

IN-SERVICE TRAINING METHODS AND INFLUENCE ON THE PROFESSIONAL DEVELOPMENT OF AGRICULTURAL EDUCATORS IN TERTIARY INSTITUTIONS IN RIVERS STATE.

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Abstract

The study investigated in-service training methods and their influence on the professional development of agricultural educators in tertiary institutions in Rivers State. The purpose was to examine available training opportunities, assess their effectiveness in enhancing educators' competencies, and determine gender-related differences in perception. Three research questions and three hypotheses guided the study. A descriptive survey design was adopted, and a sample of 60 males and 40 females' agricultural educators was selected across tertiary institutions in the state. The target population is 100, three expert from agriculture, measurement, evaluation validated the instrument, Data were collected using a self-structured questionnaire titled in service Training methods and Professional Development Questionnaire (ISTMPDQ) the instrument was validated by three experts from Agricultural Education, Measurement and Evaluation Reliability of the Instrument was established using mean, standard deviation, and z-test was used to test null hypotheses at 0.05 level of significant. Findings revealed that workshops, seminars, conferences, and refresher courses were the most common in-service training methods, knowledge of modern agricultural practices, and integration of emerging technologies into instruction. The study concluded that in-service training is essential for equipping agricultural educators with the necessary skills for effective teaching and sustainable agricultural education. The study therefore recommended that tertiary institutions and policymakers prioritize continuous training, provide more ICT-based programs, consistent support of mentorship initiatives and encourage collaboration with industry experts for improved capacity development.

Keywords: In-service, Training, Professional, Development, Agricultural Educators

Introduction

Professional development of educators has been widely acknowledged as a critical factor in improving instructional quality and educational outcomes ,teacher professional development refers to the structured processes and activities that help practicing teachers enhance their knowledge, skills, attitudes and instructional competencies beyond their initial teacher preparation Yemmy (2024) such development is particularly important in dynamic fields like agricultural education where emerging technologies ,sustainable practices and evolving pedagogies demand that educators continually update their capacities to remain effective in the classroom,agricultural education in particular, demands continuous learning due to rapid advances in agricultural technologies, environmental practices and curriculum reforms without effective in-service training methods agricultural educators are likely to experience gaps in pedagogical .skills, technical competencies and contemporary content knowledge all of which are necessary to prepare students for the demands of modern agricultural sectors, agricultural education in tertiary institutions serves as a pivotal mechanism for equipping graduates with critical skills, ranging from technical know-how and entrepreneurial acumen to digital literacy needed to navigate the contemporary challenges of food security, climate resilience, and value-chain development .Osagiede, Alordiah and Okoh(2024). By emphasizing pedagogical innovations like experiential learning, technology-enhanced instruction, and inquiry-based methodologies, such education becomes dynamic, practice-oriented, and more aligned with sector realities, nevertheless, the capacity of agricultural educators in Nigeria, especially within Rivers State, remains constrained. Institutions often grapple with underfunding, inadequate practical infrastructure, and a lack of ongoing professional development, factors that hinder the practical relevance and delivery of their programs. For instance, Aleru and Lazarus (2021) found that farm workshops, critical for hands-on agricultural learning, were often undermined by insufficient equipment, poor maintenance, and limited access, all of which incapacitated practical skills development.Joerger (2002) emphasized that in-service activities are essential for agriculture teachers to remain effective and to cope with the dynamic nature of agricultural education, noting that “appropriate and timely in-service activities” enable teachers to experience professional growth and instructional success. Similarly, studies have shown that in-service teacher training can significantly improve the quality of instruction, enhance teacher confidence, and positively influence student outcomes by updating educators on current teaching strategies and innovations. In-service training represents a key form of professional development, designed to support teachers who are already in service to adapt to educational innovations, improve teaching methods, and strengthen subject content knowledge (Dilaver, 2018, as cited in IJSE, 2024). Research across multiple contexts indicates that in-service training programs such as workshops, seminars, mentoring, and coaching, positively influence teachers’ instructional behaviours, confidence, and overall performance (Uzorka, Kalabuki and Odebiyi, 2024). For instance, studies have shown that continuous participation in in-service training enhances teaching quality and has a significant impact on both teacher effectiveness and student achievement (Uzorka 2024). These findings underscore the essential role that ongoing training plays in professional growth, Empirical evidence from Nigeria and other

