

ALIGNING DIGITAL INFORMATION SERVICES TO ENHANCE ADULT LEARNERS' SOCIO-ECONOMIC GROWTH, AND SOCIETAL DEVELOPMENT IN NIGERIA

CHRISTIANA AMARA OTTY

E-Mail: ottyamara@gmail.com

GSM: 08035488300

LEONA EBERE EKWEBELEM

E-Mail: leonamaria222@alvanikoku.edu.ng

GSM: 08064056366

DEBORAH CHINYENYE OPARA

E-Mail: oparadebby@gmail.com

GSM: 08032485782

ONONEZE OGADIMMA FELIX

E-Mail: ogadimmafelixononeze@gmail.com

GSM: 08037935875

Alvan Ikoku Federal University of Education, Owerri

Abstract

Information and communication technologies play a pivotal role in transforming the structures and functions of the whole world into a global village, utilizing various digital information resource and services. Information is power, and people with digital information knowledge and skills excel greatly in human capital development and economic enhancement. Hence, application of various IT services has numerous benefits in education, particularly in adult education teaching and learning. This study provides insights into aligning digital information services to enhance adult learners' socio-economic growth and societal development in Nigeria. The paper delves into the concepts of digitization and information services, who is an adult, adult education and adult learners, socio-economic growth; societal development, prospects of aligning digital information services with adult learners' socio-economic growth and participation in societal development, and challenges of using digital information services with adult learners. The paper concludes that aligning digital information services in facilitating adult education programmes can significantly help adult learners acquire knowledge, skills, competences, positive attitudinal change and awareness to boost their socio-economic development and wealth capacity, for solving personal life problems and actively participate in their societal development programmes and sustainability in Nigeria. The researchers suggest among other things that criteria for employing educators in adult education should currently include, in addition to their specializations, their knowledge and skills in IT services. Since digital information service are now a veritable tool for effective teaching and learning an adult education, as well as for social and economic development market of the global economy.

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Introduction

Worldwide, digital information services are widely recognized as a transformative tool for building functional individuals who can meaningfully contribute to achieving socio-economic growth and aspirations aligned with 21st century development goals in a society. Information is power, and we live in an era of information explosion that ranges from cutting-edge

research to offering new opportunities for education, research, acquisition of global insights, and attitudinal change necessary for enhancing social and economic development and wealth of a society. Information is the basis of all communication. This reality underscores the prevalent and importance of using digital information services in leveraging adult learners' socio- economic growth and participation in societal development programmes. According to Almufarreh and Arshad (2023), the intrinsic value of digital information lies in the utilization and transformation levels of a nation's capacity. A nation that invests heavily in building a digitally literate adult citizenry is regarded as a world power and a developed society due to its high rate of socio- economic growth and connectivity progress. Furthermore, studies have shown that embracing digital technology services in facilitating adult learners can unlock new opportunities for their higher economic growth, and societal development and sustainability. Similarly, Oladimeji, (2021) maintains that application of digital formation services in education is a veritable instrument for attaining educational objectives, and global learning collaboration that attracts foreign investment and investors for both individual and societal growth and development. Hence, a nation is valued and considered powerful when a significant population of its adult citizenry have acquired the needful digital information knowledge, skills and attitudes valuable for socio-economic growth, societal development.

In a like manner, Odoh (2020) observes that there is a paradigm shift towards digital information services with widespread acceptance of using IT services to solve the complexities of everyday life of adults. Hence, digital information services have become an integral part of human development, social connectivity, a source implementation of green healthcare, environmental monitoring, and societal engagements (AI integrated content, Dike, 2019). This signifying that digital information services have gained significance in all activities of worldwide, and a vital means for making adult learners' learning need objectives possible. Integrating digital information services in adult education is now a top priority of many countries than building dilapidated edifices with no impact factors on solving people's personal sole needs, and their communities (Otty,2021). Application of digital information tools and resources in problem solving of adult learning needs are becoming increasingly thoughtful, and at the same time significant in administering adult learners. Ezeadi and Unadike (2023) submit that adult learners need digital knowledge and skills that can offer them access to appropriate study, credible thinking and refined ideas to excel in their academic career and life demands. Accordingly, Nwaokezuike and Stephen (2021) submit that the need of contemporary age society is to use digital information services and quality education to build adult learners' productivity, workforce, job efficiency and others in Nigerian today. Quality education entails education aligned with societal needs, economic development, and having learners who are healthy, live in a healthy and safe environment, and having global trends attitudes for lifelong education and socio-economic development and sustainability which is the utmost and immediate need for now and the future.

