

PROFESSIONAL DEVELOPMENT NEEDS OF ADULT EDUCATORS IN THE FIFTH INDUSTRIAL REVOLUTION IN RIVERS STATE, NIGERIA.

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Abstract

The fifth industrial revolution (5IR) is gradually transforming the mode and process of adult education; therefore, adult educators are required to upskill necessary capacities and competencies to remain very relevant in this era. This study was conducted to investigate the professional development needs of adult educators in the fifth industrial revolution in Rivers state through a mixed-method approach, A survey was conducted on eighty (80) adult educators in the formal and non-formal sectors and in-depth interviews carried out on 6 key informants. The results revealed the existing gaps among adult educators. The study also, disclosed the need to integrate evolving technological trends to facilitate adult learning process. Based on this reason, this study highlighted the needs for collaboration, critical thinking and emotional intelligence to facilitate knowledge and skills that support the process of navigating the complexities in the pedagogical process. Finally, inference was drawn based on the findings of the study and recommendations made for the improvement of adult educator professional skills.

KEYWORD: Adult Education, digital literacy, Innovative pedagogies, Revolution.

Introduction

Historically, the origin of technological innovations can be traced back to the mid-18th century era when various machines were invented to replace manual labour in the industrial sectors. The era brought about a radical change in the human industrial activities. The era was closely followed by the second industrial revolution of 19th century that assisted in the discoveries of other things such as gas and electricity to drive the revolution. However, the third (3IR) revolution was as a result of the post-war experience of the World War 11. The post-war experience gave rise to the upsurge as witnessed in the inventions of things such as computer, consoles, cell phones among others. It was indeed an era which was characterized with digital revolution in both communication and productivity. The era used computer to assist in teacher's made instructions. Between 2011 and 2016, the fourth (4IR) revolution started gathering momentum. The 4IR was a major breakthrough for further technological innovations. It was a period characterized with the gradual discoveries of Artificial Intelligence (AI), robots, cloud storage technology, fusion of physical, digital, and biological spheres known as cyber-physical system. Succinctly, the era was the time of internet of things (IOT), 3D printing and AI shaping period. Besides, the 5IR is buildup from the 4IR for sustainability (Ekwueme et al (2024). The 5IR is aimed at balancing automation and human intervention. It is an enabler of critical thinking and adaptability of the use of machines. Ikenga and Sijde (2024) stated the 5IR to be a strategic integration of human work force in collaboration with robotic machines for the purpose of business and social networks because of its velocity, scope, and systems impact. According to Vurayai in Echezu et al (2025), the 5IR has become a strong driving force for further innovations such as artificial intelligence, gene editing, and biotechnology among others. The 5IR

technologies such as the virtual and augmented reality have help in the promotion of visual and interactive process of learning, leading to greater innovation and creativity in the process (Wolniak,2023). Thus, redefining the professional skills and competencies required of adult educators in the present era, because of the major role adult education plays in the development of the contemporary societies. Accordingly, adult educator is one with the professional pedagogical training and knowledge of modern teaching techniques in organising the learning process. By this expertise the educator is able to relate the educational environment with the interests of the learners, so that the process of learning becomes very effective, flexible and structured towards achieving set learning goals (Tzovla & Kedraka, 2020). Adult educators are seen as an indispensable driving force in the education sector of today with a crucial role in preparing individuals of all backgrounds and ages to live, learn and work in the world of today, as well as in creating and leading future changes (Ioannou,2023). Thus, adult educators' professional development needs at this era of technological advancement are equally important. Daramola (2024) referred to adult educators' professional development needs as a type of educational experiences required of an individual educator to function effectively. It is a learning process that enables the application of new knowledge and skills for improved performance in the andragogical process. For educators to be very effective in the calling, they are required to engaged in continuous expansion of professional knowledge and skills to implement best educational practices. Professional development is critical in maintaining quality of adult education, and also in the availability of programmes and information required of in adult education. Notably, Daramola (2024) defined the concept of professional development needs as the strategy used in strengthening careers practices, it is also use to apply new knowledge and skills that will improve performance on the job. The strategy has assisted in bridging the existing gaps between current professional development needs in the emerging demands of 5IR. Perhaps the factors responsible for the achievement of the strategy is rooted in the paradigm shift of the wide acceptance of technological development, to influence information sharing, data management and usage in the process of adult education (Ibinaiye & Jiyane, 2021). While the 5IR is bringing about many potential benefits, it also presents several challenges for the adult education sector. One major challenge is the need for the educators to adapt the teaching and learning methods that accommodate 5th technological advancement. This may require the development of new pedagogical approaches, as well as the integration of technology into the classroom. It may also require the adoption of new assessment methods to evaluate students' knowledge and skills in this rapidly evolving field. Another challenge is the need to address ethical concerns related to the use of advanced technologies (Al-Emran et al.2022).

