

Research Article

Teacher educators' nature of understanding of adult learning theories application in pre-service teachers' classes

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ABSTRACT

Research publications show that there are many different theories which explain how adults learn, but none of them individually fully explains what happens when adults learn, hence cannot be applied universally. Each theory has its own merits and demerits, therefore to maximise learning, a combination of theories should be used. Adult teacher educators' familiarity with this knowledge base of adult learning improves effectiveness in meeting adult learner needs, since implementation of the most effective ways for adult learning is made possible. The current study sought to find out the nature of experiences of secondary school teachers recruited to be teacher educators at a secondary teachers' college, had during the transition from teaching children (pedagogy) to teaching adults (pre-service mathematics and science teachers). Interviews were done, with the view to enable teacher educators to compare their experiences during training (as adult learners) in various teacher education institutions, teaching children at secondary school level, and teaching adults at the teachers' college in the current study. Interview responses were coded to come up with themes which were analysed. Findings show that learning and application of adult learning theories is a missing link in teacher preparation institutions in Zimbabwe. In order to align teacher preparation with the current Zimbabwean curriculum, training institutions must prepare prospective teachers for both pedagogy and adult learning theories, so that they adapt as the situation requires. This resonates with metagogy, a hybrid of pedagogy and adult learning theories. Preparing teachers this way is in line with best practices, which engender competitiveness to deal with diverse teaching and learning situations, in the 21st century.

Keywords: pedagogy; adult learning theories; teacher educators; adult learners;

1. INTRODUCTION

Reading more through research publications one will realise that there are many different theories which explain how adults learn (Merriam, Caffarella, Baumgartner, 2007; Merriam, 2017). However, it is important to note that none of the individual theories fully explains what happens when adults learn, so none of the theories can be applied universally to adults (TEAL Center, 2011). Each theory has its own merits and demerits, therefore to maximise learning, a combination of theories should be used (Taylor & Hamdy, 2013). Adult educators' familiarity with this knowledge base of adult learning improves effectiveness in meeting adult learner needs. Understanding various principles or theories of adult learning by adult teacher educators is important, since it enables implementation of the most effective ways for adult learning (Lister, 2016). Teacher preparation (pre-service and in-service) involves adults training to teach. Teaching is a deliberate act which requires understanding learning theories for effectiveness and consciousness of one's teaching (Sierra Training Associates, 2007). The point of convergence of adult learning theories is tapping into the experience of adults as they learn (Amstutz, 2002).

Categories of adult learning theories

In broad terms adult learning theories are in many, but overlapping categories. Some of the adult learning theories, discussed below are Andragogy, Instrumental Learning, Humanistic, Self-Directed Learning, Transformative learning, Social Learning, Motivational, and Neuroscience (Amstutz, 2002).

Andragogy

First used by Alexander Kapp in 1833 (Peter and Ray, 2013; Kessels, 2015; Usman, 2015) describing educational theory of the Greek philosopher, Plato, the term andragogy has its roots in Greek. Andra-means man, and agogos means learning (Abela, 2009). Contrasting with the art and science of teaching children, that is pedagogy, Knowles (1980) popularised andragogy, as the art and science of helping adults learn. It is based on assumptions that the adult learner:

- Moves from dependency to increasing self-directedness with maturity;
- Draws on personal life experience to aid learning;

- Is ready to learn new social or life role;
- Is problem-centred and ready to apply new learning immediately;
- Is motivated to learn by internal, rather than external factors; and
- Needs to know what she/he will learn, why this learning is important, and how she/he will learn (Abela; Vasilescu & Codreanu, 2013; McCaukey & Hammer 2017; Merriam, 2017).