This statement is apt, and as well underscores the crucial several reasons and needs for the inclusion of ICT application in Adult education practice in Nigeria National Policy on Education objectives (NPE, 2013), highlighting the need for employing ITC in adult education programmes as follows: to encourage the use of ICTs in educational teaching and learning; enlarge access to education acquisitions of the adult citizenry; improve education outcomes by providing schools with necessary instructional materials; encourage ICT centre and educational resource and so on. These polices are solely made to ensure that learning and teaching in ICT equip adult learners with digital technologies knowledge, skills and other

potentials accrue from using ICT services on promoting socio-economic growth and status of the adult learners cum adult citizenry.

Furthermore, Dokubo, Akpama, Adong, and Orgwu. (2022) submit that 21st century education is characterized by digital information explosion that focus on creating an information society. Where education, research, innovation and societal developments are significantly streamlined on the online platforms or institutional Google Websites. Dokubo et al further stated that application of information technology in adult education promotes learners' awareness on job efficiency, employability, productivity and development of competencies for self-actualizations and societal services. Similarly, Okoro and Ugochukwu (2023) maintain that utilization of emerging digital information tools and resources have become increasingly users-friendly and more convenient in modern teaching and learning settings. Utilization of digital information technology are receiving lots of attention from academics, researchers, and in teaching and learning. Also, from literature and firsthand experience, effective and efficient provision access to quality and up to date emerging digital information services to adult learners in Nigeria now is very crucial. Emerging information technology tools and devices are of various types and uses in education (Wilson, 2024).

Unegbu (2020) identified some notable institutions that provide access to digital information, and digital resources that support teaching-learning in Nigeria to include: Libraries (National libraries, School libraries, and Public libraries), digital libraries and repositories, online search engine, telecommunications and other registered groups of professionals, and organizational bodies that provide access to information services to the users.

In addition, among the digital information tools and resources/devices used for dispatching information services in education sectors cum teaching and learning are as follows: AI and AI-powered tutoring systems, Zoom, Google Workspace for education and Google Classroom, You Tube, Blockchain, online courses and tutorials, Collaborative and interactive website and platforms, personalized information delivery, Class VR, IBM e-book, Watson Education, DRs, Coursera /edX, blogs, podcasts and other such digital devices as computers, tablets, smartphones; online course and virtual classrooms, online learning platforms, teleconferencing, 5G technology, video conferencing mobile learning and apps, audio visual learning software, compact disk and many others emerging digital information materials used in teaching and learning (AI integrated content 5/08/2024; Lakka 2024; Almufarreh & Arshad 2023; Walters, 2022; Dike, 2019).

The above-mentioned digital information tools, resources and devices play a crucial role in accessing, processing, storing, creating and communicating information to the end point users. They are commonly known as new innovative digital information tools that have to do with resources for dissemination information services to the targeted audience (Otty, Mbaegbu & Igbokwe, 2024). Information may be entirely new or an improvement on the existing one. Aligning digital information services in adult education is essential for several reasons. Such like: to promote individualized learning, digital flexibility, self-directed learning and trainings, have access to global knowledge, for creating and disseminating information to various units or remote locations of the adult learners and other thing. Adult education as a lifelong education, with numerous porogrammes of distance and personalized learning programmes needs digital information services to meet up with adult learners' learning needs/objectives, and responsibilities. Quoting Anulobi, Ukaegbu & Anuonye, (2020), contemporary teaching and learning Favors curricula that is based on an active process of constructing knowledge and acquiring it through multinational information

technology aids. While conventional teaching learning method emphasizes contents, and courses written around textbooks which is against Bandura (1986) Social Cognitive Theory of educating adult learners. Bandura (1986) Social Cognitive Learning Theory Assumptions gear towards achieving adult learners specific areas of interest, skill development, manifestation of self-efficiency, and behavior -individual differences. Hence, this study is anchored on Bandura (1986) Social Cognitive Theory, and Malcolm Knowles (1970) Andragogy learning, which emphasizes five learning assumptions about adult learners.

