Innovative Teacher Training Model and Attainment of Sdgs in Secondary Schools in Nigeria Implications for Planning

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Abstract

The present global trend of development is guided and directed by sustainability-based principles (sustainable development). The country's present educational system and curriculum was last redesigned to help the country attain MDGs by 2020. The laudable effort has been fraught with challenges of teachers not being able to implement the curriculum effectively due to their expertise levels in line with the curriculum's delivery. The paper's position is that the inability to plan for innovation in the teacher training system within the country could be the reason for the teacher's inadequacies concerning the present curriculum. It is based on this that this paper proposes an innovative teacher training model. The SDGs are stated, reports from researchers' findings concerning teachers' inadequacies are discussed before the innovative teacher training model is proposed. Afterwards, conclusion is reached and suggestions are put forward.

Introduction

In Nigeria, secondary education refers to the education offered to individuals who have successfully completed primary education, it is a forecasting period of youth ability (evaluation of talents) for specialization in any of science/technology, social science, arts or commercial/vocational fields based on the students' abilities (Inuwa & Yusof, 2012). It is a level of education which serves as the bridge between primary and tertiary education.

In recent times, precisely in 2006, the government in its effort to reform the educational sector, changed from the 6-3-3-1 system of education to a 9-3-4 system. This reformed the secondary school system such that the junior secondary school section is now part of what is known as the Universal Basic Education (UBE) programme while the senior secondary school section is part of the post-basic education programme. The objectives of the junior secondary education are to (i) provide the learner with diverse basic knowledge and skills for entrepreneurship and educational advancement (ii) develop patriotic young people equipped to contribute to social development and in the performance of their civic responsibilities (iii) inculcate values and raise morally upright individuals capable of independent thinking, and who appreciate the dignity of labour, and (iv) inspire national consciousness and harmonious co-existence irrespective of differences in endowment, religion, ethnic and socio-economic background (Federal Government of Nigeria, 2009).

As for post-basic education, the objectives are to (i) provide holders of the Basic Education Certificate with opportunity for education of a higher level, irrespective of gender, social status, religious or ethnic background (ii) offer diversified curriculum to cater for the differences in talents, opportunities and future roles (iii) provide trained manpower in the applied science, technology and commerce at sub-professional grades (iv) develop and promote Nigerian languages, art and culture in the context of world's cultural heritage (v) inspire students with a desire for self-improvement and achievement of excellence (iv) foster patriotism and national unity, with an emphasis on the common ties insptie of our diversity (vii) raise morally upright and well-adjusted individuals who can think independently and rationally, respect the views and feelings of others and appreciate the dignity of labour and (viii) provide entrepreneurial, technical and vocational job-specific skills for self-reliance and for agricultural, industrial, commercial and economic development (Federal Government of Nigeria, 2009).

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The curriculum designed for the 9-3 system i.e. the UBE and post-basic education programme at senior secondary school level was anchored on secondary schools contributing their quota towards meeting the Millennium Development Goals (MDGs) by 2020 (Uwaifo & Uddin, 2009). The previously applied system of education (6-3-3-4) was designed due to the system being then perceived as the type of education best suited to the country's developmental strides. Similarly, the newly designed system is to ensure that the country's developmental strides are appropriately guided by education. In recent times, global clamour for redesigning of the MDGs culminated in the designing of Sustainable Development Goals (SDGs). The redesigning of the MDGs to SDGs was fundamentally due to one reason – no specific attention was given to either sustainability or environmental sustainability (sustainable development) in the MDGs. Thus, the SDGs were designed to ensure global, national and local developmental strides are guided and directed by sustainability-based principles (sustainable development) because of ever-increasing environmental challenges.

What Are Sdgs?

SDGs are a set of goals whose proposal to design was put forward during the Rio+20 Conference held in Brazil in 2012 (Pisano, Lange, Berger & Hametner, 2015). Prior to designing the SDGs, one of the agreements reached at the Rio+20 Conference was that focus/effort should not be diverted from the achievement of the MDGs. Rather, work done in the context of the MDGs will be followed and advancements made to it by answering to new global challenges with special attention to those concerned with sustainable development, thus integrating economic, social and environmental aspects and their linkages (United Nations, 2014). The SDGS were released in late 2015 and adopted as the Post-2015 sustainable development agenda with a focus on attaining the goals of 2030. They are 17 goals with 167 targets. According to Family Health International (FHI360) (2016), the goals are presented in Table 1.