The original conceptualisation of Knowles' (1970) andragogy included only the first four assumptions. In later interactions of (1980, 1984, 1990) of Knowles' andragogical framework, two more assumptions were added, with no significant change to the initial major assumptions. Therefore, within andragogy literature the six assumptions are commonly used (Henschke, 2010). Inherent in these assumptions, are implications for practice, hence Knowles (1984) suggests that adult teacher educators, should among others, set a cooperative climate for learning in the classroom, assess the learner's specific needs and interest, and develop learning objectives based on learner's needs, interests and skill level. Premised on that, adults need to know why they are learning, effective adult teacher educators explain reasons for teaching specific skills. Also, since adults learn by doing, effective instruction should focus on tasks that adults can perform, rather than memorisation of content (Lister, 2016). Adult learners as problem-solvers who learn best when subject matter is of immediate application, implies effective instruction for adult learners should involve solving real life problems. In Kolb (1984)'s scheme, adult learners have concrete experiences, upon which reflection is made, formulating abstract concepts, and making appropriate generalisations. Understanding is consolidated through testing knowledge in new situations. Although andragogy has been popularised, it has weaknesses as reflected by the following discussion of criticism against it.

Criticism of Andragogy

Culture blind is the criticism Brookfield (2003) makes on andragogy for stressing the concept of self – directed learning and the concept of the learner establishing a non-threatening relationship with the teacher as a facilitator of learning, since this may neglect races and cultures that value the teacher as the primary source of knowledge and direction. Failures of andragogy to articulate the importance of extrinsic motivation and reflective practice in adult learning, can sufficiently be catered for by Mezirow (2000)'s transformative learning theory. One objective of transformative learning is to change reference points adult learners have established. Frames of reference are meanings which people give to experience and structures used to arrive to such meaning. Clearly, genetic make-up and cultural assimilation constitute frames of reference for a particular adult (Abela, 2009).

Instrumental Learning Theories

Focus of instrumental learning theories is on individual experience. Behaviourist and cognitive learning theories are in this group. Behaviourist theories (Thorndike 1911; Skinner, 1954), form the basis for many competency-based curricula and training programmes. Change in behaviour is a results of a stimulus in the learning environment. Applying instrumental learning theories result in standardisation of the learning outcomes and their measurement (Mukhalati and Taylor, 2019). Cognitive learning theories focus on learning which is based on mental and psychological processes of the mind, perception and processing of information, rather than behaviour (Piaget, 1952; Bruner, 1966; Ausubel, 1968; Gagne, Briggs, and Wagner, 1992). Bruner's 1966 discovery learning theory and Piaget's 1952 cognitive theory support experiential learning which influences adult learning by making educators responsible for creating, facilitating access to and organising experiences in order facilitate learning.

Humanistic Theories

These are learner-centred theories which promote individual development, aiming to produce internally motivated self – directed individuals, with potential for self – actualisation. Through popularising andragogy, Knowles (1988) support the humanistic theories. While it is now known that context and social factors are crucial in professional education, exclusion of the context and mechanism of constructing meaning and knowledge is the main limitation of andragogy (Durning & Antino, 2011).

Self-Directed Learning (SDL)

Among main characteristics of SDL is its ability to, promote self-teaching in which learners exercise power over mechanical aspects and approaches of the learning process, personal autonomy whereby learners take control of learning purposes, as well as assuming ownership of learning (Bear, 2012). However, failure of self-directed learning to consider the context of learning reveals its underestimation of the value of other forms of learning like collaborative learning. In self-directed learning (SDL), individuals take the initiative to learn without the help of others, in planning and evaluating their learning experiences (Knowles, 1975; Lister, 2016). Benefits of SDL include easy incorporation into daily routines, occurring according to learning preference of the learner. Also, isolated activities like search for information on internet are involved. However, adults with low-level literacy skills may lack confidence and internal motivation, so they may find SDL difficult. Brookfield (2003) observes that many adults in formal education programmes prefer teacher directed learning rather than SDL. In any adult education setting, TEAL Centred (2011) suggests that the teacher educator can augment traditional classroom instruction with a variety of techniques to foster SDL for individuals or small groups of learners who will be ready and willing to embark on SDL. Such techniques among others, help the adult learner to learn how to conduct self-assessment of skill levels, determine learning objectives and match resources (books, articles, internet searches) and methods. (TEAL Centred, 2011). This way the learner is made to decide and have some control over the learning process.

