

Teacher Training, Teacher Education, Professional Development and Professional Learning: Essentials for Sustainability Education

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ABSTRACT Over the decades, the attention that education officials, policy makers and researchers have given to teacher training, teacher education and professional development is not misplaced. The rapid speed at which technology advances, together with knock-on effect of a changing globalised society, has necessitated a rethinking of related educational policy and the delivery of teacher educator programmes, including the terminologies used to describe the teaching learning activities. Technology and a globalised society are similarly linked to sustainable development issues. This paper seeks to demonstrate that educational matters and teaching learning activities have a direct bearing on every society's sustainable development, and that these concepts - *Teacher Training, Teacher Education, Professional Development and Professional Learning* - are crucial foundation stones for sustainability education. To do this, it first examines and analyses existing research and related literature to present a conceptual analysis of the key concepts under consideration. It then looks at how these themes are applied to the Teacher Education programme in Nigeria against the backdrop of Vision 2020, which supports sustainability education for its sustainable development programmes. Given that the Federal Ministry of Education's (FME) vision is in line with Vision 2020, teacher training and professional development should be paramount in FME's planning and delivery of its education agenda. The paper concludes that the development of teachers as professionals, learners' overall growth, educational progress and resulting achievements and a nation's sustainable development practices should be the indicators that give concepts such as teacher training, teacher education, professional development and professional learning their true practical worth.

Keywords: teacher education, teacher training, sustainable education, professional development, professional learning

Introduction

Teachers affect eternity; no one can tell where their influence stops - Henry Brooks Adams.

If we teach today's students as we taught yesterday's, we rob them of tomorrow - John Dewey.

The twentieth century was about getting around. The twenty-first century will be about staying in a place worth staying in - James Howard Kunstler.

In a quest to achieve the most practical education outcomes possible, Ministries of Education (MoEs) and educational institutions from around the world have been engaging policy makers to assist in the improvement of education systems (Darling-Hammond, 2012; 2005). Little wonder that education has become the channel through which economic and social progress can be attained for the preservation of societal activities. An area of renewed focus is Teacher Education (TE). Towards the end of the twentieth century, with reference to the number of policy changes that were taking place in TE, the situation was described as “a massive outpouring of political and fiscal action” (Fullan, Galluzzo, Morris, and Watson, 1998, p. 68). Approximately a decade and a half later, the situation was likened to “a monumental flood” (Wiseman, 2012, p.87). A follow-up comment from Wiseman notes that the profession was pushed into a reactive mode because of the impact that policy was having on the teacher education reform agenda, which reached crisis proportions in 2011. In a study that investigated teacher educators’ views of current trends and their consequences for teacher education futures, Aubusson and Schuck found that governments in English-speaking countries have strengthened their resolve “to control and monitor teacher education” because of the “growing concern about the quality of teaching” (2013, p.322).

‘Education for All: Issues for Teacher Education’, the theme for the Teacher Education Policy in Europe (TEPE) 2017 Conference, clearly suggests that the ‘crisis proportions’ and ‘growing concerns’ are still present. Addressing these concerns is of paramount importance. There is even the call for policymakers to recognise “the importance of involving teacher education institutions as partners in the process of policy development” (Hudson & Zgaga, 2017, p.4). This suggests that the giving of focused attention to TE is a step in the right direction for education officials, policy makers and researchers.

This paper seeks to contribute to the TE conversation by demonstrating how TE and its related concepts Teacher Training (TT), professional development and professional learning are crucial foundation stones for sustainability education, and by extension a nation’s sustainable development. It contends that all educational matters, especially teaching learning activities, have a direct bearing on every society’s sustainable development. It also advances the idea that the upshot of the rapid advancement in technology, together with the knock-on effect of a changing globalised society, has necessitated a rethinking of policy formulation with respect to TE and the delivery of its programmes. This notion has echoes of the sentiments that can be gleaned from educational reformer and philosopher, John Dewey’s, famous quote: *If we teach today’s students as we taught yesterday’s, we rob them of tomorrow.*

