide meaningful evidence of student competence and guide instructional decisions. Misalignment can hide true student performance and misdirect teaching efforts (Obiajuru and Moemeke, 2020). A systematic and standards-based assessments help educators identify gaps, plan targeted interventions, and monitor progress toward desired outcomes (Ogwu et al., 2023).

This discussion recognizes the specific scholarly perspectives that shape the debate. Agugoesi et al. (2022) and Aja et al. (2025) observed that oversight by school administrators and UBEB in producing a unified scheme of work hinders coherent IT instruction. While Begicevic Redjep et al. (2021) and Blundell (2021) reported that these gaps may reflect situational constraints such as time, resources, and local priorities, yet still pose risks to students' progression to tertiary study.

More so, some scholars like Osorio-Saez et.al. (2021) and Sarfo et. al (2017) argued that gaps between IT content and the core curriculum may reflect situational constraints rather than a lack of will or capability. This means that time pressures, limited resources, and local priorities can influence how teachers implement IT instruction and how administrators allocate support. Even well-designed curricula can face practical obstacles that impede full alignment. It is important to examine these constraints to understand their impact on student learning trajectories and on the equitable delivery of IT education across Nigeria.

The consequences of misalignment extend beyond the classroom. If IT content does not consistently align with the core curriculum, students may struggle to demonstrate the competencies needed for further study or technical careers. This could affect progression to tertiary education and readiness for a technology-driven economy. Conversely, strong alignment can improve instructional coherence, enhance assessment validity, and support a smoother transition for students as they pursue advanced STEM studies. This makes a thorough investigation into the level of

correspondence between IT content implementation and the Upper Basic Science and Technology Core Curriculum in Ebonyi State timely and necessary to inform policy, teacher practice, and resource allocation.

In view of these considerations, the study seeks to evaluate the degree to which IT content implemented aligns with the Core Curriculum specifications across Ebonyi State Upper Basic schools, identify factors that facilitate or hinder alignment, and propose actionable recommendations for strengthening coherence between curriculum intent and classroom practice. The goal is to show how curriculum content and its implementation translate into measurable learning outcomes for students in IT and, more broadly, into the quality of science and technology education at the upper basic level in Ebonyi State.

### Purpose of the Study

This study evaluated the level of correspondence of information technology content with the specifications of upper basic science and technology core curriculum in Ebonyi state: specifically, the study evaluated;

1. The level to which the curriculum contents of information technology taught at the Upper Basic Education Schools in Ebonyi State correspond with the specifications of Information Technology component of basic science and technology core Curriculum.

### Research Question

The research question below guided the study:

1. What is the level of correspondence of the contents of the information technology components of basic science and technology taught in Ebonyi State with the specifications of core curriculum for upper basic education schools?

### Hypothesis

- **HO<sub>1</sub>:** level of correspondence of the contents of Information Technology taught at the Upper Basic Education Schools in Ebonyi State with the specifications of the core Information Technology Curriculum is not significantly dependent on school ownership.

### Method

This study adopted program evaluation research design. The study was carried out in Ebonyi State, Nigeria. The population of the study consisted of all the 218 public secondary (Upper Basic) and 193 approved private secondary (Upper Basic) schools in Ebonyi state bringing it to a total of 411 upper basic schools and 2466 Information Technology teachers in the three Education Zones.

Considering the size of the population under study and the economic strength of the researchers at the moment, the researchers decided to take 10% of the population to form the sample size. This is in line with Ali, (2006) who stated that if a population is large, only a small size of it that the researcher can manage well ought to be sampled. Ali further noted that if the sample is too large, it is possible that the researcher cannot handle it very well. It's on this note that the researcher, through stratified

random sampling drew 42 upper basic schools (24 public, 18 private) and 246 Information Technology (IT) teachers from a total of 411 and 2,466 institutions and teachers, respectively. Proportionate random sampling guided the selection across three education zones of Abakaliki, Onueke, and Afikpo. In total, 42 schools and 246 IT teachers were included, representing both public and private sectors. The strategy of selecting from all the three education zones in the state aimed to ensure that the voices of all the three education zones in the state were accurately incorporated, thereby achieving a representative and comprehensive portrayal of the key factors under investigation

**Instrument**

The instrument that was used for the collection of data for this study is Information Technology Curriculum Implementation Evaluation Checklist (ITCIEC) designed by the researchers. The checklist covered all the topics taught from upper basic one to basic three (jss1 to 3) as stipulated in the Information Technology Curriculum approved by the Federal Ministry of Education. The checklist is of two sections. Section A elicited personal information from the respondents (Information Technology Teachers). Such information includes type of school (public/private), teacher’s educational qualification, course studied and education zone of the teacher. Section B contained all the curriculum contents as

contained in the curriculum. In the checklists, the respondents responded to research question one based on the level of coverage of the content of the curriculum in terms of percentage of coverage. It was answered with the knowledge of the bench mark provided by the Federal Ministry of education by indicating the percentage level of adequacy. ITCIEC cluster 1 generated consistency value of 0.82 using Kendal W after trial testing in Anambra State which is another area outside where the study was done. The research question was answered using percentage while the sole hypothesis was tested using Chi-square test of the Goodness-of-fit at 95% confidence level.