Transformative Learning Theory

Often described as learning that changes the way individuals think about themselves and their world, transformative learning (TL) involves a shift of consciousness. Various lenses are used by different theorists to look at TL, therefore

teacher educators need to be aware of the theoretical bases when they use TL (Merriam, 2017). In seeking to enhance transformative learning, teacher educators should be trustworthy, emphatic, authentic, and demonstrate high integrity. Immediate feedback and activities which promote collaborative participation and autonomy should be provided to learners (Taylor, 2000).

Types of learning activities teacher educators use should appeal to adult learners. For instance, adult learners uncomfortable with confrontation and having their statements discussed openly, may be more successful when learning in harmonious groups in which participants discuss, but not debate alternative viewpoints (Vasilescu and Codreanu, 2013). Also, experiential learners may learn better through fieldtrips and simulations, while the intuitive learner may appreciate brainstorming and games involving imagination (Cranton, 2002). Adult educators should guide learners to transform to intellectual maturity, and critically reflecting on one's assumptions, beliefs and values (Mezirow, 1995). Transformative learning theory encourages creation of a trustworthy learning environment in which students open their minds to new possibilities about their lives and future (Ferreira & MacLean, 2017). News articles read in class, simulations, team projects, research papers and discussing videos, are among various approaches that can be used to present opportunities triggering events which stimulate alternative viewpoints in learners (Ferreira & MacLean, 2017).

Social Theories of Learning

Two crucial elements in these theories are context and community (Choi & Hannafin 1995; Durning & Artino, 2011). Developed by Lave & Wenger (1991) and Wenger (1998), these concepts emphasise importance of community practice in guiding and encouraging the learner, hence the way the learner enters the community is important. Durning & Artino (2011) acknowledge how the learner's experience is shaped by the context and community. The three main assumptions on which situated cognition theories are based are that learning and thinking are social activities, tools available in specific situations structure thinking and learning, and the setting in which learning takes place influence thinking (Wilson, 1993). These assumptions should be considered to guide teacher educators.

Motivational Theories

Critical elements of motivational theories are motivation and reflection. They explain and relate adult learning to one or more educational theories. Self-determination theory (Ryan & Deci, 2000; ten Cate et al. 2011; Kusrkar & ten Cate, 2013), is one motivational theory which recognises the importance of intrinsic motivation, stressing three basic needs, which are autonomy, competence, and a feeling of belonging or relatedness. If there is low success expectation in the learner, motivation of learner will be poor. Taylor & Hamdy (2013) argue that while Maslow's 1954 theory of needs partly explains this, but it does not capture the balance between different competing drives of hopes and expectation of learning, in the context of time and effort needed to engage with the process. Therefore motivation is critical to adult learning.

Neuroscience

Neuroscience explains that the brain continues to change and grow, so problem centred learning helps to make connections with such growth (Elsevier, 2013). If problem solving strategies are structured on what learners meet in life/work situations, it is then easy to practise solving such problems. Valuable insights on why adult learners are drawn to a problem-solving orientation in learning are provided by neuroscience. Valuable insights on why adult learners are drawn to a problem-solving orientation to learning are provided by neuroscience (Ferreira & MacLean, 2017). As the part of the brain that controls problem-solving ability is more developed in adults, they are better at problem-solving through connecting experiential learning to new learning (Tokuhamu-Espinosa, 2011).