The strategies of enhancing the professional skills, according to Turner (2024) include to identify, articulate, implement, and evaluate explicit model for skills instruction. It should incorporate meaningful discourse as a regular activity, leverage on high-quality questioning techniques, articulate critical thinking skill development to encourage content and professional practice. Wang et al. (2023) observed the sufficing strategies for improving professional development as enhancing autonomous professional awareness, clarify professional development goals and plan, activate the endogenous motivation for self-development, self-career identity and collective sense of belonging, keep a positive mentality, brave to innovativeness, having a sense of responsibility for career growth, a good team work, continuous improvement of professional knowledge and ability through education, active participation in professional research, seminars, training and workshops, independent and individualized learning ability to master evolving knowledge and skills, establish an incentive mechanism for the professional development (Wang et al.2023).

Therefore, the concern of this study is to examine the professional development needs of adult educators in the 5IR in the state. This study is delimited to two (2) Local Government Areas in Rivers State. The local government areas are: Obio/Akpor and Ahoada-West of the state.

Research Objectives

The aim of this study is to examine the professional development needs of adult educators in the fifth industrial revolution in Rivers state.

The specific objectives are to:

1. ascertain the professional development needs of adult educators in the fifth industrial revolution in Rivers state.
2. identify the challenges confronting adult educators' professional development in the fifth industrial revolution in Rivers state.
3. suggest strategies of enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state.

Research Questions

The following research questions guided this study:

1. What are the professional development needs of adult educators in the fifth industrial revolution in Rivers state ?
2. What are the challenges confronting adult educators' professional development in the fifth industrial revolution in Rivers state?
3. What are the strategies of enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state?.

Methodology

The mixed-method approach was adopted in this study. The method was found suitable in the study because it of its ability to provide both quantitative and qualitative data from respondents. The population of the study consist of eight hundred (800) adult educators in the formal and non-formal sectors in Rivers State. The sample size of eighty (80) adult educators was adopted using a simple random sampling technique while in-depth interviews were conducted on six (6) key informants. A -18-item questionnaire title: Professional Development Needs of Adult Educators in the Fifth Industrial Revolution (PENAEFIREQ) and interviews was used for data collection. The instrument was duly validated by experts in adult education and a reliability index of 0.80 was established using Cronbach Alpha reliability technique. In answering the research questions and the analysis of in-dept interviews, the mean scores, standard deviation and thematic analysis was used.

Data Analysis

Research Question 1: *What are the professional development needs of adult educators in the fifth industrial revolution in Rivers state?*

Table 1: The professional development needs of adult educators in the fifth industrial revolution in Rivers state

S/ N	Item Statement	Total	Mean	SD	Remark
1.	Digital literacy for data collection	264	3.62	0.42	Agree
2	Critical thinking for data analysis	256	3.51	0.50	Agree
3.	Technologically innovative teaching skills	282	3.86	0.35	Agree
4	Leadership/entrepreneurship skills	223	3.05	1.42	Agree
5	Adaptability to technological innovations and curricula review	233	3.19	0.65	Agree
6	Collaborative teaching/learning skills with other stakeholders	244	3.34	0.52	Agree

Aggregate Mean		3.34	0.64	Agree
Criterion Mean		2.50		

Result from table 1 revealed that digital literacy for data collection had a mean score of 3.62 and SD.45. The result indicates a reasonable level of professional development needs of the adult educators in the context of fifth industrial revolution. The mean score 3.51 and SD.50 indicates that respondents urgently required the skill of critical thinking for data analysis in the fifth industrial revolution. Technologically innovative teaching skills as an essential professional development need of adult educators had a mean score of 3.86 and SD.35. Leadership/entrepreneurship skills show a mean score of 3.05 and SD1.42. The mean score of 3.19 and SD.65 and 3.34 and .52 for item 5 and 6 respectively are indications that these skills will enable adult educators to navigate the intricacies of 5IR in the provision of adult education related services.

