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**The Practice of Teacher Education and Teacher Development**

**The Role of Teacher Education and Teacher Development in Preserving Teacher Quality for the 21st century**

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**The role of teacher education and teacher development in preserving teacher quality for the 21st century**

**1 Introduction**

Our children today, who are the leaders of tomorrow, are one of our most valuable resources. It is therefore critical that they are well prepared to embrace and be actively involved in the global world, which preparation ultimately lies in the hands of the teachers. Likewise, it becomes imperative that the upcoming and practicing teachers are trained to effectively serve the generation today. Ginsberg (2022) reports on discussions being held regarding how to adequately select, train, and sustain teachers to be culturally responsive, which is the reality of this century. He points out that teacher education programs are not keeping abreast with this development hence the need to evaluate and re-direct teacher education to meet the growing needs of today’s generation. Darling-Hammond et al., (2017) re-iterate that to meet 21st -century competencies, higher quality and refined forms of teaching are needed.

Flores (2016) writes that the quality of teacher education programs significantly impacts the quality of the teachers produced who then determine the quality of teaching in the classrooms and Kaufman & Ireland (2016) add that compared to social and demographic factors, the competence of a teacher impacts students’ learning the most.

**1.1 Teacher education and its importance**

Teacher education has to do with training and equipping teachers with the

required tools for their specific job. Flores (2016) purports that though teacher education is seen as the conduit for the improvement of teaching and learning in school, its effectiveness has been questioned. She adds that it is important to recognize that teacher education is a lifelong enterprise given our ever-changing and developing world hence the need for new and revised skills. It is therefore crucial that induction and continuing professional development become part of a learning institution’s program. Regarding its importance, Flores (2016) cites the rapid growth in technology notwithstanding globalization and global movement as impacting teacher education, requiring educators to rise to the new challenges to produce quality teachers that are relevant in the 21st century.

**1.2** **Teacher development and its importance**

In keeping with the 21st-century demands, one’s skills must continue to be developed. Darling-Hammond et al., (2017) put across that competencies like collaboration and effective communication skills, critical thinking and problem-solving skills, as well as mastery of arduous content require a more sophisticated form of teaching than what was received initially at the teacher education institutions. Teacher development opens avenues for teachers to develop the 21st-century skills needed to meet these competencies.

Kaufman & Ireland (2016) report on research that identified certain aspects like classroom management, instructional delivery, student assessment and feedback, and personal qualities, as being instrumental in promoting student achievement. Not all teachers come with all these abilities and it is through teacher professional development and collaboration with fellow teachers that these ideas can be exchanged, adopted, and implemented for improved student learning.

This essay will focus on the roles, structure, and impact of pre-service teacher education, induction, and professional development on the growth and development of culturally responsive teachers. The theory, research, and practice of selecting pre-service teacher candidates, supporting teacher learning in pre-service programs, and assessing pre-service teacher candidates will be examined together with the approaches and issues related to the induction of novice teachers and promoting the development and growth of experienced teachers through formal and informal training.

It will conclude with an explanation of how teacher education and professional development programs shape teachers’ learning in pre-service and in-service contexts.

**2** **The role, structure, and impact of pre-service education, induction, and professional development on the growth and development of culturally responsive teachers**

As mentioned earlier, pre-service education, induction, and professional development are essential in the preparation of the quality teachers needed for the 21st century. Today, the focus is not only on their preparation to impart knowledge to the students but it being a global world, teachers must be trained to meet global needs, with cultural responsiveness being at the forefront.

Teacher training programs also serve to bolster the confidence of upcoming teachers as they enter their professional fields. Drescher (2017) reports some negative attitudes that pre-service students hold toward collaboration and inclusion which are important elements of teaching because of inadequate preparation to handle these challenges. Sufficient pre-service training generates the competence they need for this.