Consequently, Ezeadi and Unadike (2023) maintain that having access to diverse digital information services and resources give adult learners ample opportunities to online forums and discussion groups, like peer-to-peer interaction, free and accessible learning materials and personalized information delivery. Again, information literacy changes the ways an adult learns, work, lives in a community, and maintains his/her environmental development and sustainability. Information technology services provide adult learners with vast access in diversity of opinions and up-to-date knowledge on online platforms (Walter 2022). Okoro and Ugochuwu (2023) in their study submit that acquisitions of digital information skills enable the acquirers to make informed discussions, learn and grow, understand the world around him/her, improve their lives and communities, and the nation at large. Furthermore, Ononeze, Opara and Onoriode (2025) state that fostering environmental literacy digital information within the family unit can lead to more informed and proactive adults in the family, and society in general.

But Ugo and Ade (2021), submit that acquisition of digital skills may be complex and new to adult learners; or adult learners may only be managing digital information needs in a limited way in their professions and personal lives. Acquisition of digital information skills according to Almufarreh and Arshad (2023) is complex because it is hidden in various forms and formats. However, a nation that loses control of its records will eventually lack sense of purpose and limited national social supports in its current development trends. This statement is true, and in concordance with Nigeria's situations. Nigeria faces numerous but surmountable challenges in the area of ICTs provision, accessibility and reliance to provision, and utilization of accurate educational information technology services in education, especially in adult education field (Odoh, 2020). Okoro and Ugochukwu (2023) in their study state that majority of adults or elderly people have technophobia for using digital information resources and tools due to the overwhelming interfaces or challenges that go with their uses. They fear for making errors or not understanding how to use digital technology properly can lead to a fear of not trying at all; or entire withdrawal from the programme to prefer analogue teaching and learning method (classroom instructions and passive learning) than using emerging digital technologies in their studies.

In contrast, Ezeadi and Unadike (2023) state that adult education is pivotal in building functional individuals in the society; it is as well, a remedial link to those who missed formal education and trainings. But for adults to enrol or to transition into higher education, better career or international marking, they need to be familiar with digital information technology and how to use it. Utilization of digital information tools and resources provide adult learners with a wealth of information on how to access their information needs maximally and without much stress; which as well liberate them from prejudices of seeing themselves as being incapacitated to learn at their old age. The need of digital information services is in everyday life of human beings, and people still have high tempos for continuing education; and search for knowledge and prosperous skills to excel in life and in the global world (Walters, 2024).

Conceptualization of Digital Information Services

Digitalization as a concept is the process of converting analogue information, activities or processes into the existing digital formats, to enabling digital processing, storage, and be manipulated using digital tools, platforms and data to transform processes in various aspects of individuals lives. Be it in general education teaching and learning process, health, economic growth and productivity, governance and so on. Information'' according to Otty, Mbaegbu and Igbokwe (2024), is the raw data, facts, or the actual content/knowledge that are processed, structured or organized to provide meaning and knowledge to the users. Furthermore, digital information services refer to the provision of information and resources through digital channels and how learners are guided to make use of them. Currently, there are varieties of digital information services that provide online learning infrastructure in which researchers and other users can communicate with one another, either by exchanging e-mail messages or by participating in the online conferences' forums (Otty, Mbaegbu & Igbokwe 2024, Dike, 2019). Digital information service is a key factor for revolutionizing socio-economic growth of the adult learners, improving their knowledge and drives their prosperity progress and participation in societal work.

In fact, one can deduce that directly or indirectly, adult learners as a salvaging figure in social development need digital information knowledge and competencies to excel in their social economic development responsibilities. Hence, adult learners need to be abreast with accurate and current use of digital information technology services pertaining to their needs and in their different fields of learning or units. In this juncture, it becomes expedient to view briefly the concepts of an adult, and adult education.

An Adult: An adult as a concept is not a child; and a child is not an adult. Adulthood is an essential status to attain and with conferred roles and responsibilities on the adult to carry out. Legally, in Nigeria specifically, adulthood is assumed or confirmed at the age of 18 years and above (Otty, 2021). To Nzenri (2010), an adult is a person who is physically and psychologically mature; and socially, economically, politically, culturally and environmentally responsible. Adulthood is attached with an adult having ability, and the capacity to solve personal socio-economic needs, and at the same time participation willingly in societal development programmes and sustainability. Accordingly, Nzenri (2010) submits that those who are regarded as adults in the society to which they belong have expected roles and responsibilities attached to adulthood age.