**Results**

**Research Question**

What is the level of correspondence of the contents of the information technology components of basic science and technology taught in Ebonyi State with the specifications of core curriculum for upper basic education schools?

Data collected from the core curriculum on contents specifications and data collected from the diary of scheme of work in Ebonyi State schools were used to answer this research question. Summary of results are shown on Table1.

**Table 1: the level of correspondence of the contents of the information technology components of basic science & technology taught in Ebonyi State upper basic schools with the specifications of core curriculum in upper basic education**

S/N	Topics	Contents specified	Contents taught in Ebonyi State Basic Schools	% Coverage	Comments
1.	Historical Development of Computers	5	4	80%	Below Specification
2.	Data Processing	3	3	100%	Up to specification
3.	Computer Ethics	2	2	100%	Up to specification
4.	Application of IT in Everyday Life	2	2	100%	Up to specification
5.	Information Transmission	3	3	100%	Up to specification
<b>JSSII</b>					
1.	Computer Software	2	2	100%	Up to specification
2.	Operating System	3	3	100%	Up to specification
3.	Units of Storage in Computer	1	1	100%	Up to specification
4.	Computer Problem Solving Skills	1	1	100%	Up to specification
5.	Basic Programme	3	2	67%	Below Specification
6.	Computer Ethics	2	1	100%	Up to specification
7.	Safety Measures	1	1	100%	Up to specification
8.	Graphics packages	3	1	100%	Up to specification
9.	Paint Environment	1	1	100%	Up to specification
10.	IT as a Transformational Tool	4	4	100%	Up to specification
11.	IT Gadgets	3	3	100%	Up to specification
12.	Internet	5	5	100%	Up to specification
13.	Internet Environment	3	2	67%	Below Specification
<b>JSS III</b>					
1.	Computer Carrier opportunities	3	3	100%	Up to specification
2.	Computer Viruses	6	4	67%	Below Specification
3.	Internet	2	2	100%	Up to specification
4.	Digital Divide	4	4	100%	Up to specification
5.	Database	2	2	100%	Up to specification
6.	Spreadsheet package	4	4	100%	Up to specification
7.	Worksheets	3	3	100%	Up to specification
8.	Graphs	3	3	100%	Up to specification

As shown on Table1, there are correspondence in most of the content areas. Non-correspondence was observed on four content areas. They are Historical development of computers in the upper basic I Curriculum, Basic Programs and Internet environment of the upper basic II curriculum, and computer viruses in upper basic III. In the upper basic I curriculum four content areas were taught instead of five explicitly specified in the core curriculum. In the upper basic II curriculum the study observed that in the topics, Basic programmes and Internet environment were the two content areas that were not taught among content areas that were clearly specified. In upper basic III, it was observed that computer viruses were not taught four out of the contents specified in the curriculum.

**Sole Hypothesis**

- **HO<sub>1</sub>**: The level of correspondence of the contents of Information Technology taught at the Upper Basic Education Schools in Ebonyi State with the specifications of the core Information Technology Curriculum is not significantly dependent on school ownership

Data collected on level of correspondence of the contents of Information Technology taught at the Upper Basic Education Schools in Ebonyi State with the specifications of the Core Information Technology Curriculum were separated based on school ownership (public and private) and used to test this hypothesis. Summary of result is presented on Table 2

**Table 2: Chi-Square test of significance of correspondence of the contents of ICT component of Basic Science and Technology taught in secondary schools in Ebonyi State with the specifications of the Basic Science and Technology core curriculum based on school ownership**