Research Question 2: *What are the challenges confronting adult educators' professional development in the fifth industrial revolution in Rivers state?*

Table 2: The challenges confronting adult educators' professional development in the fifth industrial revolution in Rivers state

S/ N	Item Statement	Total	Mean	SD	Remark
1.	Inadequate support for the full implementation of 5IR related curriculum	237	3.25	0.68	Agree
2	5IR engender frequent review of the curriculum	244	3.34	0.70	Agree
3.	Adapting to evolving technological revolution in the teaching process	205	2.81	0.98	Agree
4	Poor capacity building for education related issues in the 5IR	244	3.34	0.71	Agree
5	Insufficient funding of overhead cost of training adult educators	257	3.52	0.34	Agree
6	Difficult experiences in human- machine collaboration in education related programmes	233	3.19	0.65	Agree
	Aggregate Mean		3.79	0.68	Agree
	Criterion Mean		2.50		

Result from table 2 revealed the responses on challenges confronting adult educators in the 5IR. With mean score of 3.25 and SD.68, respondents significantly agree that inadequate support for the full implementation of 5IR related curriculum is a big challenge. Respondents also agreed with mean score of 3.34 and SD.70 on 5IR engender frequent review of the curriculum, 2.81 and .98 on adapting to evolving technological revolution in the teaching process, 3.34 and .71 on poor capacity building for education related issues in the 5IR, 3.52 and .34 on insufficient funding of overhead cost of training adult educators and 3.19 and .65 on difficult experiences in human- machine collaboration in education related programmes respectively. The implication of this finding has the propensity of hindering the smooth implementation of the 5IR related curriculum. With the aggregate mean of 3.51 above the criterion mean of 2.50 indicate the equal concern regarding the challenges towards adult educators in the 5IR in Rivers state.

Research Question 3: *What are the strategies for enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state?*

Table 3: The strategies for enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state.

S/N	Item Statement	Total	Mean	SD	Remark
1.	Curriculum review to accommodate the 5IR innovations in adult education	261	3.58	0.68	Agree
2	Provide incentives for the adoption of 5IR related knowledge/skills	247	3.38	0.71	Agree
3.	Continuous integration of technologies to enhance education related programmes	240	3.29	0.78	Agree
4	Promote adequate collaborative efforts for training and retraining of educators	263	3.60	0.24	Agree
5	Upgrade the capacity of infrastructure to accommodate changing realities in the process	254	3.48	0.81	Agree
6	Availability of funds and adequate management of resources by respective agency of the state.	270	3.70	0.46	Agree
	Aggregate Mean		3.51	0.61	Agree
	Criterion Mean		2.50		

Result from table 3 indicate adult educators' responses on item 1,2,3,4,5 and 6 respectively with mean score of 3.58 and SD.68, 3.38 and 71, 3.29 and .78, 3.60 and .24, 3.48 and .81 and 3.70 and .46 respectively. With the aggregate mean of 3.51 above the criterion mean of 2.50 shows the position of respondents on the strategies of enhancing professional skills of adult educators in the 5IR.

Discussion

The result of Table 1 revealed that the respondents agreed that the items listed are the professional development needs of adult educators in the fifth industrial revolution in Rivers state. From the result of the study, the professional development needs of adult educators include digital literacy for data collection, developing critical thinking for data analysis, technologically innovative teaching skills, leadership/entrepreneurship skills, adaptability to technological innovations and curricula review and collaborative teaching/learning skills with other stakeholders among others. This finding is in line with that of Daramola (2024) who referred to adult educators' professional development needs as a type of educational experiences required of an individual educator to function effectively. It is a learning process that enables the application of new knowledge and skills for improved performance in the andragogical process. For educators to be very effective in the calling, they are required to engaged in continuous expansion of professional knowledge and skills to implement best educational practices. Professional development is critical in maintaining quality of adult education, and also in the availability of programmes and information required of in adult education

Theme 1: Opinion on "professional development needs of adult educators in the fifth industrial revolution in Rivers state".