Induction is an essential element for success in any organization be they teachers new to the profession or seasoned teachers new to that specific organization, as every institution has its system of operation that needs to be understood and appreciated for smooth operation. Professional development is also essential due to the rapid changes in the world and demands that did not exist when the older generation of teachers was in training and teachers must keep abreast with the ever-changing global requirements.

Pre-service education, induction, and professional development should all be geared toward the development of culturally responsive teachers. Gay (2002) defines pre-service education as training that takes into consideration the cultural characteristics, views, and experiences of diverse students to make teachers more effective and improve student achievement. However great the content knowledge of a teacher is, if it does not incorporate the lived experiences and students’ sources of reference, they will be disengaged in their learning making it ineffective. Hernandez et al., (2013) quoting Cooper and Matthews (2005), reiterate that the 21st century’s complex needs include teaching a large percentage of students from diverse backgrounds where teachers are faced with teaching students content that is more challenging than before and must be taught more effectively.

**2.1** **The role, structure, and impact of pre-service education**

IIEP-UNESCO (n.d.) defines pre-service education as a standardized program formulated to train upcoming teachers for the teaching profession at a level of education that is specified, after which they receive a government-recognized certification. Though the training may vary in different countries the elements of teaching practice, education studies, and subject and pedagogic content knowledge remain the same.

As the name suggests, it has to do with educating or training teachers before they begin their teaching service. IIEP-UNESCO (n.d.) purports that this training should go beyond the theoretical content provided and equip teachers with practical skills to face the challenges in the classroom; student-centered practices, as well as class leadership competencies, are some of these essential skills. Ryan et al., (2017) supplement that this education is an invigorating experience where theory is applied to practice and pre-service teachers evolve and create new identities in the intense environment that the schools afford. They add that teachers can use this time for reflection on their readiness for teaching as well as address the challenges that will come as they train.

Pre-service education seeks to equip upcoming teachers with the knowledge and skills needed for them to successfully meet the demands of their profession and professionally certified teacher educators are needed for this (Zein, 2016). Ryan et al., (2017) write that action research has been seen to be instrumental in developing both pre-service and in-service teachers. Pre-service teachers can take elements of their research and apply them in their practice, observe and reflect on the implementation and make necessary and applicable adjustments. They add that through this practice the training teacher is better able to investigate their practice and through evaluation create depth in their learning. Action research as part of pre-service education is geared toward the improvement of teaching practices as it allows them to practice and make appropriate decisions regarding their teaching practice (Ryan et al., 2017).

Pre-service education empowers teachers making them more effective at their job. Ateşkan & Lane (2016) report on research done on students at the University of British Columbia and how empowered they felt after a particular type of training during their pre-service education because of the improved understanding of teaching pedagogies they received adding that the confidence levels of student graduates were accredited to their pre-service training.

The structure of pre-service education is important for the desired goal of quality teachers to be achieved. Sorge et al., (2019) write that Shulman (1986, 1987) who first introduced professional knowledge, identified 3 important components: content knowledge (CK), pedagogical knowledge (PK), and pedagogical content knowledge (PCK) as being the core components of professional knowledge. Furthermore, good quality teachers must develop a collection of planning, teaching, and reflecting skills through a theoretical foundation in these core components as their professional knowledge evolves.

It is also important that pre-service education is structured in a way to meet the needs of the 21st -century. Certain elements like collaboration must feature in the curriculum created and most importantly, train them to be culturally responsive. Drescher (2017), writes that the current practices should be reviewed to determine necessary changes that reflect practices like inclusion and collaboration.

To successfully train pre-service teachers, the teacher educators must be in touch with the realities and challenges faced in the classroom today and provide learning experiences that are reflective of these. Zein (2016) advises that the teaching programs used should be modeled by the practice of the educators which will then inspire the pre-service teachers in their practice.