educational settings further highlights that sustained in-service training not only equips educators with contemporary skills but also fosters motivation, capacity building, and productivity Ehinola and Akomolafe,(2024). In-service training represents a key form of professional development, designed to support teachers who are already in-service to adapt to educational innovations, improve teaching methods and strengthen subject content knowledge Dilaver (2018) research across multiple contexts indicates that in-service training programs such as workshops ,seminars mentoring and coaching positively influence teachers instructional behaviours confidence and overall performance Uzorka, Kalabuki and Odebiyi (2024). For instance, studies have shown that continuous participation in in-service training enhances teaching quality and has a significant impact on both teacher effectiveness and student achievement Uzorka (2024) In the specific context of agricultural education, in-service opportunities have been identified as necessary for maintaining relevance in teaching and keeping pace with advancements in agricultural science and technology, Shijah and Ekele, 2026. However, despite these documented benefits, many tertiary institutions frequently face challenges such as limited access to systematic training programs, inadequate funding, and inconsistency in professional development planning, which can impede the professional development of agricultural educators. Given the pivotal importance of effective instruction in agricultural education and the central role of in-service training in promoting professional development there is a clear need to investigate the existing in-service training methods available to agricultural educators and how these methods influence their professional growth within tertiary institutions in Rivers State. Such research can provide insights that inform policy, enrich teacher support structures, and enhance the overall quality of agricultural education in the region. Taylor and Francis ,Recent state-level Nigerian studies Delta, Ekiti reinforce concrete training needs (for extension agents and agric-teachers) and the linkage between teacher management/PD and student outcomes pointing to localized needs assessments to tailor tertiary Professional development , Research Gate, RSIS International, Practice alignment, Multi-country extension evidence and CCMAS expectations converge on practical, competence-focused PD,Teacher-education regulators (e.g., NCCE/TRCN) emphasize minimum standards, career paths, and ongoing professionalization; while focused on basic education, these frameworks signal national expectations for structured INSET and can inform tertiary PD policy and progression criteria, Alliance for African Partnership, National Universities Commission, and Modalities that work, Mentoring, peer coaching, lesson study, and competence-based micro-teaching outperform stand-alone according to Apata, Adeniyi, Ajiwoju and Adeosun (2025) agreed that Digital/assessment literacy, Upgrading assessment practices and digital pedagogy is essential for quality practical's and blended delivery.

Despite the critical role agricultural educators play in preparing competent graduates for the agricultural sector, there are concerns that existing in-service training programs in tertiary institutions in Rivers State are not adequate, systematic, or well-aligned with current innovations in agricultural practices. Many educators report limited access to up-to-date training, infrequent professional development opportunities, and a lack of structured methods

for improving teaching effectiveness and technical competencies. This deficiency may lead to outdated pedagogical approaches, reduced instructional quality, and poor integration of emerging technologies in agricultural education. Amadi and Raji (2023) consequently, this situation could undermine the capacity of agricultural educators to effectively equip learners with the knowledge and skills needed to support sustainable agricultural development in Rivers State. Therefore, it is necessary to investigate the available in-service training methods and how they influence the professional development of agricultural educators in tertiary institutions in Rivers State.

The purpose of the study is to determine in-service training methods and their role in enhancing professional development of educators in agricultural education within tertiary institutions in Rivers State. The study seeks to identify effective training methods, assess their impact on teaching quality, and explore ways to institutionalize professional development programs for sustained improvement in agricultural education. Specifically, the study sought to:

1. Identify the existing in-service training methods available for agricultural educators in tertiary institutions in Rivers State.
2. Examine the extent to which workshops and seminars influence the professional development of agricultural educators in tertiary institutions in Rivers State.
3. Determine the influence of mentorship and coaching as in-service training methods on the professional development of agricultural educators in tertiary institutions in Rivers State.

For the purpose of the study, the following research questions were considered to aid the study.