TABLE 1

Sustainable Development Goals (SDGs)

S/N	SGD GOAL
1.	End poverty in all its forms everywhere
2.	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3.	Ensure healthy lives and promote well-being for all at all ages
4.	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5.	Achieve gender equality and empower all women and girls
6.	Ensure availability and sustainable management of water and sanitation for all
7.	Ensure access to affordable reliable, sustainable and modern energy for all
8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10.	Reduce inequality within and among countries
11.	Make cities and human settlements inclusive, safe, resilient and sustainable
12.	Ensure sustainable consumption and production patterns
13.	Take urgent action to combat climate change and its impacts
14.	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15.	Protect, restore and promote sustainable use of terrestrial ecosystem, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17.	Strengthen the means of implementation and revitalizing the global partnership for sustainable development.

Attainment of Sdgs in Secondary Schools

In secondary schools attainment of SDGs is mainly through the effort of teachers who are the end-point deliverers of the available curriculum on offer to students. A teacher's essence in the teaching-learning process can be depicted by the following definition of teaching which is "the process of a teacher attending to the needs, experience and feelings of people, and making specific interventions to help them learn particular things" (Smith, 2016).

The specific interventions usually come in form of facilitating learning activities (such as discussion, simulations, note taking, practice and assignment writing), explaining some phenomenon, giving information, demonstrating a skill or process, questioning, listening and testing understanding and capacity.

Even the "how" of teaching which involves planning for a lesson, selecting the required instructional materials, giving the lesson (also known as instructing), managing a class during instruction delivery before preparing assessments which will enable value judgments to be made mainly involve the teacher's expertise. This implies that the significance of the "who" of teaching (the teacher) in any teaching-learning process is related to the expertise of teaching skills acquired by the teacher. Thus, the extent to which a teacher is equipped for the teaching-learning process is not only pertinent to the success of the process but also, a necessity for any curriculum to be effectively delivered to learners.

In Nigeria, reports from researchers reveal that teachers in secondary school seem to have unending issues with adequate implementation of the available curriculum based on their expertise levels. Uwaifo and Uddin (2009) reported not only the inadequacy of teachers in the implementation of technology subjects in schools but also found out that teachers without adequate expertise in the subject were almost all of the ones involved in teaching the subject. Ayeni (2011) revealed that quality assurance in secondary school education was beset by challenges such as inadequate planning and delivery of lessons by teachers and teachers' lack of opportunities to attend in-service training prorgammes such as seminars and workshops. Nakpodia (2011) found out that there was no significant difference between professional and non-professional teachers' implementation of the curriculum, this implying that there was no significant difference in acquired teaching expertise between the professionals and the non-professionals.

Odu, Odigwe and Ekpenyong (2013) assessed economic teachers' interactive pattern with students in class and revealed students indicating that they do not consider their teachers' interactive pattern as helping them academically thus implying that the teachers seem to lack teaching expertise. Okedeyi, Ogunmade, Oginni and Braimoh (2013) explored science teachers perceptions concerning effective science teaching and revealed the teachers indicating lack of knowledge of subject matter and lack of professional development for them serving as major barriers inhibiting effective teaching. Amongst teacher needs for more effective curriculum delivery, the teachers indicated more professional development for them as the prime need. Ukpor, Ashibi, Akpan and Okon (2014) investigated extent of professionalism in teaching profession in secondary schools and revealed that teaching at secondary school level is not a full profession thus implying that certain basic tenets which should be part of the profession was lacking. Inclusive amongst the lacking tenets were teachers' in-service trainings.

Ojo (2014) evaluated teachers' perceptions on the new 9-Year Basic Education Curriculum (BEC) and revealed an unappreciable level of the curriculum's availability in schools thus implying that the implementation of the curriculum was yet to kick-start in most schools. Obiunu (2015) investigated junior secondary school teachers' perceptions of the UBE programme as an educational reform policy and found out that the teachers were seemingly unaware of the programme's goals and objectives. This not only implied low perceptions of the programme but also meant that the teachers were not prepared and equipped for the programme's implementation. Otani (2015) examined teachers' perceptions on the challenges of implementing BEC in school and found out that teachers' lack of being appropriately trained for its delivery served as a major hindrance.