**2.2 The role, structure, and impact of induction**

Induction today, which is one of the forms of teacher training, is aimed at preparing pre-service teachers to meet the needs of the 21st century, one of them being cultural responsiveness, as well as setting up practicing teachers for success when they transition to new educational institutions. American Institutes for Research (2015), defines induction as a program that assists upcoming teachers during the first year of their teaching experience by providing support through continuous collaboration and communication amongst them making them more effective as teachers and hence, improving student achievement. It is a professional development program intended to provide orientation, guidance, and support while at the same time integrating mentorship for new teachers as they begin their first teaching assignment. Induction can also be used for practicing teachers that are starting at a new institution as every institution has its own culture and climate that they need acclimatization into. Kearney (2013) defines induction as the initial stage in a chain of professional development that a teacher receives to be fully integrated into their professional community which constitutes practice and ongoing professional training all through their career.

Massachusetts Department of Elementary and Secondary Education (2020) relay that teacher induction programs provide new teachers with the opportunities to improve their practice and gain knowledge about their professional responsibilities which ultimately positively impacts student achievement. Induction provides support for novice teachers and at the same time provides opportunities for practicing teachers to reflect on their practices, uniting the professional learning community as they all work toward improving education quality. They add that induction programs encourage a collaborative learning community and can advance the teaching profession for educators. Teacher attrition is highly reduced as they gain job satisfaction from continued growth and success.

The Massachusetts Department of Elementary and Secondary Education (2020), reports that the Education Reform Act of 1993 not only set regulations to ensure that the beginning teachers received the support they needed through an induction program but what should be included. Furthermore, one of the requirements of a professional teaching license was participating in an induction program.

Much as the importance of induction programs is recognized and mostly implemented, Martin et al., (2016), report that a very small percentage of them are comprehensive, especially regarding opportunities for new teachers to work in learning communities with other teachers, transacting with other new teachers, observing expert seasoned teachers as they teach and being observed by their mentors. They advise on the importance of providing comprehensive induction to better prepare them for success in the classrooms. Kearney (2017) recommends continuous effective induction as a principal practice in providing the support they need to face the challenges at the dawn of their careers.

Much as induction has become commonplace in most educational institutions, its structure is often not clear. In South Wates, the Department of Education and the Regional Catholic Education Offices have elected to follow structures for induction that align with recommended best practices, however, it is up to each school to decide what happens to their new teachers.

The importance of induction cannot be minimized and Kearney (2017) reports that even though in 2002, the Department of Education, Science, and Training (DEST) strongly recommended its practice, the follow-up action has been minimal. He adds that research has indicated that induction significantly reduces teacher attrition as it prepares and supports novice teachers for the challenges of managing the multitude of expectations placed on them early in their careers including being culturally responsive to the students they teach.

Induction programs provide support for upcoming teachers by creating defined support structures to facilitate their transition into teaching. However, Kearney (2017) maintains that the needs of the upcoming teachers are not being met by the induction programs organized. He argues that the schools’ attitude to induction hence effectiveness will change if the feeling of a mandated bureaucracy is removed, and a provision of support and guidance is made clear.

**2.3** **The role, structure, and impact of professional development**

Professional training that is structured with outcomes of improved teacher practices and student learning outcomes, is what Darling-Hammond et al., (2017) define as professional development. They further report that with the increasing demands for sophisticated skills and changes in the global world of the 21st century, the task of the teachers to prepare students to be competent has been heightened. There is a requirement for specific teaching methods for the development of critical thinking, problem-solving, effective communication, and collaboration skills in addition to mastering content that is challenging. In addition to this, the students of this age are culturally diverse making it imperative to train teachers to be culturally responsive.

Darling-Hammond et al., (2017) purport that for teacher professional development to be effective, certain elements must be present. It must be focused on the curriculum content and integrate active learning for the participants. Collaboration among the teachers is critical as it provides opportunities for teachers to share their ideas while learning from each other and in some cases, changing to a more positive culture in the school. When modeling is integrated, teachers can clearly understand the school’s expectations, and coaching with expert support adds to the teachers’ confidence. With feedback and reflection, teachers can receive input, reflect on and improve their practices. Finally, they recommend that this training be continuous.