All the persons interviewed accepted the professional development needs of adult educators in the fifth industrial revolution. According to the key informant, adult educators are required to scale up their digital literacy skills for critical data analysis, innovative teaching and leadership styles. Participants agreed that adaptability to innovative ways of learning, collaborative skills and curricula review are very necessary in meeting the needs of educators in the 5IR.

The result of Table 2 revealed that the respondents agreed that the items listed are the challenges confronting adult educators' professional development in the fifth industrial revolution in Rivers state. From the result of the study, these challenges include inadequate support for the full

implementation of 5IR related curriculum, 5IR engender frequent review of the curriculum, difficulties in adapting to evolving technological revolution in the teaching process, poor capacity building for education related issues, insufficient funding of overhead cost of training adult educators and the difficult experiences in human- machine collaboration in education related programmes among others. This finding is in line with that of Al-Emran et al. (2022).) who referred the challenges facing adult education professional development as the inability to adapt to the teaching and learning methods that accommodate 5th technological advancement which required the development of new pedagogical approaches, as well as the integration of technology into the classroom.

Theme 2: Opinion on “challenges confronting adult educators’ professional development in the fifth industrial revolution in Rivers state”.

The key informants in different sessions of the interviews agreed on the various challenges confronting adult educators’ professional development in the fifth industrial revolution. Highlighting on these challenges, they strongly pointed out the lack of political will to fully support the frequent requirement of review of curriculum as a result of evolving technological revolution in the education process, poor funding and capacity building for education related issues resulting in tough human-machine collaborative experiences.

The result of Table 3 revealed that the respondents agreed that the items listed are the strategies for enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state. From the result of the study, the strategies for enhancing the professional skills of adult educators in the fifth industrial revolution include curriculum review to accommodate the 5IR innovations in adult education, provisions of incentives for the adoption of 5IR related knowledge/skills, continuous integration of technologies to enhance education related programmes, funding and upgrading the capacity of infrastructure to accommodate changing realities in the process among others. The finding of this study agrees with Wang et al. (2023) who observed the sufficing strategies for improving professional development as enhancing autonomous professional awareness, clarify professional development goals and plan, activate the endogenous motivation for self-development, self-career identity and collective sense of belonging, keep a positive mentality, brave to innovativeness, having a sense of responsibility for career growth, a good team work, continuous improvement of professional knowledge and ability through education, active participation in professional research, seminars, training and workshops, independent and individualized learning ability to master evolving knowledge and skills.

Theme 3: Opinion on “The strategies for enhancing the professional skills of adult educators in the fifth industrial revolution in Rivers state”.

Most of the participants in the interview believed that to enhance professional skills of adult educators in the 5IR required urgent intervention of government in area such curricula review, providing incentives for 5IR related infrastructure for knowledge/skills development, collaborative training among others. It is therefore, crystal- clear from the views of all the key informants that the strategies will boost the professional skills of adult educators in the 5IR. From the view of the participants, it becomes very glaring to note that the professional development of adult educators in the fifth industrial revolution is synonymous to building a society where professional adult education is sustainably practiced.

Conclusion and Recommendations

From the findings of the study, it was concluded the professional development needs of adult educators include digital literacy for data collection, developing critical thinking for data analysis, technologically innovative teaching skills, leadership/entrepreneurship skills, adaptability to

technological innovations and curricula review and collaborative teaching/learning skills. The strategies for enhancing the professional skills of adult educators in the fifth industrial revolution include curriculum review to accommodate the 5IR innovations in adult education, provisions of incentives for the adoption of 5IR related knowledge/skills, funding and upgrading the capacity of infrastructure to accommodate changing realities. Based on findings from the study, the following recommendations are made.

1. There is an urgent need to address the numerous professional needs of adult educators in order to accommodate the changing educational realities of the fifth industrial revolution so as to facilitate effective implementation of adult education programmes.
2. Government and other stakeholders should set up an efficient framework to track the various challenges of adult educators to achieve effective service.
3. There should be collaborative efforts by all relevant stakeholders to encourage the various strategies for professional development of adult educators in view of the contemporary trends for sustainability.

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