Okenjom, Ogar, Akoloh and Abidde (2016) investigated the status of basic technology in junior secondary schools and revealed that most of the available teachers for the course were inadequately equipped in terms of expertise, thus the subject's status was challenged by ineffective instructional delivery of course content to students. Idakwoji (2016) investigated perception of prospective teachers and teacher trainers towards improved student academic achievement in secondary schools and revealed that significant practical efforts have not been implemented towards improving teacher education. It was also revealed that a major barrier which hindered improved educational achievement in schools was the inability of measures being put in place to ensure compulsory continuous professional development for teachers in line with reforms in the educational sector. The findings of the above reviewed studies seemingly imply that teachers require an innovative training process which will enhance their teaching expertise towards a more effective implementation of the curriculum in schools.

Innovative Teacher Training Model

Before going into the innovative training model, it is pertinent to briefly explain, (i) the concept of innovation and the various dimensions through which it can be impacted upon in any institution, organization or society, and (ii) the contemporary practice of teaching training in the country.

As a concept, innovation entails change, novelty or uniqueness brought about by human creative endeavour. Thus, innovation can only be practically evident when a person or group of persons make use of their creativity to interact with their various environment(s) so as to impact change or bring about something novel or unique. According to Gjoksi (2011), in recent times, research has viewed innovation along the following dimensions viz;

(I)   Product, process or system: Product innovation refers to a new good, process innovation refers to new method of production (Hellstrom, 2007) while system innovation refers to changes in systems such as industrial, societal, behavioural and market changes (Bleischwitz, Giljum, Kuhndt & Schmidt-Bleek, 2009).

(II)   Increment or radical: Incremental innovation refers to a technology/process which is marginally different from its predecessor while radical innovation refers to an introduction of new technologies/processes that are significantly different from its predecessor (Bleischwitz *et al.,* 2009)

(III)   Component (modular) or architectural (systemic): Component innovation refers to the replacement of one or more modules that are integrated within a larger system while the system as a whole remains intact. Architectural innovation, on the other hand, refers to overhauling the system's overall design thus affecting the way the various components (modules) interact with each other (Hellstrom, 2007).

Presently, according to the Federal Government of Nigeria (2009), the goals of teacher education are as follows;

- Help teachers to fit into social life of the community and the society at large and enhance their commitment to national goals.
- Provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations and
- Enhance teachers' commitment to the teaching profession

According to (Adeosun, 2012; Akindutire & Ekundayo, 2012; Ahmodu, Saidu & Mashelia, 2015; Nwite & Nwankwo, 2017), the practice of teacher training in the country has the following two stages:

- Pre-service and
- In-service

According to the researchers, the first stage is more in vogue than the second stage of teacher training due to students enrolling for learning experiences in programmes domiciled in Teacher Training Colleges, Colleges of Education and Faculties of Education in universities in the country. As for the second stage, it is passively practiced with only teachers' enrollment in Sandwich programmes serving to form a major part of in-service training. It is as a result of the above stated anomaly that (Osuji, 2009; Nakpodia, 2011; Ashimole, 2011; Omoogun & Omoogun, 2013; Ogunyinka, Okeke & Adedoyin, 2015; Ibrahim, 2015; Eduwen, 2016) have clamoured for the following stages of teacher education in the country;