Pedagogy-Adult learning Theories Continuum

Consideration of various types of theory applicable to adult learning enables teacher educators to realise that they (adult learning theories) have their strengths and weaknesses, and individually will do incomplete job in adult learning, without other theories, like pedagogy. Due to developments in the way children learn, that is pedagogy, the differences which used to distinguish learning between adults and children, are no longer clear (Taylor & Hamdy, 2013). The lack of clear difference is conspicuous by the applicability of many principles or theories of adult learning to children's learning (Taylor & Hamdy, 2013). Therefore, it is more appropriate to think in terms of a learning continuum, which stretches throughout life, with different emphases, problems and strategies at different times. If there is acceptance that learning is best viewed as a continuum, then through reasoning, it is clear that teaching must follow suit, hence the same or similar teaching methods cannot be used throughout the learning continuum. As a continuum learning, has pedagogy (learning of children / directed learning) at one end, and adult learning theories (andragogy, facilitated learning, experiential learning, self – directed learning, transformational learning), at the other (Herod, 2012; Chametzky, 2014). Adult educators are compelled to use various teaching methods, and apply flexibility for effective learning to occur, based on objectives of learning (Herod, 2012). Myriad factors influence adult learning, so blending theory with practice provides adult educators with different ideas on dealing with challenges associated with adult learning. Instead of seeing pedagogy and adult learning theories as dichotomous, adult educators should view them as complementary (Peter and Ray, 2013). Teacher educators should reflect critically on pedagogy-adult learning theories continuum, and adapt the appropriate theories to the existing teaching and learning environment.

Facilitating Adult Learning

Active learning, as use of one or more interactive approaches in education and training, to enable learners acquire and understand knowledge, implies de-emphasising lecture and other teacher-centred forms of instruction (Sierra Training Associates, 2007). In adult education, examples of active learning are role plays, scenarios, experiential learning activities, small group work, and problem-solving exercises. While similarities exist between adult and childrens classrooms, adults have distinctly different motivations to engage in learning. Adult learning is based on that effective learning is best when

they (adults) see the relevance of the concept to their experience (Sierra Training Associates, 2007). Learning should be active, replicating as closely as possible the environment of application of skill or knowledge. Instead of memorising, practise of application of knowledge or skill in simulation or scenario, increase retention by adults of knowledge and skills, and promotes effective application. These principles are at variance with teaching of concepts in traditional classes (Sierra Training Associates, 2007), whose focus is passing tests and other measures of progress. As a result, students' retention beyond the confines of traditional classes, is nominal. In order to contextualise learning, vast experience adults bring to the learning environment which include educational backgrounds, employment history, travel experience, and family situations (Herod, 2012), should be used to facilitate learning. However, it is important to note that no one typical learner experience can be relied on when teaching adults, hence including a variety of perspectives and examples ensures that each learner finds something to relate and connect with (Chametzky, 2014). The practical and natural orientation to solving problems adults exhibit in their lives, is premised on learning rooted in experience (Chametzky, 2014). Practicing in authentic situations and applying what they learnt immediately, raises the probability of developing intended skills. According to experiential learning theory, time and space for reflection helps learners to absorb and make sense of the experience (Herod, 2012). Peer discussion or peer coaching is important in helping adult learners to crystallise ideas, as well as improving their confidence. Based on self-directed learning, adults should be given the option to control the pace of their learning through activities like replaying a video, doing more practice before moving on, or choosing the order in which they do things (Ferreira and Maclean, 2017). Self-assessment activities should be included to assist learners in directing their learning in a sound manner. Learning should be based on real world, authentic situations that learners are familiar with and/or will encounter on the job market or life in general (Vasilescu and Codreanu, 2013). Making these considerations enable adult teacher educators to design and implement strategies which promote learning by adults.

2. RESEARCH METHOD

2.1 Context of the Study

Teachers' Colleges in Zimbabwe recruit teachers with relevant qualifications for teacher educator posts. However, during pre-service training when these teachers prepare to be teachers in various subject areas, they do a course on pedagogy/pedagogics which has to do with the art and science of teaching and learning of children, but not adult learning. Now when these teachers are recruited to teach in teachers' colleges as teacher educators, they are expected to teach adults who are prospective teachers. Questions which arise are "To what extent do teachers who were trained for pedagogy can be appropriate teacher educators?. Do these teachers have a knowledge base of adult learning theories to guide their practice or practice will be guided by intuitive knowledge?". These questions are fundamental to the successful preparation of pre – service teachers as adult learners, and are reference points for the context of the current study. Although all teacher educators in teachers' college are recruited this way, the study focuses on mathematics and science lecturers only.