Adult Education: Adult education is an age long education which is currently refers as Continuing and Lifelong Learning Education. In another context, adult education is a process of teaching and learning designed for adults. It is a field of academic study in which adults learn something about everything for the purpose of self and societal wellbeing. In Nigeria, adult education consists of functional literacy, remedial, vocational community education and others. Adult education focuses on developing all forms of socio-economic targets of the adults according to their varying needs and requirements, following Malcolm Knowles (1970) Learning Theory or Andragogy assumptions about adult learners' learning styles which thus include among other things:

- a. **Self-Concept:** Adults have a secure self- concept, which enabling them to direct their own learning. This in tells that adult learners should have a say in their learning

- b. Experience Based Learning: Adults draw upon their vast experiences to inform their learning. Hence, they should be leveraged to inform their learning.
- c. Practical Application: Adults learning should focus their work and solving real-world problems.
- d. Relevance: Contents should be relevant to adults' lives and interest.

Base on the above facts, adult learners as applied in this study is any mature individual or an adults in their society; or may no longer attend school on a regular and full time basis, but engages in any organized learning activities or programmes; with a conscious intention of bringing about change in information, knowledge and attitudes; or acquire new competences for the purpose of solving personal problems or sensitiveness for achieving environmental wellness (Wusa & Mnohijmoh; 2023, Odoh, 2020). Adult education, as an amorphous field of study is all round developer. It develops the learners' cognitive, effective and psychomotor domains which at large boosts national development and sustainability. Adult education is one of the principal professions that has over the years played a key role on socio-economic growth and development of the adults. It's teaching and learning is hence systematically designed in conjunction with Malcolm Knowles' (1970), and Bandura's theory of Andragogy Learning Assumptions on learners' attitudinal concept and needs actualizations. Quoting Nzeneri (2010), the basic tenet of adult education is the conviction that learning is not restricted only for the early and middle adults, rather a lifelong learning process for all ages.

Socio-Economic growth and development: Aptly, Socio-Economic growth and development of a nation is the overall quality of life or improvement in the economic and social well-being of a nation and the citizenry. Hence, measuring points- triggered and triggered points for socio-economic development of a nation includes improved education, healthcare, increased income, productivity and economic output, social development and human well-being; social responsive state, sustainable livelihood; and peoples' digital information accessibility skills to world views on socio-economic growth and development. Furthermore, socio-economic indicators include:

Employability,
Income growth,
High standard of living,
Increase in production of goods and services in economy over time,
Long term economic stability,
Social mobility,
Improved health and well-being,
Environmental protection and civic engagement,
Societal inclusive,

Peaceful co-existence among all the member groups and diverse background in a society, and Improved infrastructure and technological advancements so on (AI. generated, Ezeadi & Unadike, 2024)

Societal development: in this study societal development in context is viewed as a generic term and a guiding principle, and a foundational key for shaping quality of life and structure of a society over time. It is also a comprehensive process of improving overall well-being and functioning of a community and the citizenry. Societal development according Wusa and Mnohijmoh (2023) is considered to include: development of education and human capacity, economic and sustainability, cultural development and government institutional development,

healthcare and wellbeing, and infrastructure and technology development of a society. Societal development aims at creating a better future for all members of a society, addressing challenges and leveraging opportunities for a common progress. Ezema, Ukwuaba, and Ayogu (2017) state that societal development is a change in a desirable direction and encompassing human agents. Meaning that people's development is empirically necessary and sufficient for socio-economic growth and societal development. Since societal building is neither come by accident nor does it take place naturally and quickly on its accord, rather by a collaborative effort of the functional individuals or groups in the society, a times by the government grants. Therefore, in the context of this work, utilization of functional digital information services and resources and applications, contribute to overall well-being and advancement in a society, through adult education and digital information informed adults in the society.