The paper spotlights the TE programme in Nigeria against the backdrop of Vision 2020, which supports sustainability education for its sustainable development programmes. It also directs attention to the Federal Ministry of Education’s (FME) vision, which is in line with Vision 2020. It argues that TE, TT, professional development and professional learning should be paramount in FME’s planning and delivery of its programmes, if it is to operate a sustainability education agenda. The paper concludes that the development of teachers as professionals, learners’ overall growth, educational progress and resulting achievements and a nation’s sustainable development practices should be the indicators that give concepts such as teacher training, teacher education, professional development and professional learning their true practical worth. It starts the discussion by presenting a conceptual analysis of the key concepts under consideration, and by so doing provides a contextual framework for the discussion.

Concepts and Contexts – A Review

The main concepts under scrutiny in this paper are multifaceted. There is no universal definition that is justly conferred on TT, TE, professional development and professional learning. They are accorded instead, various shades of interpretation in varying situations. Yet, one can find commonalities within each variation. In fact, TT and TE and often used interchangeably. Besides, there is a worldwide consensus that training is central to the operational remit of TT, TE, professional development, including Continuous Professional Development (CPD) and professional learning (Hairon & Tan, 2017; Strom, 2015; Edge and Mann, 2013; Avalos, 2011; Ng, Nicholas and Williams, 2010; Ball and Forzani, 2009). This section therefore purposes to have a closer look at each concept, while at the same time offering readers a framework within which they can interpret the content material and gain a fuller understanding of the issues considered.

Teacher Training

This Mark Twain quote aptly encapsulates the significance of TT: *Training is everything. The peach was once a bitter almond; cauliflower is nothing but cabbage with a college education.* Training for teachers is indeed everything since teachers are now seen as key to the enhancement of “knowledge and skills of the future workforce” (Hairon & Tan, 2017, p.91). It is clear that the United Nations Educational, Scientific and Cultural Organization (UNESCO) support this position in making this statement: “To solve the learning crisis, all children must have teachers who are trained...” (UNESCO, 2014a, p.18). In acknowledging that too many countries were unable to meet their Education for All (EFA) 2015 targets, Part 3 of the 2013/4 EFA Global Monitoring Report “puts the spotlight on the importance of implementing strong policies to unlock the potential of teachers so as to support them in overcoming the global learning crisis” (UNESCO, 2014a, p.1). Given that teachers primarily bear the responsibility for learners’ intellectual and personal growth and development, it is imperative that education systems cater for the education and training needs of their teachers.

So what does TT entails? Chaney (n.d.) examines the concept of training in light of education theory and infers that it “refers to acquisition of concrete skills for meeting specific goals in a real-life, applied situation”. This is linked to in-service training that involves step-by-step instructions; so skills can be mastered by repeating them several times. But this simplistic view appears to give trainee teachers a robotic outlook. Rahman, Jumani, Akhter, Chisthi and Ajmal offer a ‘livelier’ viewpoint by twinning development to training:

Training and development can be thought of as processes designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students. Training is an important part of teacher preparation programs, especially for those aspects of teaching that are more skill-like in their conception, but there are many other important aspects of teaching that can only be nurtured through reflective strategies and experiences (2011, p.151).

From the foregoing it seems that TT is lacking unless it engages the ‘many other important aspects of teaching’. And if these aspects are to be ‘nurtured through reflective strategies and experiences’, it is evident that teacher educators have a serious commission to undertake with regard to the ‘full’ training of teachers. Rahman et al (2011, p.151) identify five tasks that teacher educators can carry out to prepare new teachers for training:

- determining the curriculum content to teach student teachers;

- selecting appropriate methods to use in preparing student teachers;
- motivating teachers to learn;
- assessing teachers' learning; and
- dealing with individual differences among student teachers.