2.2 Purpose of the Study

The study sought to find out the nature of experiences of secondary school teachers recruited to be teacher educators at secondary teachers' college, had during the transition from teaching children (pedagogy) to teaching adults (pre – service mathematics and science teachers).

Significance of the Study

Findings from the study would help in giving insight on how teacher educators should be assisted to enable them to facilitate teaching and learning of adults effectively.

Researcher Questions

1. What is the nature of understanding of teacher educators of the application of theories of adult learning in pre – service teachers' classes?
2. How could application of theories of adult learning in pre – service teachers' classes be enhanced?

2.3 Population and Sample

The population of the study comprised teacher educators at the selected teachers' college. The sample comprised five purposively sampled teacher educators with less than one and half years after joining the college. Sampling was purposive for generation of data specific to certain issues, and convenient with regards availability of both participants and the researcher for data generation. The composition of the sample was diverse since the teacher educators had various training experiences from different teachers' colleges and universities. Some got non-teaching, but relevant content/subject degrees first and then obtained Post Graduate Diploma in Education (PGDE), as a professional qualification to become teachers. Others first obtained diplomas in education in various subject areas of specialisation, then Bachelor of Education Degrees (BEDs) in subjects like Computer Science, Food Science and Clothing and Textile Technology with certain universities. Thereafter, they did masters' degrees in some cases with universities different from the ones they did the bachelor's degrees with. Therefore, the teacher educators were considered to have vast different experiences of adult learning from various colleges and universities they attended during training. Second, they developed (and are developing) experience on adult learning at the current teachers' college they are working. Therefore, the sample was regarded as suitable for providing rich data to answer the research questions.

2.4 Data Collection and Analysis

Interviews were done, with the view to enable participants to compare their experiences during training (as adult learners) in various teacher education institutions, teaching adults at the teachers' college in the current study, and teaching children at secondary school level. Interview responses were coded to come up with themes which were analysed to gain insight.

3. RESULTS AND DISCUSSION

The study findings are presented under the themes:

- a. Nature of Adult Learners portrayed by the study;
- b. Comparison of secondary and college teaching and learning;
- c. Teacher Educators' Learning Experiences During Various Experiences of Training Stages;
- d. Rationale for training in both Pedagogy and Adult Learning;
- e. Teacher Educators' Basis of Teaching Pre-service Teachers;
- f. Pedagogy-adult learning theories continuum; and
- g. Emerging themes which are:
 - i. Nonformal Education in Secondary Schools, and
 - ii. Teacher Preparation for the current Zimbabwe curriculum and beyond.

Under these themes, discussion, integrated analysis and interpretation are done to give a holistic meaning and implication of findings.

a. Nature of Adult Learners portrayed by the Study

While characteristics of adult learners are explicitly explained by adult learning theories, perspectives presented by some participants in this study are at variance with adult learning theories. For instance, the teacher educators concurred that poor socio-economic backgrounds, and cultural factors, have exposed some adults to environments where decisions are made for them by some authority, so that they simply follow. Such adults learn best when more directed learning / pedagogical approaches are used (Herod, 2012). Also some adult learners grew up in environments in which the teacher is viewed as a source of knowledge, and decision maker who should tell learners what to do without the learner questioning. (Brookfield, 2003). Confirming this view, concurring with teacher educator D, teacher educator C said "...other adults may need directed learning more than learners at secondary school level, due cultural and poor previous educational learning experiences". These teacher educators' responses are consistent with Abela (2009)'s view who argues that although low – skilled adults are adults, but the tendency to think that they can direct their learning is misplaced. This is premised on that many low-skilled learners had negative learning experiences in the past, due to factors like socio – economic backgrounds and unaccommodating teachers which developed them into followers of orders or instructions without questioning or offering alternatives to doing things. These adult learners need more guidance than others, since they lack skills needed to direct their learning. In addition, many such learners may lack confidence in taking charge of their learning. Feedback, guidance, and support like coaching and scaffolding may facilitate their success (Vygotsky, 1978). Teacher educators should facilitate learning to address knowledge, skills and attitudes which enhance exist competences of adult learners intended by the learning process (Abela, 2009).