However, there have been concerning reports that even though institutions have set aside substantial amounts of revenue for professional development, it has not been effective with teacher evaluations remaining unchanged year after year. This calls for an evaluation of the professional development programs as their role in the development of culturally responsive teachers and impact on student achievement cannot be minimized (Darling-Hammond et al., 2017).

Martin et al., (2016) advise that the professional development practices that would be effective for new or ‘middle-level’ teachers are providing them with mentors that they trust and can confide in, as well as creating common planning periods where teachers of the same grade level or subject area can plan and collaborate. An improved structure of support for new and middle-level teachers was highlighted as a need.

Professional development does not only happen in a planned structured manner. Macià, (2016) cites 3 ways that teachers develop in their profession. The first one is from the experience they gain through their daily teaching and reflecting on their practice to improve while the second is the structured model where an expert shares their knowledge and experience and the third is more informal where experience is gained from interaction with outside sources through networking, collaboration and implementation of these experiences within one’s classroom. All three work together toward developing a teacher’s practice to match the culturally diverse needs of the 21st century.

**3.1 Theory, research, and practice of selecting pre-service candidates**

Simmons & Sowa (2021), assert that the first stage in the selection of pre-service teachers is their academic credentials. Soft skills which include interpersonal, communication, listening, and time management skills are put into consideration as well as other inherent qualities. They add that it is imperative that the pre-service candidates are selected from diverse groups and that the deployment of new teachers is quick and equitable. This will show the seriousness of the program hence

encourage prospective teachers to join it.

Beasley et al., (2014) report on the discrepancy between the theory of teacher efficacy and the practice of pre-service teaching programs. They recommend a deeper appreciation of the various instructional practices that are effective in pre-service learning like ways to engage students in their learning. They add that though teacher education literature highlights the challenges pre-service teachers face, practical ways to solve these challenges are not being well addressed.

When pre-service training teachers are culturally responsive to the needs of the students by getting a better understanding of how they learn and grow, then using this knowledge to have them engaged in their learning will make them more effective as well as improve student outcomes. These are the teachers that will stand a greater chance of being selected (Beasley et al., 2014).

**3.2 Theory, research, and practice of supporting teacher learning in pre-service programs**

Juuti et al., (2018) write about the complexity of teacher learning in Finland, citing the steps needed that include earning a degree in a subject area followed by pedagogic training for the preparation of the teacher’s professional life. They report that teacher education prepares teachers to work independently and in addition to teaching prescribed subjects, to act as counselors. Furthermore, they write that though teacher learning in Finland is rigorous, the teachers are trusted and allowed measurable didactic autonomy in their classrooms to choose the learning content, carry out student assessments, and create their classes. By the time a student graduates from the university, no additional certification is needed. To this end, teacher self-efficacy is promoted in the light of classroom management and student engagement.

There is a lot of theory on teacher learning but it cannot fully prepare the teacher for the challenges they will face in their practice. During this time, the teacher develops their identity which Aykac et al., (2017) explain that though this begins from birth, it evolves depending on experiences. They write that some teacher learners pick up traits from their instructors’ teaching styles and ways of communication as well as the traits and attitudes of the experienced teachers they observe.

During teachers’ pre-service learning, they begin to develop their teaching identity. This is critical as it impacts their teaching quality and resultant education quality. Through teacher learning, positive influence is garnered and opportunities through collaboration, networking, and active practice, teachers can improve their quality of teaching which positively impacts their teacher identity and resulting student achievement (Aykac et al., 2017).

**3.3 Theory, research, and practice of assessing pre-service teacher candidates**

Chen et al., (2011) advise that it is critical to provide an assessment rubric that highlights and analyzes tools that work toward improving teaching practices. Pre-service teaching practices should be observed for dynamic teacher interaction with children as well as their content knowledge, pedagogical skills, and understanding of the cultural diversity of the students they teach. This knowledge is obtained from teacher education theory and is assessed through practice. They add that having the cooperating teacher directly observe the pre-service teacher and regularly provide them with constructive feedback will better prepare them for their service. This assessment is ongoing and has a positive impact on improving their quality of teaching.