Teacher educators can employ these same tasks to help experienced teachers to improve their productivity. In addition to mastering specific skills, trainee teachers also need to gain knowledge about other aspects of education, for example how to impart content material, how to handle classroom management and how to assess students' work. In attaining this level of development, trainee teachers should be in a stronger position to "reflect critically on their practice and approach new knowledge and beliefs about content, pedagogy, and learners" (ibid).

TT programmes should not be limited to proficiency in methods and skills if trainee teachers are to become reflective practitioners. Asif (2013, p.11) contends that the general theory of education, comprising the philosophical, sociological and psychological aspects are also crucial to teachers' development. If the focus remains on training rather than educating teachers, trainee teachers are likely to miss out on practising higher order thinking, mastering cognitive at the highest levels and getting a sound grasp of the theories that underpin teaching learning activities. Creativity, innovation and intellectual development may also be stifled.

TT is an important aspect of a teacher's overall professional development, but needs a segment that will also take into account the theoretical perspectives of classroom as well as the broader educational activities. Theoretical and practical features are what successful teacher education programmes should offer.

Teacher Education

There is no denying that teachers are valued assets to any nation. Obviously, *quality* should become the watchword for TE programmes if teachers are to bear the responsibility of preparing a nation's general development. Earlier, reference was made to Aubusson and Schuck (2013, p.322) who assert that there was a real concern about "the quality of teaching" in English-speaking countries. This recognition draws attention to need for education systems to address the issue of quality as much as it does to the relevance of quality teaching for nation building and sustainability. It also suggests that to accomplish this, teachers should not function on the periphery of an education system, but should work as an integral part of it.

The paper adapts Asif's (2013, p.13) conceptual analysis of the TT and TE to present a juxtaposition of the concepts. This degree of comparison should not only shed some light on why both terms are often used interchangeably, but also expose the 'thin and sometimes thick lines' that mark their dissimilarities on operational levels:

- TT educators focus on exercises and drilling of activities for the purpose of gaining expertise in specific task performance; small class sizes facilitate more practice and drills.

For TE, the focus is on development of cognitive abilities to aid understanding of theory and practice. Students are presented with theoretical knowledge of different concepts with suitable explanations and presentations.

- In TT 'free will' and independent thinking are not encouraged because students simply respond to the instructions they are given to complete a particular task.

For TE, the aim is to encourage 'free will' and independent thinking because this gives trainee teachers many opportunities to analyse and discuss the different concepts presented.

- TT educators tend to be more 'blinkered' in their outlook because they aim for mastery of specific skills.

TE educators demonstrate wider perspectives and have a more 'open' approach because they encourage an analytical approach to learning.

The foregoing comparisons clearly show that TE possesses the range and depth of the knowledge and skills that trainee teachers need to improve the quality of their service. The very essence of TE spans an educational range that makes allowance for the important aspects of TT for all levels in education. The National Council for Teacher Education (NCTE) of India seems to be in agreement with this view because of how it defines TE: "A programme of education, research and training of persons to teach from pre-primary to higher education level" (University of Mumbai, n.d., p.2). Goods Dictionary of Education Teacher Education adds other dimensions to this explanation: "all the formal and non-formal activities and experiences that help to qualify a person to assume responsibilities of a member of the educational profession or to discharge his responsibilities more effectively" (as cited in University of Mumbai, n.d., p.2). In summarising what TE actually means, University of Mumbai states: "Teacher education encompasses teaching skills, sound pedagogical theory and professional skills". These are the three elements that intertwine to structure the nature of TE:

1. Teacher education is a continuous process and its pre-service and in-service components are complimentary to each other.
2. Teacher education is based on the theory that —Teachers are made, not born.
3. Teacher education is broad and comprehensive... meant to be involved in various community programmes and extension activities, viz adult education and non-formal education programmes, literacy and development activities of the society.
4. It is ever-evolving and dynamic. In order to prepare teachers who are competent to face the challenges of the dynamic society, Teacher education has to keep abreast of recent developments and trends.
5. The crux of the entire process of teacher education lies in its curriculum, design, structure, organization and transaction modes, as well as the extent of its appropriateness.
6. ... the knowledge base in teacher education does not comprise only an admixture of concepts and principles from other disciplines, but a distinct gestalt' emerging from the conceptual blending', making it sufficiently specified.
7. Teacher education has become differentiated into stage-specific programmes.... utilized for developing effective processes of preparing entrant teachers for the functions which a teacher is expected to perform at each stage.
8. It is a system that involves an interdependence of its Inputs, Processes and Outputs (University of Mumbai, n.d., pp.3-4).