b. Comparison of secondary and college teaching and learning

Learners (both children and adults) exhibit different learning characteristics, so there is need for both teachers and teacher educators to identify and understand various learner characteristics, in each particular learning environment. Such experiences enable teachers and teacher educators to attend to individual needs of learners, hence increasing the probability of achieving instructional objectives. Responding to the question on experiences with learning of pupils at secondary school and adult learning of pre-service teachers at college, teacher educator A acknowledged that "... pre-service teachers as adults can be assigned to do work with minimum guidance...", while "...children needed a lot of guidance and supervision...". Teacher educator B said at secondary level there are "...immature learners with little or no drive to learn. Disciplinary issues are a major concern...". Comparatively at teachers' college level, teacher educator B said "...most learners are mature with determination to have a carrier, exhibiting self-restraint...". Apparently converging on the same point with teacher educator B, of the need for secondary school learners to be pushed to do school work, teacher educator C said: For secondary learners a strong follow up on given work is needed. Doing assignments is through push for many secondary pupils. However, for college learners they know the importance in future of such learning, there is no push for the majority.

Teacher educator D added:

Secondary school learners need authoritative follow up on assignments. Cases of non-submission are many. College learners follow given schedule except few students who submit late or do not submit. Also teacher educator E concurred, that "...the number of non-submission of written work at secondary school was higher than at secondary school level..." The point of convergence of teacher educators A, B, C, D and E is that adults learn for a purpose in this case to get the Diploma in Education as a qualification that will enable them to sustain their lives through teaching as a carrier. Another point raised is that adults are "...mature learners who practice self-restrained, and manage their learning process...". On secondary school learners, all the teacher educators concurred that authority by the teacher has to be exercised to ensure that written work is done, and discipline is maintained during learning. Of course, a few secondary school learners may exhibit adult learning characteristics, but overall a lot of supervision is needed to guide the learning process.

The implication of this is that teacher educators should recognise adult learners as mature and respect them. Theories applicable to child learners cannot apply exactly to adult learners. Consequently, teaching methodologies used in children's classrooms cannot be used with adults. Consistently, Kapur (2015) points to the need of teacher educators to understand theories of adult learning, before designing and implementing adult learner programmes. The kind of learning environment for adults should be guided by principles of mutual respect, avoiding using secondary school disciplinary measures. Adult learners have got vast experiences which should be tapped into as a valuable teaching and learning resource (Knowles, 1984). Teacher educators should create an environment which enhances mutual respect between them (teacher educators) and the adult learners. Such environment makes adult learners feel comfortable to learn. Motivation as an important component of adult learning safe environment, is propounded by two groups of theories of motivation, which are content theories focusing on what motivates people, and process theories which describe how people are motivated (Abela, 2009). Maslow's Hierarchy of needs, which is popular among content theories, posits that needs start from basics like physical needs and security up to self-realisation (*actualisation*). The need of a safe environment is conspicuous by its presence in the progression through the hierarchy. In adult education a safe environment includes accommodating those adults who may be requiring pedagogical support to learning like scaffolding (Taylor & Hamdy, 2013; Vygotsky, 1978: 1997).

c. Teacher Educators' Learning Experiences During Various Experiences of Training Stages