Content	Content taught in Secondary Schools in Ebonyi State		X <sup>2</sup> cal	Alpha	X <sup>2</sup> crit	Inference
	Public	Private				
Historical Development of Computers	4 (5)	4 (5)				
Data Processing	3 (3)	3 (3)				
Computer Ethics	3 (2)	2 (2)				
Application of IT in Everyday Life	2 (2)	2 (2)				
Information Transmission	3 (3)	3 (3)				
Computer Software	2 (2)	2 (2)				
Operating System	3 (3)	3 (3)				
Units of Storage in Computer	1 (1)	1 (1)				
Computer Problem Solving Skills	1 (1)	1 (1)				
Basic Programme	2 (3)	2 (3)				
Computer Ethics	2 (2)	2 (2)	<b>2.27</b>	<b>0.05</b>	14.61	Uphold HO <sub>1</sub>
Safety Measures	1 (1)	1 (1)				
Graphics packages	3 (3)	3 (3)				
Paint Environment	1 (1)	1 (1)				
IT as a Transformational Tool	4 (4)	4 (4)				
IT Gadgets	3 (3)	3 (3)				
Internet	5 (5)	5 (5)				
Internet Environment	2 (3)	2 (3)				
Computer Carrier opportunities	3 (3)	3 (3)				
Computer Viruses	4 (6)	4 (6)				
Internet	2 (2)	2 (2)				
Digital Divide	4 (4)	4 (4)				
Database	2 (2)	2 (2)				
Spreadsheet package	4 (4)	4 (4)				
Worksheets	3 (3)	3 (3)				
Graphs	3 (3)	3 (3)				

As shown on Table 2 the Chi-square calculated (2.27) is less than the critical value (14.61) at 95 percent confidence level.

Decision rule is to reject the null hypothesis if the calculated value is greater than the critical value at a given alpha level. Since the calculated value is less than the critical value the researchers

upholds the null hypothesis and concluded that the level of correspondence of the contents of Information Technology taught at the Upper Basic Education Schools in Ebonyi State with the specifications of the Information Technology Core Curriculum is not significantly dependent on school ownership.

## Discussion

The extent to which the curriculum contents of information technology taught at the Upper Basic Education Schools in Ebonyi State correspond with the specifications of the Core Information Technology Curriculum.

There was lack of content correspondence in four topics between the specification of the core curriculum and the scheme of work taught at the Ebonyi State upper basic schools. In upper basic 1 there was lack of correspondence in the contents of the following topic; Historical Development of Computers. In upper basic 2, there were lack of correspondence in the contents of the following two topics; basic programme, and internet environment. In Upper Basic 3, there was lack of correspondence in the contents of the following topic; Computer Viruses.

The omission of few content areas in the scheme of work of the Information Technology taught at Ebonyi State Upper Basic schools could be attributed to oversight on the part of the school administrators, Universal Basic Education Board in developing a unified scheme of work for schools. Although the errors cannot be compromised in view of the fact that students are denied some basic contents required for their smooth transition to higher related courses in their tertiary education, they can still be incorporated as soon as attention of the school Administrators and UBEB is drawn to the omission.

The above findings are in line with Agugoesi et. al (2022) and Aja et. al (2025) who observed that oversight by school administrators and UBEB in producing a unified scheme of work, hindering coherent ICT instruction. The study is not in line with Begicevic Redjep et. al (2021) and Blundell (2021) who reported that content gaps may reflect situational constraints time, resources, and local priorities yet still pose risks to students' progression to tertiary study. By the virtue of this finding, the study has joined a group of studies that the level of correspondence of the contents of Information Technology taught at the Upper Basic Education Schools in Ebonyi State with the specifications of the core Information Technology Curriculum is not significantly dependent on school ownership

## Conclusion

Based on the findings, the study concluded that inconsistent alignment between core curriculum specifications and Ebonyi State Upper Basic schools' schemes of work existed. Specific gaps exist in Historical Development of Computers (Upper Basic 1), Basic Programme and Internet Environment (Upper Basic 2), and Computer Viruses (Upper Basic 3). Oversight by administrators and UBEB likely caused omissions. Although concerning for orderly progress to higher education, these gaps can be corrected with prompt attention and inclusion in the unified scheme of work.

## Recommendations

Sequel to the findings and conclusion of this study, the following recommendations were made;

- The observed non- strict adherence to the contents of information technology taught in upper basic schools in Ebonyi state, the researchers recommend a curriculum audit by the critical stakeholders.
- Teachers' professional development modules to ensure that the teachers are up to date with IT trends that ease effect curriculum content strict implementation.
- Policy-level monitoring frameworks with measurable actions.

## Implications of the Findings of the Study

The lack of strict adherence to the specification of core information technology component of the basic science and technology core curriculum in Ebonyi state will affect the students' performance if they compete with their contemporaries in other states that strictly observed the contents of the curriculum in a context that is based on the contents of the curriculum. The major implication of this is that the students will be denied of the opportunity of knowing what they supposed to know at the right time.