As noted above, the nature of TE makes it an imperative that warrants direct and focused intervention from education systems. If trainee teachers are to make positive contribution to helping nations achieve their educational goals, the emphasis on TE rather than TT is vital. Trainee teachers should embrace an appetite for learners'

educational success, sound knowledge of subject content, pedagogical skills, high levels of motivation, understanding social issues and commitment to the teaching profession. But continuous enhancement of knowledge and skills are necessary if teachers are to remain committed to the profession.

Professional Development

The forces of globalisation and the internationalisation of Higher Education (HE) have ushered in an era of change and challenges for education systems (Chirico, 2014; Shotte, 2014). Educators therefore need to keep up to date with all the advances that are transpiring in education. It is against this backdrop that professional development has a huge role to play. Joyner (2005) sees professional development as key to meeting today's educational demands. Hunzicker (2010), who researches effective professional development, puts it this way: "professional development has become a necessary expectation in today's schools..." Hunzicker contends that effective professional development engages teachers in learning opportunities that are supportive, job-embedded, instructionally-focused, collaborative, and on-going. When these five components are at work together, this is what results: "...teachers are more likely to consider it relevant and authentic, which is more likely to result in teacher learning and improved teaching practice" (Hunzicker, 2011, p.178).

Hassel (1999) defines professional development as: "the process of improving staff skills and competencies needed to produce outstanding educational results for students" (Hassel, 1999, as cited in Joyner, 2005). Thomas Guskey, Professor of Educational Psychology at the University of Kentucky, asserts that professional development is responsible for all the significant landmarks that are made in education: "One constant finding in the research literature is that notable improvements in education almost never take place in the absence of professional development" (Guskey, 2000, p.4). This implies that the presence of professional development is highly likely to bring about improvements in education. Given that nations are constantly trying to improve their education programmes, MoEs should actively promote professional development as key for teaching excellence. This means taking TE programmes beyond preparation for entering the classroom.

Professional Learning

There is a direct link between professional development and professional learning. Fundamentally, the major ingredient that improves educator practice and provides new perspectives on teaching and learning is professional learning (Marcinek, 2015; Netolicky, 2016). All teachers should want to improve their practice; it therefore seems prudent for teachers to twin professional learning with professional development to make this happen. Because professional development can be both active and interactive, teachers should always be on the look-out for opportunities to acquire knowledge and skills and work collaboratively to find solutions to problems.

Goodall, Day, Lindsay, Muijs & Harris investigated the evaluation of the impact of CPD in schools. They note that traditionally, professional development had been "dominated by a transmission or course-led model of how teachers learn" (2005, p.25). The limitations of this model necessitated "a richer repertoire of professional development". CPD thus came to the rescue by offering "an important departure from traditional forms of INSET by giving teachers a range of opportunities for relevant, focused and collaborative approaches to professional learning" (ibid). By employing CPD, it was envisaged that professional development would be 'at the heart of school improvement' (DfEE, 2001, p.3, as cited in Goodall et al, 2005, p.26) since it offers new advantages that can help teachers improve their practice. Taking this stance is also seen as teachers utilising each professional development activity as an opportunity to improve their professional learning. Marcinek (2015) reminds:

Professional learning opportunities should not be treated as if they were a test that we're all cramming for with only minutes left to study. Instead, professional learning should resemble a variety of unique threads that make up the fabric of an educator's professional career.