- Pre-service
- In-service and
- Continuous professional development

It is in line with the clamour of three stages that the Innovative Teacher Training Model (ITTM) is proposed as presented in Figure 1. The model is made up of four (4) modules with their attendant elements. The model's cyclical design with the arrows linking the modules imply the path which an active individual should follow from being a prospective teacher (pre-service) to the point of retirement from active services as a teacher. The dotted line between in-service training "3" and "pre-service training" implies that teachers from in-service training 3 do not go back for pre-service training. Rather, they serve as a source through which the prospective teachers gain requisite knowledge, attitude and skills required for the teaching profession.
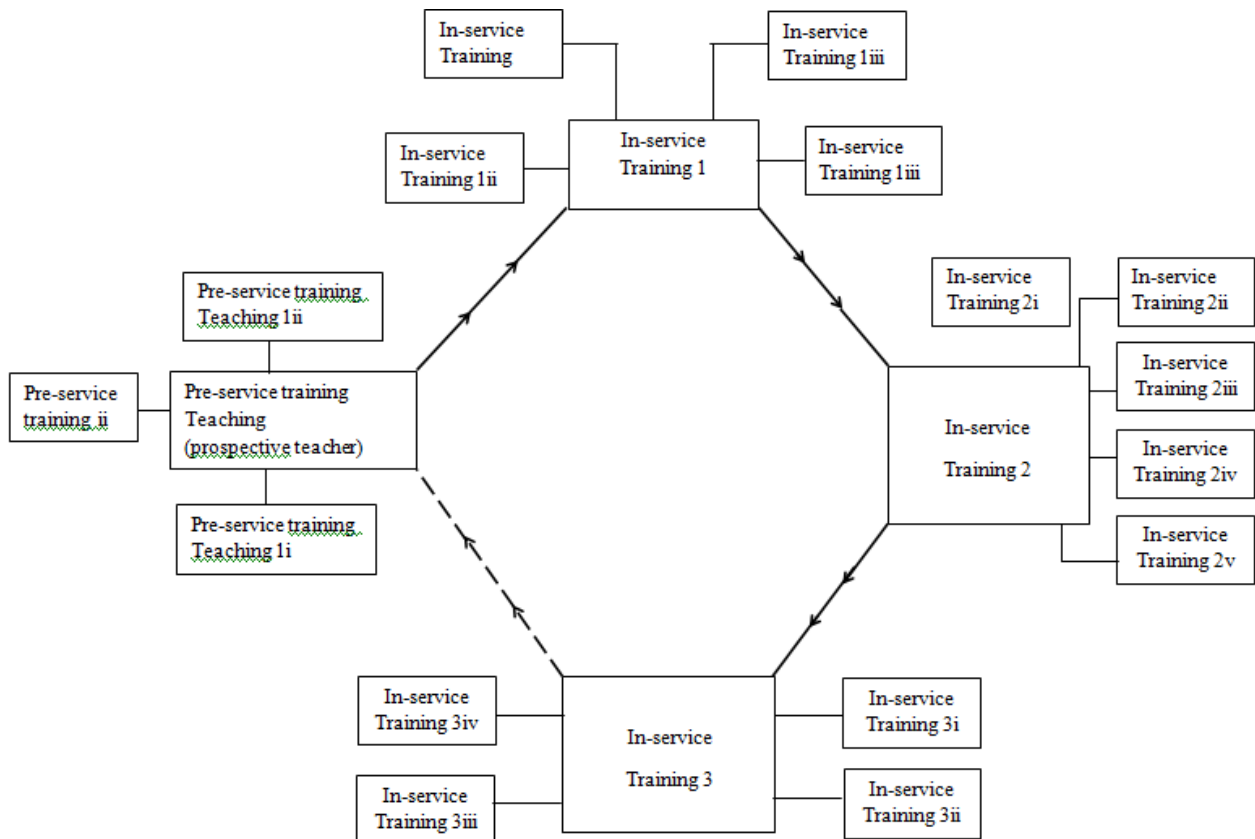
Figure 1: Identified Modules/Elements of Innovation Teacher Training Model for Secondary School Teachers in Nigeriaq

Before describing the modules and their elements, it is pertinent to state that the reason for years of experience being used to segregate in-service training into three (3) stages

➢ 1st 6 years: These are new teachers with little experience who need to be
inducted and mentored.

➢ >6-15 years: These are teachers' most productive years. Learners need them
more

➢ >15 years: These are teachers who need to share their wealth of experience
more with other teachers. thus, they are to have fewer classes with students but more interactive sessions with other teachers which would keep them abreast with changes occurring within the profession/educational system until they retire from active service.
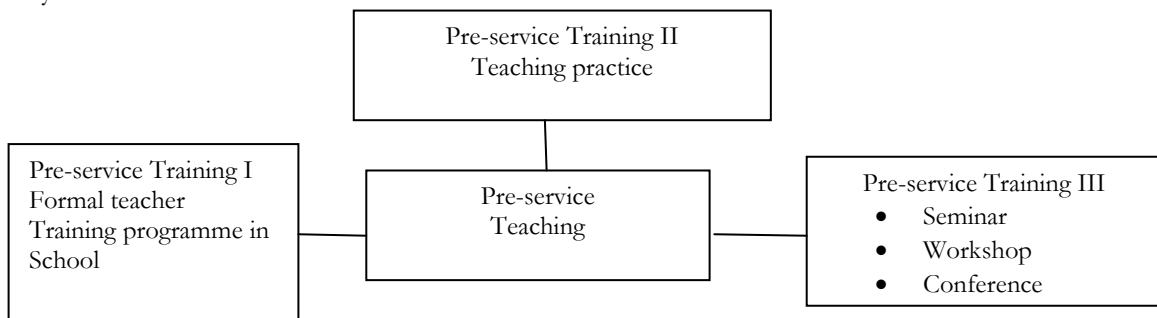