1. What existing in-service training methods are available for agricultural educators in tertiary institutions in Rivers State?
2. What extent do workshops and seminars influence the professional development of agricultural educators in tertiary institutions in Rivers State?
3. How do mentorship and coaching as in-service training methods impact the professional development of agricultural educators in tertiary institutions in Rivers State?

The following null hypothesis was postulated and tested at 0.05 level of significance to guide the study.

H₀₁: There is no significant difference in the mean responses of agricultural educators on the existing in-service training methods available in tertiary institutions in Rivers State.

H₀₂: There is no significant difference in the mean responses on the influence of workshops and seminars on their professional development in tertiary institutions in Rivers State.

H₀₃: There is no significant difference in the mean responses on the influence of mentorship and coaching on their professional development in tertiary institutions in Rivers State.

The study is significant because it examines how in-service training methods influence the professional development of agricultural educators in tertiary institutions in rivers state ,continuous professional development is essential for agricultural educators to remain competent in modern teaching methods ,emerging agricultural technologies, and sustainable practices ,by providing empirical evidence on the effectiveness of various in-service training methods ,the study contributes to improving the quality of agricultural education and strengthening human capacity development in the agricultural sector .

Institutional significance ,the findings of the study will be beneficial to tertiary institutions offering agricultural education by revealing the extent to which in-service training enhances educators teaching effectiveness, research capacity and practical skills delivery ,institutional management can use the results to design structured staff development programs allocate resource efficiently and encourage continues professional growth among agricultural educators ,this will ultimately improve instructional quality ,student learning outcomes and institutional productivity, From this perspective, the study support the development of a skilled agricultural workforce capable of addressing food security ,unemployment and sustainable agricultural practices in rivers state, well-trained agricultural educators are better positioned to produce competent graduates who can contribute meaningfully to agricultural production ,agribusiness and rural development ,consequently this enhances economic growth reduces poverty and promotes sustainable livelihoods within the state and beyond. The study will provide evidence-based information for policy makers in the education and agricultural sectors regarding the importance of regular and well,structure in-service training for agricultural educators. The findings can inform policies on staff development funding allocation promotion criteria and mandatory professional training programs in tertiary institutions, it may also guide government agencies in formulating polices that align educator training with national agricultural development goals The scope of the study focuses on in-service training methods and their influence on the professional development of agricultural educators in tertiary institutions in rivers state. It covers selected training methods such as workshops, seminars, conferences, in-service courses, and on-the-job training. The study is limited to agricultural educators in public tertiary institutions and examines aspects of professional development including teaching competence, research skills and adoption of innovative agricultural practices.

Methodology

The study was carried out in Rivers State, Nigeria one of the 36 states of the federation, located in the Niger Delta region. Rivers State is bounded on the South by the Atlantic Ocean, on the East by Akwa Ibom State, on the North by Imo, Abia, and Anambra States, and on the West by Bayelsa and Delta States. The state has 23 Local Government Areas (LGAs) and is known for its oil-rich economy as well as agricultural activities such as cassava cultivation, oil palm production, fisheries, aquaculture, and livestock farming, Tertiary institutions in Rivers State offering agricultural education include, universities, polytechnics, and colleges of education where agricultural educators are employed, The study was a descriptive survey research design, the population of the study consist of lecturers, instructors, and academic staff engaged in

agricultural education across tertiary institutions in Rivers State. Hence the target population consists of 100 which comprises of 40 female and 60 males respectively, total Sample size of 100 was used to select the participants, and the instrument used for data collection was a self - constructed questionnaire titled in-service Training Methods and Professional Development Questionnaire (ISTMPDQ), designed on a 4-point Likert scale ranging from high extent (4) to low extent (1). The Instrument was subjected to face and content validity and was validated by three experts in Agricultural education, measurement and evaluation from a tertiary institution in Rivers State. The Reliability of the Instrument was tested using the test–retest method and a reliability co efficient (r) achieved was 0.82, mean and standard deviation with a criterion mean value of 2.50 and above while Z-test was used to test the null hypotheses at a 0.05 level of significance.

Results

Research Question 1:

What existing in-service training methods are available by agricultural educators in tertiary institutions in Rivers State?