Pedagogy is the art and science of learning of children (Herod, 2012) and adult learning is based on adult learning theories like self-directed, Instrumental learning, andragogy (Amstutz, 2002). Responding to whether training of teacher educators when they were preparing to be secondary school teachers was based on adult learning theories teacher educator A said, "...training was not based on adult learning theories. However, there was so much reference to pedagogical approaches". Basing training on pedagogical approaches has the effect of narrowing trainee teachers' (pre-service and in-service teachers) understanding of learning to the level of children, yet at some point in their carrier, they would teach adults after recruitment as teacher educators. Premising training of teachers on pedagogical use to train teachers pedagogical approaches which were used in their classes during training as teachers. This does not prepare secondary school teachers to facilitate learning of adults, in either teachers' colleges or universities, in which they may work upon recruitment as teacher educators. On contrary it prepares the secondary teachers to use the very same pedagogical approaches their teacher educators used during training, hence completing the vicious circle. Showing the missing link of adult learning theories in secondary teacher training teacher educator B said: Although reference was made to learning of adults during training, we did not learn about adult learning theories, and their application to adult learning. Entry into teaching through non-teaching degrees has no provision of direct learning of how adult learning theories are applied in teaching and learning of adults, though some are inherently developed during lecturing.

The implication of teacher educator B's view as reflected by saying "... some are inherently developed during lecturing", is that a teacher educator has potential to naturally develop an adult learning theory from within self, which is yet to be proved, because so far there is no research evidence to support this. Also supporting the absence of adult learning theories in secondary teacher training, teacher educator D's response was, "No adult learning theories were referred to during our training. Emphasis was on adolescence, and child-centred learning". Teacher educator C concurred with D saying "...to me adult learning theories are new as you asked me". The convergence point for teacher educators A, B, C and D is that they were not taught about adult learning theories, but pedagogics, with particular reference to adolescents. Therefore, absence of adult learning theories in secondary teacher training is a missing link in teacher training, which affects qualified teachers in later stages of their carrier, as evidenced by teacher educators who participated in the current study.

d. Rationale for training in both Pedagogy and Adult Learning

Both pedagogy and adult learning theories have specific assumptions about learning. In order to apply and teach pedagogy and adult learning theories appropriately, one needs to be well versed with them. This points to the need to teach adult learning theories and their application, in addition to pedagogy. In an attempt to understand, teacher educators were asked whether it was necessary to train teachers in pedagogy and adult learning theories. In response teacher educator B said, "...Yes it is necessary as it develops in them values that should be instilled in university and college students". Teacher educators C, D and E were in agreement that prospective teachers should be trained in both pedagogy and adult learning. For instance teacher educator C said: Sure there is need, because it helps to have a better understanding of how adults learn when one joins college as a lecturer. In addition, these days, based on the current curriculum, schools in Zimbabwe are expected to offer adult education called nonformal education, so it is important to understand adult learning theories, as well as pedagogy. Also concurring with teacher educator E, the response of teacher educator D was: It is necessary to include training on how to teach adults, because it helps in teaching adults in acceptable ways. If not included in training, then workshops or induction programmes should be done for lecturers joining colleges. Teacher educators B, C, D and E concurred on the need to include both pedagogy and adult learning theories in teacher training. This is important since it enables teachers to facilitate learning of diverse learners.

e. Teacher Educators' Basis of Teaching Pre-service Teachers

On whether the teacher educators based their teaching at college of pre-service teachers (adults), on some theories, divergent responses were given. Teacher educator B said: Though most of it was guided by the theories there is some need to employ my own innovation and talent to achieve distinctive grades, and use relevant information since some of the theories may become redundant due to paradigm shift in technology, life styles, etc. Teacher educator C concurring with D, based teaching on "...reading and experience, in addition to learning theories...", while teacher educator E said "... I use both learning theories learnt during training at college and reading for self-enrichment to improve college teaching competences...". The implications of these teacher educators' views are that learning theories are important to guide training of teachers (adult learning), but one has to read to enrich the knowledge and experience base. Continuous enrichment of the repertoire of skills in teacher educator B's view is critical to keep each teacher educator abreast with

current paradigm in technology, life styles and current trends in teacher education.