Why Aligning Digital Information Services with Adult learners Development

Among the reasons for aligning digital information services in adult education are:

Aligning digital information services (ITs) tools and resources with adult education facilitation is very crucial in the 21st century instructional teaching and learning strategies that is centered on learner-center or learner-word instructions. Learner-centered learning is a method which centers and encourages self- centered learning. It enhances learners' critical thinking, collaboration, effective communication, and appropriate interface of the four domains activeness. It also promotes application of constructivist elements of learner-centeredness, cooperation and achievement of desired knowledge, competencies and empowerments that build informed adults who can shoulder their personal needs and comfortably contribute to socio-economic development of their nations (Dike, 2019)).

Societal integration: digital information technology strengthens societal cum community inclusion of the educated adults. Informed adults participate in community meetings and online discussions, using digital information tools or resources correctly to participate in solving community problems or other issues pertaining societal development plans or execution with less stress than uneducated fellow community members.

Personal development, digital information services support personal growth in lifelong learning education- new knowledge, skills and positive change in attitude and so on. It also, promotes global open learning education, collaborative learning environment; and tailors learning experiences to individual needs and preferences, thereby boosting personalized learning, and fosters for individual learning styles and speed; hence bridging geographical gaps and financial barriers that can inhibit adult learners for engaging in self-spaced work and other personal activates (Otty, Mbaegbu & Igbokwe 2024).

Infect, the reasons for aligning digital information services in adult education to boost learners' socio-economic development and societal participation are unlimited.

Prospects of Digital Information Services in Adult Learners' Socio-Economic Growth and Societal Development

The ways and processes digital formation services can contribute to socio-economic growth and development of the learners are remarkably too many to mention. Among others are as follow:

Educational Mobility and Accessibility

Digital information resources and tools are used to engage adult learners in learning programmes and activates, such as simulation, problem solving activities, online research and others. While AI-powered tutoring systems provide personalized learning experiences by adapting to individual learners' needs; and promote access to digital skills and job market that enhances employability and business opportunities.

Flexibility: digital information services offer flexible learning options, allowing adult learners to learn at their own pace and according to their individual needs and differences or peculiarities. With digital information skills and knowledge, adult learners can determine their better time and training needs by themselves, carry out their learning processes to their comfort zones through computer or with many other virtual platforms designed for such purposes. (Walter, 2024, Almufarreh & Arshad 2023).

Full time access to materials; this is one of the most significant benefits of digital information services to the adult learners. Learning materials are always available to any learning location with an internet connection, which gives adult learners access to global community insights on education and socio-economic growth and development.

Interactivity and collaboration: learners working together is engaging and more rewarding to achieve stated educational objectives. Digital information technologies as a collaborative learning tool provide immerse experiences by bringing students and teachers together through video conferencing, Google classroom and others used to shared documents in learning. Devices like DRs provide learners with opportunities to explore topics in-depth and practice skills in a variety of ways Dike, 2019).

Global connectivity and peer communities: adult learners feel more comfortable sharing with peers online rather than classroom teaching and learning. Digital information resources offer explicit and more structured learning environment in a special way which build communities for learners and the educators, that are in turn lead to educational sustenance to all involved (AI-generated content, Unegbu, 2020, Webopediahttp://wwwwebopedia.com/TERM/O//online_SERVICE.html).

Personalized learning: most digital resources are tailored to meet the specific needs and interest of the adult learners; which enhances the learners' engagement and motivation for personalized learning, promoting self-motivation and discipline to focus more on specific needs of a learner, and making teaching and learning easier for the facilitator and the learners.

Improved Economic, Workforce, Employability Entrepreneurship

The proliferation of information technology services have made remote and foreign search for lucrative jobs more accessible to the informed adults. Educated adults can leverage IT skills and knowledge to get lucrative job opportunities worldwide, which certainly leads to their being self-sufficiency in socio-economic growth and active participants in societal development responsibilities.

Financial literacy; digital information services offer financial literacy education, enabling informed decisions and economic growth and stability in the society, and also in the national development.

Career advancement and life opportunities; informed adults can access information to acquire new skills that promote their professional development and career prospects; adding more qualifications and skills to what adults initially have, thereby increasing their chances of getting jobs, or being promoted. When more people are gainfully employed, the low the pressure on governments to sustain those who need to live being jobless (Odoh, 2020). Accordingly to Almufarreah and Arshad (2023), acquisition of modern technology skills enable the acquirers to engage in Shopify, Etsy, Amozon and other e-commerce business platforms that help small business owners to reach global markets and enjoy its benefits.