An important area that educators assess pre-service teachers on, is the way their plans are designed and their organization of learning tasks for the children. Being culturally responsive to students’ needs and using the subject matter to craft learning tasks for their lesson is what educators assess for the definition of quality teachers. This impacts student achievement when they understand the content knowledge and make connections with the concepts and topics taught.

The assessment of pre-service teachers is a crucial element resulting from the No Child Left Behind Act in the U.S which led to the requirement of more teacher accountability for the demands of the Act to be met. Okhremtchouk et al., (2013) claim that sufficient reports are showing the link between student achievement and teacher quality making professional development and teacher licensure a pre-requisite for teacher educators today. This will ensure the preservation of the quality of teachers needed to meet the 21st – century demands.

Assessing teachers to maintain the quality standards required for high student achievement, may frustrate rather than encourage pre-service teachers. Okhremtchouk et al., (2013) quoting the U.S. Department of Education (2009), reports that California was one of the first states to implement pre-service teacher assessments and legislate support measures for induction. They contend that these increased expectations of pre-service teachers and added accountability measures have made it more challenging to acquire teacher certification. Much as teacher assessment is necessary to improve teacher quality, it should not hamper the goal of this acquisition.

**4 Approaches and issues related to the induction of novice teachers**

Many teachers can share their experiences as novice teachers, some harrowing, others less so, but all experiences lead to the recommendation of relevant induction for novice teachers. My first year teaching at an international school was an immense learning curve in my career. I had not received classroom management training in my teacher education program, nor was I prepared to teach children of diverse cultures. It was a year of survival where I stayed only because I was determined not to fail. On the bright side, it created an intense desire for me to learn how to overcome these challenges, making the professional development offered highly applicable to my need to grow and become a more effective teacher. This is one of the reasons for pursuing this doctorate in teacher education and development. I desire to see that educational institutions in Uganda prepare quality teachers who are culturally diverse and can improve student achievement as well as be competent to face the challenges of the 21st – century.

Öztürk (2008) defines induction as an early professional development that facilitates the transition from training to actual employment. He adds that this may differ in various countries where for example in England, the induction period must successfully be completed for one to become a recognized teacher.

According to the Washoe County Schools (2002-2022) participation in the induction and mentoring programs is a requirement for all novice teachers. Weekly meetings with their mentors are held where lesson plans, classroom management, and instruction are discussed and observation of experienced teachers is planned. At the end of the year, an evaluation of the program by the novice teachers is then requested.

Öztürk (2008) claims that an appreciable amount of research points out the challenging nature of the induction stage of a teacher’s career. Understanding the school’s culture and classroom management are cited as some of the initial challenges faced. At my school, one of the novice teachers came from a middle-class N. American background and was given a class of highly diverse students on top of this being her first year in Africa. Her understanding of the Ugandan culture was minimal let alone the other cultures represented in her classroom. This resulted in an extremely challenging situation in the classroom creating an atmosphere where it was almost impossible for learning to take place. She experienced the cultural mismatch and practice shock that Öztürk (2008) quoting Achinstein & Barret (2004) referred to.

Approaches to the induction of novice teachers must include what Öztürk (2008) refers to as the accustomed knowledge areas of acquisition. Quoting the National Academy of Education (n.d.), he highlights the knowledge of learners, which could be anywhere from their learning styles to their cultural diversity; understanding the content and skills to be taught and understanding how to best teach the subject matter to the students.

Providing a supportive environment is what Alhamad, (2018) advises as a valuable approach toward the induction of novice teachers. This, he relays, quoting Elliott and Pynchon (2005), boosts teacher satisfaction and enhances their integration, adding to their professional growth. Advocating for novice teacher induction, he reports on research that asserts the significant improvement in novice teachers’ adjustment to school culture, their job satisfaction, and overall effectiveness at their job because of suitable mentoring and induction programs.