f. Pedagogy-adult learning theories continuum

Pedagogy (*child learning*) and adult learning theories appear as opposites, but rather than competing they lie on a continuum, with pedagogy on one end, and adult learning theories on the other (Kapur, 2015). In the current study, while teacher educators did not specifically mention the term continuum, but they concurred explicitly stating that there is no clear boundary between learning of “adolescents”, the term they used for secondary school learners (pedagogy), and learning of pre-service teachers adult learning theories at colleges. This confirms rationale for pre-service teachers to understand both pedagogy and adult learning theories. Teacher educators’ support for use of both pedagogy and adult learning theories in pre-service teachers’ classes, is a clear indication that a blend of pedagogy and adult learning theories be used in teacher training. This is in agreement with Taylor & Hamdy (2013) and Herod (2012) who observe that whilst secondary pre – service teachers may base instruction on pedagogy, developments in education have diminished the distinction that used to exist between pedagogy and adult learning theories, since some children, especially at secondary school, exhibit learning styles which are characteristic of adult learning. For instance, some learners at secondary school prefer more facilitated learning than directed learning. If pre-service teachers are aware of both pedagogy and adult learning theories, then they will apply them based on the contingency approach of doing what produces the best of the desired outcome in the context of prevailing conditions. For effective adult learning Peter and Ray (2013), support the use of metagogy, a hybrid of pedagogy and adult learning theories.

g. Emerging themes

During interviews two themes which are Non-formal Education in Secondary Schools and Teacher Preparation for the current Zimbabwe curriculum and beyond emerged, and these are discussed below.

i. Non-formal Education in Secondary Schools

Developments in Zimbabwean secondary schools based on interview responses are that teachers are supposed to facilitate learning of willing adults from the community, through non - formal education, after the formal learning hours of pupils. This service to the community points to the need of secondary pre-service teachers to be exposed to both pedagogy and adult learning theories, because even if they do not become teacher educators, they will still teach adults in non-formal learning setups in schools they will be working. Teacher educator C revealed this saying “ In addition, schools are expected to offer adult education called non-formal education after normal learning hours of pupils as a service to the community”. Therefore, the role of the teacher is no longer confined to the walls of a classroom, but spills into the community, by offering services that benefit the local community. It implies the teacher needs knowledge and skills not only for teaching and learning purposes, but also for being a constructive active member of the local community to which the school belongs.

ii. Teacher Preparation for the current Zimbabwe curriculum and beyond

While implementation of non-formal education is gaining currency in Zimbabwean schools, lack of attention to adult learning in terms of equipping pre – service teachers with knowledge and skills to implement it, shows that teacher education institutions are lagging behind in implementing the current Zimbabwe curriculum. To align teacher preparation with the current Zimbabwe curriculum, training institutions must prepare prospective teachers for both pedagogy and adult learning theories, so that they adapt as the situation requires. This is consistent with metagogy (Peter and Ray, 2013), a hybrid of pedagogy and adult learning theories. Preparing teachers this way is in line with best practices (Peter and Ray, 2013), which makes them competitive internationally, in the 21st century.

4. CONCLUSION

Findings from the study show that learning and application of adult learning theories is a missing link in teacher preparation institutions in Zimbabwe, as reflected by responses from participants in the study who had vast experience in various teachers’ colleges and universities they attended before joining Teachers’ College Y in the current study, in addition to their current experience at Teachers’ College Y at which they were working. Training institutions must prepare prospective teachers for both pedagogy and adult learning theories, so that they adapt as the situation requires. This resonates with metagogy (Peter and Ray, 2013), a hybrid of pedagogy and adult learning theories. Therefore, prospective teachers should learn about both pedagogy and adult learning theories to enable them to deal with diverse teaching and learning situations.

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AUTHOR’S CONTRIBUTIONS

The author has full contribution and is responsible for writing this study from the initial stages of writing to the completion of this study.

CONFLICT OF INTEREST

It is declared that there is no any conflict of interests on this study.

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