One way to improve an educator's professional career is via "structured and sustained collaboration at school sites, especially the kind that has characteristics of professional learning communities (PLCs)..." (Hairon & Tan, 2017, p.92). A caveat is in order here: PLCs are not simply for the sake of collaborating on specific project. They should be operated within the 'confines' of a school's mission, values and goals. I would venture to add even within the cultural orientation of a nation. The overall purpose of PLCs is to have a group of teachers share and critically interrogate their practice "in an on-going, reflective collaborative, inclusive, learning-oriented and growth-promoting way" (ibid).

Whether via PLCs or on an individual basis, professional learning should be the experience of the individual learner, with a healthy sense of independence that allows that individual to be fully responsible for his/her professional development. Considering the on-going nature of professional learning, teachers who espouse this 'brand' of professionalism are better able to contribute to their respective MoE's sustainability education projects.

Sustainability Education

Sustainability education is also known as Education for Sustainable Development (ESD), so both expressions are used interchangeably in this paper. The end of the United Nations (UN) Decade of ESD (2005-2014) did not take away the focus put on sustainability education. In fact, it put even more emphasis on the need to sustain sustainability education because the UNESCO ESD Conference that was held in Aichi-Nagoya, Japan, not only marked the end of the UN Decade of ESD (2005-2014), but also launched the Global Action Programme (GAP) that was endorsed by the 37th UNESCO General Conference held in Paris in 2013 (UNESCO, 2014c; UNESCO, 2014b). The main goal of GAP is "to generate and scale-up action in all levels and areas of education and learning in order to accelerate progress towards sustainable development". Within this broad framework are two related objectives:

1. To reorient education and learning so that everyone has the opportunity to acquire the knowledge, skills, values and attitudes that empower them to contribute to sustainable development; and
2. To strengthen education and learning in all agendas, programmes and activities that promote sustainable development (UNESCO, 2014d).

GAP's objectives clearly suggest that sustainability education is still a huge agenda item MoEs, especially considering that sustainable development is a concept that is constantly evolving (UNESCO, 2014e). I make reference to another of John Dewey's quote to reinforce the open-ended nature of ESD: *Education is not a preparation for life, rather it is the living. Education is the process of living through a continuous reconstruction of experiences. It is the development of all those capacities in the individual which will enable him to control his environment and fulfil his possibilities.* Reference to the environment implies that education has a direct connection to the immediate and wider community, the sort of collaboration that schools need for nation building and sustainable development. So what pedagogical techniques do teachers need to accomplish sustainability education? Undoubtedly, there are numerous methods that can teachers can employ; and it is highly likely that they all are workable, so there is no written-in-stone pedagogy for ESD. Nevertheless, there are general guidelines that guide teachers' action in this regard. Plymouth University offers five pedagogic ele-

ments that can be used with different approaches: (1) critical reflection; (2) systemic thinking and analysis; (3) participatory learning; (4) thinking creatively for future scenarios; and (5) collaborative learning (Plymouth University, n.d.).

Interestingly, the pedagogic elements mentioned above are very similar to what Hairon and Tan contend should take place in PLCs (2017, p.92), and what Asif advocates for teachers who engage in TE programmes Asif's (2013, p.13). What is now evident is that TE, TT, professional development, professional learning and sustainability education are interrelated on various levels. The following assertion from the Council of the European Union echoes this sentiment:

Education and training are indispensable to achieving a more sustainable Europe and world. ESD should be regarded as crucial in the process of life-long learning and should, where appropriate, be mainstreamed into all levels and aspects of education and training, in order to strengthen the capacity of citizens to cope with imminent unpredictable problems and to find long-term solutions for these in many different situations throughout life (International Union for Conservation of Nature (IUCN, 2011).

The Council of the European Union is 'on the button' with regard to how crucial education and training are to achieving a sustainable world society. The paper now takes a peek at how Nigeria is using education to promote its sustainable development programmes.