Alhamad (2018) contends that though there is overall agreement on the importance of induction of novice teachers, various issues play against this. He purports that the abstruse demands on novice teachers’ work are not addressed and that there is an increasing gap in their preparation and the development of in-service teachers. Novice teachers are expected to carry out all the duties of seasoned teachers and they are often lost and confused during the beginning days of employment. The issues that seasoned teachers have learned to manage like meeting the diverse student needs in the classroom at the same time managing the behavior of culturally diverse students including integrating technology in the classroom and many other issues that seasoned teachers are accustomed to dealing with are also expectations of the novice teachers. With this in mind, he advocates for a supportive environment that supports their effectiveness and builds their confidence as teachers, which will in turn improve student achievement.

It is clear that novice teachers where ever they are, face challenges. It is therefore imperative that the best steps are taken to ensure a smooth transition to their professional career which will further reduce teacher attrition. Öztürk (2008) reiterates this by saying that in addition to supporting students in their development of becoming effective teachers, induction provides novice teachers training in professional communities and adds to their life-long professional development. Through collaborative programs, core concepts are identified, ideas and resources shared which all work toward the development and building of the desired quality teacher.

**5 Promoting the formal and informal development and growth of experienced teachers**

Due to the inevitable change, growth, and development of the world and hence educational needs, professional development is essential for experienced teachers for them to remain relevant and effective in the 21st – century. Professional development, formal or informal, is critical in this stance. Kyndt et al., (2016) define formal professional development as one that is structured, where the times are set, the goals are clearly outlined, and the space is defined. Additionally, the development of knowledge and competencies is intentional.

On the other hand, informal learning fronts much less structure, and the organization of time, learning objectives, and support is not as regulated; even the learning environment is not restricted. Learning may happen unknowingly without there necessarily being an instructor. Since no defined goals are set, the outcomes cannot always be predicted.

An important aspect that Kyndt et al., (2016) bring out is that professional development for experienced teachers encompasses a sliding -scale going from completely informal, unstructured learning to formal learning. They add that professional development does not rely on one form of learning and both should be used to enrich the learning experience of teachers.

As educators, we learn that people have different styles of learning and we are taught to incorporate all styles of learning in the classroom, but we all realize that one of the most effective methods of learning is through practice. Informal learning provides opportunities for teachers to observe and practice in real-time what they are witnessing. Kyndt et al., (2016) write that not all informal learning is valued as some unwanted traits may be picked up, hence the need for the formal structured type of professional development where theories are shared to back specific practices. Both informal and formal professional development are essential in the building of an effective, quality teacher.

Collinson et al., (2009) purport that whether formal or informal, professional development for experienced teachers is strongly advised due to the interdependent and global direction the world has taken today requiring a resultant shift in teaching and learning pedagogy. The recognition that we are all lifelong learners and need to renew our training constantly to match the 21st-century requirements, is essential for today’s generation.

Collinson et al., (2009) promote professional development as it is underpinned by the revolution in communications and a re-analysis of the way learning occurs. Educators in response pushed for policies to be set in place to address these changes. They add that the world has been changed by this new information era and that life-long learning is essential to keep abreast with the skills of a global and interdependent world.

In support of this, Education Resource Strategies (2013) reports that through financial support from the Bill & Melinda Gates Foundation, the professional growth and development of teachers have been explored to improve teacher effectiveness by encouraging schools to invest in professional development and provide teachers with needed support. They add that the new educational policies though aimed at improving teacher effectiveness, make excessive demands on teachers. However, through professional training, these policies are broken down and facilitation in understanding the curriculum and new practices occurs. Additionally, collaborative learning and improved instruction are garnered.

Education Resource Strategies (2013) contend that professional development should alter the thinking of teachers from seeing their role as deliverers of knowledge to that of learning with the students as they support them in their student achievement and continuous improvement.