## References

1. Agugoesi, O. J., Inweregbugh, O. C., Mbonu-Adigwe, B. and Ofot, O. N. (2022). Evaluation of teachers' implementation of curriculum content areas in junior secondary schools' science subject. *International Journal of Curriculum and Instruction*, 14(2), 1189–1203.
2. Aja L. Abonyi S.O., Elom J.I and Ikporo F. (2025) Assessing the correspondence of the basic science curriculum across the different classes with core curriculum specifications in Ebonyi State Nigeria: *Cogent Education Journal*, 12(4), 14-27.
3. Anugwo, M. N. and Ekoyo, D. O. (2019). Evaluation of the level of implementation of the contents of the national computer education core curriculum for primary schools in Nigeria. *International Journal of Scientific & Engineering Research*, 10(10), 1649-1669.
4. Anthony Ali (2006). Conducting research in education and the social science: Tian ventures 301/303 Agbani Road , Enugu State Nigeria
5. Begicevic Redjep, N., Balaban, I., and Zucec, B. (2021). Assessing digital maturity of schools: framework and instrument. *Technology, Pedagogy and Education*, 30(5), 643-658. <https://doi.org/10.1080/1475939X.2021.1944291>.
6. Bell, D. and Foiret, J. (2020). A rapid review of the effect of assistive technology on the educational performance of learners with impaired hearing. *Disability and Rehabilitation: Assistive Technology*, 15(7), 838-843.
7. Cooper, G. (2022). Implementation of education technology in schools and colleges Research report September 2022. [www.gov.uk/government/publications](http://www.gov.uk/government/publications).
8. Ebere, M. C. and Somyo, S.W. (2017). Towards effective curriculum implementation at the basic level of education for national development and best practices. *Nigerian Journal of Curriculum Studies*, 24(4), 1-12.
9. Ekpenyong, V. O and Oboqua, E. D. (2021). Strategies for funding information and communication technology

- (ICT) adult literacy programmes in Nigeria <https://www.researchgate.net/publication/356732615>.
10. Eze, K. O., Nnadi, E. M. and Ugwuanyi, C. S. (2022). Assessment of electronic learning usage in the upper basic education French language curriculum: implication for evaluation of library and information science resources. <https://digitalcommons.unl.edu/libphilprac>.
  11. Eze, K.O., Ugwuanyi, C.S. and Okeke, C.I.O. (2020). Extent of the upper basic education French language curriculum content- delivery with technologies in Nigerian secondary Schools. *International Journal of Mechanical and Production Engineering Research and Development*, 10(4), 311-318.
  12. Head, E. (2020). Digital technologies and parental involvement in education: the experiences of mothers of primary school-aged children. *British Journal of Sociology of Education*, 41(5), 593-607. <https://doi.org/10.1080/01425692.2020.1776594>
  13. Kofi, N. M. and Opoku, A. (2021). Implementation of standard-based curriculum in Ghana: the concerns of basic school teachers. *International Journal of Education and Research*, 9(3), 53-66.
  14. Obiajuru, E. E. and Moemeke, C. (2020). Information and communication technology in curriculum implementation: A panacea for the production of effective and efficient manpower need in Nigeria. *International Journal of Research Development*, 4(2) 1-11.
  15. Obikezie, M. C., Okpala, C. C. and Amobi, U.V. (2022). Biology teachers' level of utilization and awareness of innovative teaching strategies in the teaching and learning of biology in secondary schools. *Journal Plus Education (JPE) is an official peer - review quarterly journal, issued by the Faculty of Educational Science, Psychology and Social Work*, 30(1), 141-154.
  16. Ogwu, E. N., Emelogu1, N. U., Azor, R. O. and Okwo, F. A. (2023). Educational technology adoption in instructional delivery in the new global reality. *Education and Information Technologies*, 28 (3), 1065–1080. <https://doi.org/10.1007/s10639-022-11203-4>.
  17. Osorio-Saez, E. M., Eryilmaz, N. and Sandoval-Hernandez, A. (2021). Parents' Acceptance of Educational Technology: Lessons from Around the World. *Frontiers in Psychology*, 12. <https://dx.doi.org/10.3389%2Ffpsyg.2021.719430>.
  18. Sarfo, K. F., Amankwah F., Baafi-Frimpong F. and Asomani J. (2017). Concerns of Teachers about the Implementation of Information and Communication Technology Curriculum in Basic Education in Ghana. *Contemporary educational technology*, 8(2), 103-118.