Teacher Education in Nigeria

TT in Nigeria can be traced back to 1859 when the first TT College known as the Training Institution was established in Abeokuta by the Church Missionary Society (CMS) (Kayode, Innocent & Charity, 2015). In pre-independence Nigeria, TE underwent numerous changes in an effort to improve its TE programmes with a view to boosting the professional teacher population. Almost two decades into post-independence Nigeria (post 1960), "the Nigerian government embarked on the expansion of education facilities and institution with considerable emphasis on tertiary institutions for the training of secondary school teachers in order to ensure that teacher education objectives are realized" (ibid). Particular institutions were "charged with the responsibility of giving the required professional training for teachers" (Adeyinka, 1988, as cited in Kayode, Innocent & Charity, 2015). In contemporary Nigeria, teaching is professionalised. The Teachers Registration Council of Nigeria (TRCN), via its 2007 Act, mandated the registration of all professionally qualified teachers. The government renewed approaches to TE and professionalism made significant inroads. Consequently, currently, there is a marked improvement in TE compared to the immediate post-independence period. Yet, there is need for a strong focus on ESD in order to help in addressing the nation's concerns relating to environmental, economic, institutional and social sustainability.

Vision 2020 and Federal Ministry of Education's (FME) Vision:

The National Planning Commission (NPC) and the Federal Ministry of Education (FME) have both seen the need for sustainability education if Nigeria is to achieve its development goals. NPC articulates Vision 2020, in part, this way:

NV20:2020 is a rallying call for all Nigerians, regardless of ethnicity, economic status, or religion to unite and stand behind a common cause of placing the country firmly on a path of sustainable growth, and taking it to its rightful place in the comity of nations (NPC, 2009, p.4).

Concerning capacity building which is seen as been supported by educational reform, NPC reports that this will be based on clear and dynamic strategies via policies that

are expected to:

- Strengthen education as the foundation for lifelong learning.
- Foster the development of Research and Development.
- Promote worker education and training.
- Facilitate the diffusion of Information and Communication Technology (NPC, 2009, p.36).

Clearly, Vision 2020 supports sustainability education. FME's vision to become an economic model, delivering sound education for public good (FME, 2012), also supports ESD for FME states: "continuous training and retraining" are at the heart of its education reform (2008, p.19). FME's (2012) recognition that education is crucial for sustainable development should spur it on to dialogue with NPC and other government ministries with a view to making Vision 2020 a reality. Undoubtedly, to realise success, facing obstacles and challenges are inevitable; and it is prudent to try to deal with them as soon as they arise.

Joining the Dots

This section highlights some of the numerous challenges that TE and education in general are facing in Nigeria. Some of these problems, as Kayode, Innocent & Charity (2015) notes, "emerged with the changing socio-economic and political condition of the time, but others evolved as a result of government neglect of the education sector..." A growing population does not make matters any easier when it comes to supplying appropriate services and facilities.

Challenges and Concerns

It is well documented that education in Nigeria has been marred by a variety of issues from various sources and situations (Ayodele, Obafemi and Ebong, 2013; Alumode, 2012; Opateye, 2012; Osisioma, 2012; Oyedepo, 2012; Wike, 2012; Amadi, 2011; Abdullahi, 2007). Dilapidated infrastructures, ill motivated teachers, poor funding, lack of support and encouragement for research as well as inadequate budgetary allocations to education, among others, are some of the challenges identified (Ogunsagu, 2006; Oyedepo, and Fasasi, 2006). Another area of contention is the need for "relevant managerial skills" for achieving the nation's transformation agenda (Egboka, Ezeugbor and Eneume, 2013, p.169). Literacy rate and quality are also seen as irritable problems (Ayodele, Obafemi and Ebong, 2013, p.150). With regard to quality, Kayode, Innocent & Charity (2015) cite "the low quality of teachers produced through in-service training by NTI as a serious challenge to teacher education in the country". They also view the intellectual capacity and emotional qualities of potential trainee teachers as elements that affect quality assurance and internal efficiency in the teaching profession.

Cutbacks in the education budget, reduction in numbers of employed teachers and the "hiring of non-professional teachers" are also reported as obstacles to education (Azaiki, 2015, p.299). Since education is the "the bedrock of *the nation's* development" (Amadi, 2011, p.7), the Federal Republic of Nigeria's (FRN) affirmation to allow education to "continue to be highly rated in the national development plans..." (FRN, 2004, p.7), is an important factor in teachers' empowerment.