As educators, the promotion of formal and informal development and growth of experienced teachers cannot be emphasized enough. Being educators implies the need for continuous learning as we embrace the lifelong learning skills of this century and prepare the upcoming generation to be competent, competitive, and successful.

**6.1 How teacher education shapes teachers’ learning in pre-service contexts**

Quoting Grossman et al., (2009), Mabonga and Tumweboneire (2021) define teacher education as structured training that occurs where knowledge, skills, and a teacher’s professional identity are built as they learn to practice their profession. Misra (2019) quoting UNESCO, defines teacher education as the formal training of teachers to provide them with the knowledge, attitude, and skills they need to teach designated educational levels adding that an established formal program used in the preparation of teachers is perceived as teacher education.

According to Misra (2019), teacher education aims at shaping a teacher's pedagogical thinking by providing the theoretical background and the reflective and critical attitude needed to address the challenges faced in the teaching profession. Additionally, the National Council for Teacher Education (NCTE) in India, affirms the importance of teacher education as teachers are seen to be instrumental in shaping of country’s future making it imperative that quality teachers are produced. Also, educators, government officials, parents, and teachers are all in agreement on the role that quality teachers play in improved student achievement and the need for equipping the teachers with the knowledge and skills to meet the diverse needs of the students through teacher education.

Though teacher educational institutes provide a lot of theoretical information needed by the teachers, Misra (2019) purports that the application of this knowledge through practice in pre-service training contexts is better suited to their training as it provides support for the skills teachers need for success when they are in the actual classrooms.

Mabonga & Tumweboneire (2021) rightly point out that with the growth in technology over the years, education has been positively affected, requiring some changes in educational policies that have in turn required reforms in school curricula. This behooves upgraded training in pre-service contexts that equips teachers to be digitally literate as well as collaborate with the global technological world.

Drescher (2017) advocates for a co-teaching model during teacher education to be included, where special education teachers collaborate with general-type teachers to plan, assess and deliver instruction, in so doing, meet the diverse needs of the children within the class because research, they report, shows that experience and coursework that is needed for this practice is lacking in pre-service education.

UNESCO's International Institute for Educational Planning, (2021) reports that research indicates that students’ scores increased noticeably when taught by teachers who were highly knowledgeable in their subject area and used pedagogical approaches learned during teacher training. Courses such as classroom management, assessment practices, Special Educational Needs training, and the integration of technology in the classroom greatly improved the effectiveness of the teacher hence improving student outcomes.

Teacher education programs provide opportunities for pre-service teachers with teaching experiences to support their future practices. Burn & Mutton (2015) advise that these should be lengthened and intensified by providing professional development schools with opportunities for a year-long teaching practice as well as community-based teaching experiences in teacher residency programs. Training teachers can experience what real teaching in the classroom is like before their full certification.

Mabonga & Tumweboneire (2021) bespeak the influence that teacher learning has on the entire education system in Uganda pointing out the importance of working toward continuously improving the quality of teachers by ensuring the teacher education curriculum is relevant and competent for the 21st- century as it is bound to be influenced by factors in the local and global economy.

For a country to keep up with the global developments, the governments have to put in place the necessary policies that will effect the change needed in teacher education institutions which will impact the type of quality teachers produced that effectively meet the needs of the children today and prepare them to successfully engage in a global, interdependent economy.

**6.2 How professional development programs shape teachers’ learning in in-service contexts**

Life-long learning is an indispensable attribute for learners today making it imperative that in-service teachers continue to develop professionally to remain relevant and effectively prepare students to be competent in the 21st century. Nzarirwehi & Atuhumuze (2019), quoting Bramley (1991), define in-service professional development as the training required by teachers to develop their knowledge, attitudes, and skills to perform effectively and meet the desired needs of students. They add that in-service training seeks to ensure that learning institutions continue to improve academically and that educators recognizing its importance have made policies that ensure its adoption in educational institutions as it is central to the professional development of teachers. According to Taylor (2018), after a teacher has begun their career, the training they receive is referred to as in-service training.