Fig.2: Identified elements of the "pre-service training" module

        Looking at the detailed pre-service training module as presented in figure 2 reveals three training strategies. The pre-service training (i) is all about the various formal teacher training programmes in the various teacher training institutions. The next training strategy is the compulsory teaching practice exercise usually undertaken by prospective teachers. The third training strategy is an addition of compulsory attendance of at least five (5) of any of conferences, workshops or seminars organized by the school where students are being trained.

The conferences, workshops or seminars could be organized in such a way that teachers of repute in "in-service training 3" are sought for and invited to share their wealth of experience with the prospective teachers. organizing any of the conferences, workshops or seminars where papers would be called for could be more capital intensive thus being sparingly organized for the students.
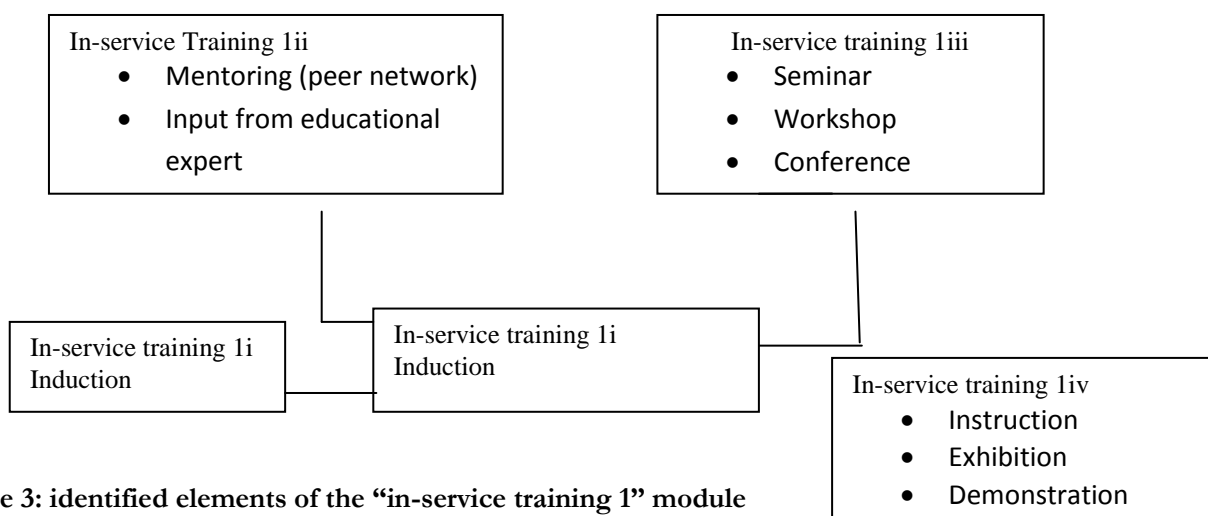
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┌─────────────────────────────┐        ┌─────────────────────────────┐
│ In-service Training 1ii      │        │ In-service training 1iii    │
│   • Mentoring (peer network) │        │   • Seminar                 │
│   • Input from educational   │        │   • Workshop                │
│     expert                   │        │   • Conference              │
└─────────────────────────────┘        └─────────────────────────────┘
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┌──────────────────┐   ┌──────────────────────┐
│ In-service       │   │ In-service training 1i│
│ training 1i      │   │ Induction             │
│ Induction        │   │                       │
└──────────────────┘   └──────────────────────┘
                                               ┌─────────────────────────┐
                                               │ In-service training 1iv │
                                               │   • Instruction         │
                                               │   • Exhibition          │
                                               │   • Demonstration       │
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Figure 3: identified elements of the "in-service training 1" module