Table 1: Mean Score of Respondents on existing In-Service Training Methods Available

Items	N=100	Mean ($\bar{x}$)	SD
Decision			
1. Workshopsare regularly high extent Organized For agricultural educators		3.32	0.71
2. Seminars are provided to update educators high extent On innovations		3.18	0.76
3. Conferences are sponsored by institutions high extent		3.05	0.82
4. Mentorship programmes are available high extent		2.96	0.88
5. Online training programmes are accessible high extent		3.10	0.79

Source field work 2025

The mean of 3.12 is above the criterion mean of 2.50 ,indicating that in-service training are available to a high extent in tertiary institutions in Rivers state .

Research Question 2: To what extent do workshops and seminars influence professional development?

Table 2: Mean Score of Respondents on influence of workshops /seminars

Items, N (=100)	Mean ($\bar{x}$)	(SD)	Decision
1. Workshops improve instructional strategies	3.41	0.69	high extent
2. Seminars enhance subject knowledge extent	3.36	0.73	high
3. Workshops improve technology integration	3.22	0.77	high extent
4. Seminars improve classroom management skills	3.09	0.81	high extent
5. Participation boosts professional confidence	3.28	0.74	high extent

Source field work 2025

Table 2 the mean of 3.27 shows that workshops and seminars influence professional development high extent.

Research Question 3: How do mentorship and coaching influence professional development?

Table 3: Mean Score of Respondents on mentorship/ coaching

Items, (N=100)	Mean ($\bar{x}$)	(SD)	Decision
1. Mentorship improves teaching skills	3.30	0.72	high extent
2. Coaching enhances curriculum delivery	3.18	0.78	high extent
3. Mentorship supports research competence	3.12	0.80	high extent
4. Coaching strengthens assessment practices	2.92	0.79	high extent
5. Mention ship encourages career growth	3.26	0.75	high extent

Source field work 2025

Table 3 the mean of 3.18, indicates that mentorship and coaching influence professional development agreed on a high extent.

Hypothesis 1,there is no significant difference regarding the availability of in-service training methods in agricultural education.

Table 4: Z-Teston available of In-Service Training Methods

Categories	N	Mean ($\bar{x}$)	Std. Dev. (SD)	Df	z-cal	z-crit (0.05)	Decision
Male 40	100	3.05	0.80	98	2.10	1.96	Reject
Female 60		3.18	0.76				

Since the calculated Z-value ($z\text{-cal} = 2.10$) is greater than the critical value (1.96) at 0.05 significance level, we reject the null hypothesis (H_0). This means that there is a significant difference in availability of in-service training methods in agricultural education in tertiary institutions in Rivers State.

Hypothesis 2: There is no significant difference in the mean responses on the influence of workshops and seminars on their professional development in tertiary institutions in Rivers State.

Table 5: Z-Test on workshops and seminars influence the professional development

Categories	N	Mean ($\bar{x}$)	Std. Dev.	Df	z-cal	z-crit (0.05)	Decision
Male 40	100	3.20	0.78	98	2.25	± 1.96	Reject
Female 60		3.32	0.72				

Since the calculated Z-value ($z\text{-Cal} = 2.25$) is greater than the critical value (± 1.96), we reject the null hypothesis (H_2). Workshops and seminars significantly influence professional development.

Hypothesis 3: There is no significant difference in the mean responses of agricultural educators on the influence of mentorship and coaching on their professional development in tertiary institutions in Rivers State.

Table 6: Z-Test on mentorship /coaching influence

Categories	N	Mean ($\bar{x}$)	Std.	Df	z-cal	z-crit (0.05)	Decision
Male 40	100	3.10	0.82	98	2.05	± 1.96	Reject
Female 60		3.23	0.75				

The calculated Z-value ($z\text{-cal} = 2.05$) is greater than the critical value (± 1.96), so we reject the null hypothesis (H_3). This means mentorship and coaching significantly influence professional development.