Not all training is effective and according to Darling-Hammond et al., (2017), when the professional development is structured and teacher knowledge, practice, and student outcomes improve, this constitutes effective professional development. Additionally, it is understood to be provided both externally and internally through daily job expectations that work toward a teacher’s increase in knowledge and improved and applicable practices that are in line with the needs of this generation. However, as we have previously seen, informal professional development is also effective but cannot stand alone.

By the time some of us were training as teachers, technology was not where it is today. This then intensifies the need for what Nzarirwehi & Atuhumuze (2019) refer to as continued professional upgrading to remain current and digitally literate and better meet the needs of our digital citizens today.

Nzarirwehi & Atuhumuze (2019) report that in Nigeria, after recognizing the importance of in-service teacher training, much as it was implemented, it did not adequately meet the needs of the in-service teachers as the approaches taught were not practical for the teachers’ use in the classroom and training resulted in becoming solely listening sessions as they did not address the changes needed in teaching techniques and materials. They add that even in the United States, though professional development for in-service teachers is mandatory in learning institutions, learning does not always happen and the external training does not always result in changes in the culture of the classroom due to the limited amount of time given to specific areas of training. Furthermore, this training often occurs at the end of the day making the learning less effective. They agree that in the right context, in-service training programs substantially develop teachers’ professional careers and in other cases provide opportunities for unqualified personnel to upgrade to professional teachers.

Darling-Hammond et al., (2017) highlight an important angle of in-service professional development revealing that the teachers’ prior knowledge is critical to their success in understanding the training provided. They cite a mathematics professional development provided where teachers with substantial content knowledge in the subject area were found to be more effective in improving student achievement after professional development than those with minimal content knowledge. Trainers must be mindful of some of the factors that may influence the effectiveness of the training.

However, educators agree with Nzarirwehi & Atuhumuze (2019), that in-service teacher training gives teachers the foundation they need to provide students with a well-integrated education. It also provides teachers with opportunities to improve their pedagogical skills and ensure that the students they teach embrace the desired competencies of a global and culturally diverse society.

**7 Conclusion**

Preservation of teacher quality can only come with the recognition of and response to the dynamic changes that have occurred in the 21st – century requiring training that is relevant, improved, and adapted to meet these changes. Competencies like collaboration, effective communication, critical thinking, and problem-solving skills, not forgetting digital literacy, make it essential for teacher education and teacher development to incorporate these in their training to preserve the quality of teachers produced.

Pre-service training bolsters the confidence of upcoming teachers as it equips them with the knowledge and skills needed for their field of service, especially in what is now a culturally diverse and global society. Additionally, induction is critical in its role in preparing novice teachers for success in their first year of teaching as it provides the orientation, guidance, and support they need to fully integrate into their professional community.

Formal and informal development is also essential as in-service training for new, middle-level, and experienced teachers to keep them abreast with the dynamic changes of the world that require adaptations to the content taught and the manner in which it is taught. Both contribute to teacher quality and one cannot be used over the other. Additionally, pre-service training and teacher assessments ensure that teachers meet the requirements set to ensure their quality. However, teacher educators and policymakers must be mindful to avoid creating assessment standards that frustrate rather than improve pedagogical skills.

Induction is a fundamental step that training teachers must go through as they transition from training to teaching in the classroom. This provides them with an increased chance of success and further reduces incidences of teacher attrition.

Teacher education that is structured provides the foundational training needed by upcoming teachers which will be built upon during the continuous professional development programs received during their teaching career. This in-service professional development can be internally or externally resourced and provided it is relevant and effective, will contribute to preserving the quality of teachers for the 21st- century.

From this research, teacher education and teacher development in the various methods discussed is critical for all teachers as lifelong learners and their quality can only be preserved if their training is adapted to embrace the dynamic changes and resulting needs of this 21st-century generation that is digitally literate and culturally diverse.

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