Figure 3 is a detailed diagram of the in-service training 1 module. Its features are induction, mentoring/input from educational experts, conferences/workshops/seminars and exhibition demonstrations. The induction is to help the new teachers manage the initial anxieties and stress which they may seem to develop and attach to the job. Though seemingly distinct from induction, mentoring/input from educational experts is in actual practice an advanced form of induction. As for the conferences/workshops/seminars, they could be organized in a similar way suggested in the pre-service training module for the same reason stated therein. This does not mean that once in a while the teachers here should not be encouraged to attend conferences/workshops/seminars where papers are called for. The exhibition demonstration training strategy here implies schools periodically organizing exhibition demonstrations where teachers in "in-service training 3" are invited to demonstrate practical teaching exhibition for teachers in this category to learn from. The four (4) training strategies here seem to reveal an omission-refresher courses. This is purposely done as the new teachers are deemed as being fresh out of school and are rather supposed to be more concerned with learning the rope of the profession.
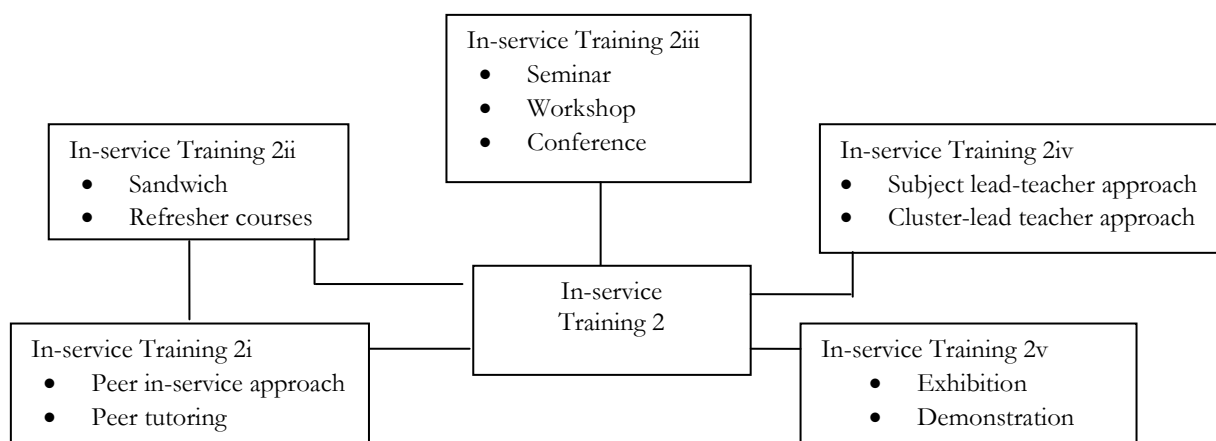
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                        ┌─────────────────────────┐
                        │ In-service Training 2iii │
                        │   • Seminar              │
                        │   • Workshop             │
                        │   • Conference           │
                        └─────────────────────────┘

┌──────────────────────┐                         ┌───────────────────────────────┐
│ In-service Training 2ii│                        │ In-service Training 2iv       │
│   • Sandwich          │                         │   • Subject lead-teacher      │
│   • Refresher courses │                         │     approach                  │
└──────────────────────┘                         │   • Cluster-lead teacher      │
                          ┌──────────────┐        │     approach                  │
                          │ In-service   │        └───────────────────────────────┘
┌──────────────────────┐  │ Training 2   │
│ In-service Training 2i│  └──────────────┘        ┌───────────────────────────────┐
│   • Peer in-service   │                          │ In-service Training 2v        │
│     approach          │                          │   • Exhibition                │
│   • Peer tutoring     │                          │   • Demonstration             │
└──────────────────────┘                          └───────────────────────────────┘
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Figure 4: identified elements of the "in-service training 2" module

Figure 4 is the diagram showing the training module for teachers with teaching experience of greater than 6 years to 15 years. The training strategies here are five (5).
Peer in-service approach/peer tutoring are strategies in which teachers in this stage approach teachers in "in-service training 3" for professional assistance or guidance on an area where he/she is defective. Also, teachers within the same stage could meet each other for assistance and guidance. These strategies are useful in drastically reducing the cost of organizing and financing training programmes for teachers who mostly are stationed in schools situated far from teaching training institutions. The next training strategy is Sandwich/refresher courses. Teachers in this stage are expected to have learnt the ropes of their profession, thus finding out their training needs. Thereby teachers in this stage should be encouraged to participate in either Sandwich/refresher courses, most especially those in close proximity of teachers training institutions.