Discussion of Findings

Table 1 revealed that existing in-service training methods such as workshops, seminars, conferences, mentorship programmes, and online training are available to a high extent in tertiary institutions in Rivers State (Grand Mean = 3.12). This suggests that agricultural

educators have access to various professional development platforms designed to improve their instructional competencies and technical knowledge. This finding aligns with the position of Joerger (2002), who emphasized that agriculture teachers require continuous in-service opportunities to remain effective and relevant in a dynamic educational and agricultural environment. Similarly, Ehinola and Akomolafe (2012) noted that structured in-service programmes contribute significantly to teachers' professional competence and productivity in tertiary institutions. The availability of multiple training avenues in Rivers State institutions therefore reflects an institutional recognition of the importance of professional development. Furthermore, the result supports the assertion of Guskey (2000) that effective professional development programmes are essential for improving teachers' knowledge, skills, and classroom practices.

Table 2 revealed that workshops and seminars influence the professional development of agricultural educators to a high extent (Grand Mean = 3.27). Respondents agreed that workshops improve instructional strategies, enhance subject knowledge, promote technology integration, and boost professional confidence. This result is consistent with Desimone (2009), who identified workshops and seminars as core components of effective professional development because they provide content-focused learning and active engagement. Similarly, Uzorka, Kalabuki, and Odebiyi (2024) found that participation in workshops and seminars significantly improves teachers' classroom performance and instructional effectiveness, the finding also supports Darling-Hammond (2017), who argued that sustained and well-designed professional development activities lead to measurable improvements in teacher effectiveness and student learning outcomes. In agricultural education, where technological advancements and innovative farming practices continue to evolve, workshops and seminars serve as vital mechanisms for updating educators' competencies. Therefore, the high extent of influence observed in this study confirms that workshops and seminars are powerful tools for enhancing professional growth among agricultural educators in tertiary institutions in Rivers State.

Table 3 revealed that mentorship and coaching influence professional development to a high extent (Grand Mean = 3.18). Respondents indicated that mentorship improves teaching skills, strengthens curriculum delivery, enhances research competence, and encourages career growth.

This finding corroborates the work of Ingersoll and Strong (2011), who found that mentorship and coaching significantly improve teachers' instructional practices, classroom management, and professional commitment. Mentorship provides individualized support, allowing educators to refine their skills through guided experience. Similarly, Guskey (2002) emphasized that collaborative and supportive professional development approaches, such as coaching and peer mentoring, foster continuous learning and long-term professional improvement. In agricultural education, where practical and technical expertise is essential, mentorship can facilitate the transfer of experience from senior educators to younger professionals, the finding also aligns with Shulman (1987), who highlighted the importance of pedagogical content knowledge, which can be strengthened through structured coaching and mentorship relationships. Thus,

mentorship and coaching serve as effective in-service training methods that contribute meaningfully to professional advancement in tertiary institutions. The overall findings of the study demonstrate that in-service training methods particularly workshops, seminars, mentorship, and coaching, play a significant role in enhancing the professional development of agricultural educators in tertiary institutions in Rivers State. These results are consistent with established literature that emphasizes continuous professional development as a cornerstone of educational quality and institutional effectiveness.

Conclusion

From the results of the conclusion indicated that In-service training methods such as workshops, seminars, conferences, mentorship programmes, coaching, and online training are available to a high extent in tertiary institutions in Rivers State. Workshops and seminars significantly enhance the professional development of agricultural educators by improving instructional strategies, subject knowledge, technological competence, and professional confidence. Mentorship and coaching contribute meaningfully to professional growth by strengthening teaching skills, curriculum delivery, research competence, and career advancement. There is a significant influence of in-service training methods on the professional development of agricultural educators in tertiary institutions in Rivers State. Overall, effective in-service training programmes are essential for sustaining instructional quality and improving agricultural education outcomes.

Recommendations

From the conclusion, the study recommends that:

1. Tertiary institutions in Rivers State should institutionalize regular and structured in-service training programmes for agricultural educators.
2. Government and institutional management should allocate adequate funding to support workshops, seminars, conferences, and online professional development programmes.
3. Formal mentorship and coaching frameworks should be established within institutions to ensure systematic professional guidance for both new and experienced educators
4. Continuous monitoring and evaluation of in-service training programmes should be implemented to ensure relevance and effectiveness.
5. Collaboration with agricultural research institutes and industry stakeholders should be encouraged to provide practical and up-to-date training opportunities for educators.

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