Health and Well-being - Mind -Personal Growth

Research suggests that continuous online leaning stimulates adults' neuroplasticity, brain's ability to recognize and form new neural connections; boosts their memory and problem-solving abilities. It also sharpens their cognitive skills and ability for challenging themselves intellectually, as an improved cognitive agility makes an invaluable asset in navigating life challenges, be it personal, collectively or professionally.

Engaging in continuous digital learning addresses mental health of an adult learner to develop more positively in self-confidence, self-esteem and self-worth. Learning as an adult promotes the adult learner's higher ability to cope with life, greater sense of purpose, overall happiness, and wealth achievement (AI generated contents). Furthermore, Lolacono (2024) states that learning exercise keeps an adult's brain agile and adaptable for retention; and improved critical thinking that contribute immensely in economic well-being, and social development.

Promotion of Societal development

Increased civic participation and social engagement. Knowledge, skills and attitudes gained in information technologies can help adult learners to stay informed about societal issues, engage in social work, and contribute in decision making process within their communities. Access to digital information services highlights societal trends, policies and civic rights that motivate adults to engage more actively in societal development and policy advocacy.

Global awareness and attitudinal change gotten in digital information motivate people in offering scholarship education to the less privileged, participation in poverty alleviation via offering of food and financial palliatives to the poor in the society, and community development projects. Community building through digital information services facilitate a sense of community and collaboration towards contributions for building a better society.

Environmental Stewardship: engaging in practices like conserving water, reducing carbon footprints to promote sustainability; and advocating for transparent, equity and supportive environmental governance (Wusa & Mmohijmoh 2023).

Challenges of Aligning Digital Information Services to Enhance Adult Learners' Socio-Economic Development

Lack of time management for balancing digital learning with other responsibilities impedes adults' constant access to digital information usage, and acquisition of knowledge, skills and other benefits accrue from it digital information services that boost adults' socio-economic growth and participation in societal development programs

Limited digital literacy and unfamiliarity with digital information tools and resources hamper adult learners' utilization of information technology in their studies and their increase in socio-economic development. Illiteracy is not hidden in cloth and characters; but smells out on its accord for identification and often ends unserved. But a literate adult proud is a refined behavior and a gold box of activities. This means that ten literate adults have societal conscience than a million illiterate adults without responsibilities (Atu, Otty & Uobinjo, 2022, Dike, 2019)

Phobia restrict adult learners' assessment and acquisition of knowledge and insights accrue in IT. Quoting Almufarreh and Arshad (2023), digital information technology is complex because it is hidden in various forms and formats which majority of adult learners fear.

Unskilled digital educators and personnel: There is much lacks of digital educators and personnel handling adult education programmes which have massive limitations on learners' flexibility in accessing digital information or achieving their stated objectives for enrolling in adult education programme.

Poor or unreliable internet connectivity can block learners' access for accessing information online or join in Google class platforms. This scenario is more common with adult learners in the remote areas.

Lack of funding militates against the success of teaching and learning in adult education in Nigeria, as well as inhibiting their ability for personal and community problem solving (AI generated content, Otty, Mbaegbu & Igbokwe 2024; Dike, 2019).

Conclusion

The paper concludes that aligning digital information services in facilitating adult education programmes can significantly help adult learners acquire knowledge, skills, competences, positive attitudinal change and awareness to boost their socio-economic development and wealth capacity, for solving personal life problems and actively contribute in their societal development programmes responsibilities and sustainability in Nigeria at large. Nigerian governments and institutions stakeholders must prioritize inclusion, and adequate utilization of information technology services in many of Adult education learning centres in Nigeria; order to allow adult learners in Nigeria keep pace with 21st century development and socio-economic goals, through utilization of digital information services that made the world a connectivity community, for research and for all phases of human and developmental aspirations.

Suggestions

To achieve the objectives and purpose of aligning digital information services to enhance adult learners' development in socio-economic growth and development in Nigeria. The researchers suggest the following:

1. The criteria for employing educators in adult education should currently include, in addition to their specializations, their knowledge and skills in IT services. Since digital information service are now a veritable tool for effective teaching and learning, as well as for social and economic development market of the global economy.
2. government should meaningfully fund public libraries and other registered information institutions operating in Nigerian communities, so as to achieve 21st century desired information goals on adults cum adult learners' in our great nation, Nigeria.

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