The third strategy is conferences/workshops/seminars. For this strategy, schools should form alliances and partnerships with teacher training institutions so that they will be duly informed when such are organized so that their teachers will be made to be part of them.

The fourth strategy are the subject lead-teacher approach and the cluster lead-teachers' approach. The latter is concerned with teachers in this stage attending a forum where teachers in the "in-service training 3" stage from selected schools (mostly in rural areas) come together to share their experiences in certain subjects with a very good teacher leading the discussion. Similarly, the former is concerned with teachers of the same subject (for example, Mathematics) in this stage attending a forum where a mathematics teacher of repute in the "in-service 3" stage leads a discussion concerning teaching experiences and curricular activities concerning the subject. The last strategy is exhibition demonstrations. This strategy also involves teachers in this stage attending symposia where teachers in the "in-service training 3" stage are organized to demonstrate practical teaching exhibitions for other less experienced teachers to learn from.
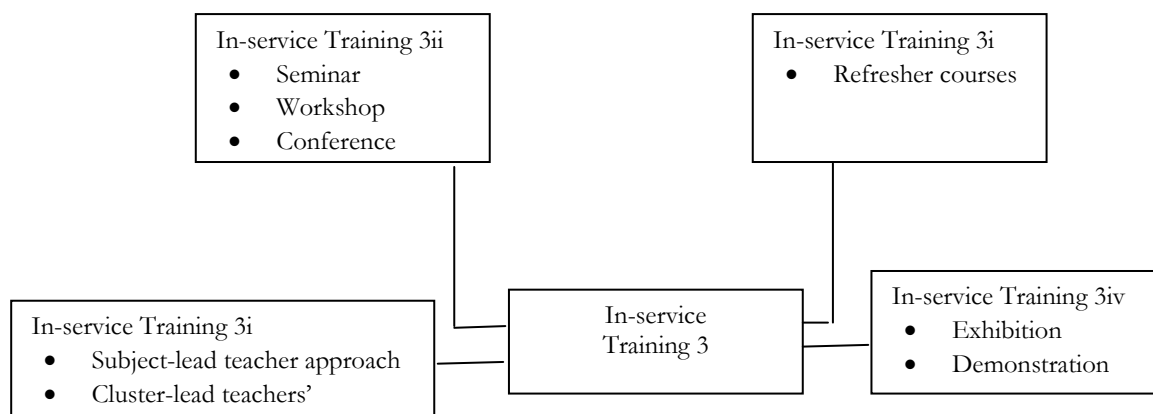

Figure 5: identified elements of the "in-service training 3" module

The last figure (figure 5) shows the training module for teachers with years of teaching experience ranging from above 15 years of active service. There are four (4) features on this module. They are subject lead-teacher approach/cluster lead-teacher approach. conferences/workshops/seminars, refresher courses and exhibition demonstrations. The teachers in this stage are no longer expected to be very active in the classroom teaching-learning process. Rather, they should be encouraged to showcase themselves as being capable of tutoring other teachers ranging from those in the pre-service training stage to those in the in-service training 2 stage. As such, they should not be given a lot of workload in terms of classes to teach. Attending to the needs of other teachers could also help them remain abreast with the changes in the educational system.

Conclusion

presently, the available curriculum on offer in secondary schools is designed to help the secondary schools contribute towards the attainment of the MDgs by 2020. Yet, research reports reveal that teachers are incapacitated towards effective implementation of the curriculum. Prior to the designing of the new educational system and curriculum, there is no recorded evidence of innovations of any form having been carried out in the area of teacher training in the country. This seems to be the reason why the teachers have continued to face difficulties in the implementation of the curriculum even after a decade of designing it. There are no more MDGs which implies that the curriculum needs to be redesigned so as to move along with the global trend of sustainable development.

While planning for the contribution of secondary schools towards the attainment of SDGs in the country, it is an imperative for efforts to be made towards innovations in the area of teacher training practices in the country. Without such efforts, the implication could certainly follow the same way in which the implementation of this present curriculum is following.

Suggestion

Innovations need to be planned for in line with teacher and practically ensured before any plan is made to redesign the curriculum in line with the current global sustainable development trend
The innovations should be planned across all strata and levels of teacher training programmes and systems in the country.

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