Empowering the Teachers

Education is "indispensable to human progress" (Ayodele, Obafemi and Ebong, 2013, p.150), and by extension to sustainable development. Teachers should therefore be empowered to do this weighty task. This is even more of an imperative since the nation depends on a high quality teaching force to help its citizens to attain excellence. FRN should accord teachers the rights and responsibilities that will allow them to

function in this capacity. Rahman, Jumani, Akhter, Chisthi and Ajmal assert that teachers' credibility depends on how they take up the rights and responsibilities which are associated with the position (2011, p.150).

Vanderbilt (2017) explains: "Being an empowered teacher means having freedom to provide every student with the education that they deserve". She proposes what empowering teachers means:

1. Make sure your teachers have a voice in the selection of curriculum, tools and processes.
2. Allow teacher to have a say in professional development options and feature teachers as experts.
3. Celebrate teachers in the community and give them an opportunity to share what is working.
4. Evaluate teacher workload to make time for innovation.
5. Model vulnerability, reward risk-taking, and embrace the possibility of failure (Vanderbilt, 2017).

Admittedly, is it an uphill task to have the five above proposals implemented, but FRN and FME do well to use whatever means necessary to empower the nation's teachers if they want teachers to be able to contribute to Vision 2020. Ensuring that teachers acquire up-to-date technological skills is a good place to start.

Technology and Education

To be efficient, teachers should keep in touch with the rapid advancement in technology and education. *Learning Spaces with Technology in Teaching and Teacher Education* was the theme for the 2013 Teacher Education Policy in Europe (TEPE) Conference, Helsinki, Finland. TEPE reports that critical thinking skills and lifelong learning had been given added attention on the conference's agenda for these reasons:

...the changing environment, in particular developing infrastructures, increasingly networked communities and constant access to resources and networks influence people and learning, and make these skills ever more important. The increasing use of mobile technologies and the expansion of social media, for instance, require not only technological skills, but also information literacy, social competences and ethical awareness (PEPE, 2013).

FRN and FME seem to be thinking along similar lines because NPC points out:

one of the key strategic objectives of NV20:2020 will be to promote development of local capacity to meet the needs of the ICT sector in developing an industrial based economy and ensuring the continued development and availability of affordable ICT infrastructure and services (2009, p.82).

Such a move is undoubtedly welcoming for teachers because "insufficient knowledge and use of ICT" is identified as a major challenge in Nigeria (Kayode, Innocent & Charity, 2015). They also suggest that for teachers to benefit from the ubiquity of information, and if they are to engage other professional networks in academic conversations, they should be trained and retrained in Information Communication Technologies (ICTs). Osokoya (2012) adds that they must imbibe the new technologies and methodologies of the modern times.

Conclusion

The paper advances the idea that TT, TE, professional development and professional learning are essentials for ESD. It employs a review of literature to explain the main concepts and to provide a context for the discussion, which spotlights TE in Nigeria in

light of Vision 2020, in particularly its sustainable development programmes. TE in Nigeria faces numerous challenging including poor teacher quality and insufficient knowledge of ICTS. The empowerment of teachers and training and retraining programmes are suggested as means to motivate teachers to be professional and keep up to date with modern technologies.

TT, TE, professional development and professional learning are vital constituents that provide teachers with a panoramic view of the teaching learning landscape. This 'unobstructed' view will lend more than enchantment to FME's mission and Nigeria's Vision 2020, for it is capable of motivating teachers to clamour for sustainability education and build an ESD heritage in this fast-changing globalised environment. The development of teachers as professionals is certainly a vital ingredient in the recipe for sustainable development. It is a given that the educating and training teachers come with numerous challenges. But suchlike obstacles should not be allowed to overshadow the relevance of TE for not only do *'teachers affect eternity'*, but they also *change the world, one child at a time*.

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