BEST PRACTICES IN PEDAGOGICAL APPLICATIONS IN TECHNICAL EDUCATION AT TERTIARY LEVEL

By

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Abstract

Technical Education is education that prepares students for functional productive life. Pedagogical application involves, Whole group discussion, guided practice, interactive lecture, self-directed learning, problem based learning, Questioning, whole group discussion, guided study, interactive lecture, self-directed learning, and problem-based. Also, major writing project, lab activities, demonstrations and Student presentation are. Learning by watching, Learning by imitating, Learning by practising, Learning through feedback, Learning through conversation, Learning by teaching and helping, Learning by real-world problem-solving, Learning through enquiry, Learning by critical thinking, learning by listening, transcribing and remembering, Learning by drafting and sketching, Learning by reflecting, Learning on the fly, learning by being coached, learning by competing, Learning through virtual environments, learning through simulation, learning through playing games are best adjudged pedagogies suitable for Technical Education at tertiary education level.

Introduction

Everybody wants best things life can offer. In life’s endeavour, no matter the nature, the best is envied and earnestly contended for. The target of every man is to make out best for himself and to stand revered. Best investment in any endeavour produces quality outcome. Quality outcomes have quality indicators. Indicators mark the trademark and trademark makes it internationally recognized as something worth depending on. Thus, best practices produce best products which maintain reliable and valid test of time universally.
The nature and dynamics of Technical Education call for best pedagogical approach or applications if the needed results must be achieved. Technical Education is Industrial-based. This means that Technical Education is an extension of Industrial production and services. It is in this light that Aturu (2011) decried that in a world that is technology-driven, a country that fails to take the 'production of technicians' seriously such as Nigeria has sentenced itself to perpetual under-development and also that the character and nature of any particular state determines its attitude and policies to technical education and development. Supporting this, Chukwumerijeh (2011) maintained that critical mass of skilled manpower is the foundation of economic strength and social stability of any country. All theories, economic models and pious official proclamations come to naught if the future of this country is founded on unproductive and unemployable manpower and on import-based economy.

The teaching and learning of trades or career jobs ought to be learnt with the best teaching methods for effective result. No nation can produce technical manpower required for effective industrialization when the industrial personnel are trained outside the correct pedagogical approach. Technical Education graduates not only could be employed but be self-employed. They are trained to become Industrialist and Entrepreneurs. Thus, Obiekezie and Onyechi (2010) agreed that the key driver toward industrialization is when Technical Education is given appropriate pedagogical approach.

**Concept of Best Practices**

Best Practices or good practice as described by Zemelman, Daniels, and Hyde (2005) is a phrase used to describe solid, reputable, state-of-the-art work in a field. They went further to describe best practice in education as a shorthand emblem of serious, thoughtful, informed, responsible, state-of-the-art teaching. This implies that if a professional is following best practice standards, he or she is aware of current research; and consistently offers students the full benefits of the latest knowledge, technology, and procedures for full and contemporary development of competencies.
Also, Collins (2001) defined best practices as effort to ensure that what is being learned makes sense to the learner and to generate an understanding of both its utilitarian and intrinsic value. It provides a maximum of explicit guidance and modelling. It accommodates variation in pace and pays special attention to those who don't get it first time. It searches for strategies to which students will respond.

Also, Drummond (1995) submits that best practices are those elements which represent the broad range of effective actions teachers take, and requisite conditions that teachers establish, to facilitate learning. Two things were obvious here: effective actions teachers take and indispensable conditions that the teacher must establish for acquisition of knowledge, attitude and manipulative skills.

More so, Bruno (n.d) made it clear that the term "Best Practice" has been used to describe "what works" in a particular situation or environment. When data support the success of a practice, it is referred to as a research-based practice or scientifically based practice.

I see best practices as empirically proven actions relevant to the formation of what is worthwhile in a learner through several methods for which the learner sees the relationship of what he is doing in the classroom as a replica of what he is to meet after graduation.

No doubt best practices in Technical Education at Tertiary level ought to produce quality education. It is in this light UNICEF (2000) reached consensus that for quality education indicators are:

   a. Learners who are healthy, well-nourished and ready to participate and learn, and supported in learning by their families and communities;
   b. Environments that are it provide a maximum of explicit guidance and modelling. It accommodates variation in pace and pays special attention
to those who don't get it first time. It searches for strategies to which students will respond. healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;
c. Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace.
d. Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and skilful assessment to facilitate learning and reduce disparities.
e. Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society.

The rigours and capital intensive nature of technical education call for result-oriented pedagogical applications in the learning process of all the trades and industrial-based knowledge, work-habit and skills required and needed for functional and competent graduates who are trained to drive the Industrial wheel of the country in all ramifications of it.

It is in this light that the author specifically pegs this article to find out the best pedagogies that assures best result or quality assurance in teaching and learning Technical Education at Tertiary level.

**Concept of Pedagogy**

Pedagogy is the science and art of education. Its aims range from the full development of the human being to skills acquisition (“Wikipedia”, n. d.). In the views of Ogwo and Oranu (2006), pedagogy applies to the teaching and learning of children based on its etymological interpretations. However, andragogy was developed as teaching and learning for adult as a deviation to give it a meaning befitting adult horizon.

Chapuis (2003) defines pedagogy as a combination of knowledge and skills required for effective teaching. The more traditional definitions describe pedagogy as either the
science/theory or art/practice of teaching that makes a difference in the intellectual and social development of students.

More specifically, new research is defining pedagogy as a highly complex blend of theoretical understanding and practical skill (Lovat as cited in Chapuis, 2003) that encompasses teaching approach for children and adults in general.

More so, Watkins and Mortimer (as cited in Cogill, 2008) define pedagogy as any conscious activity by one person designed to enhance the learning of another. It sees the teacher making deliberate and calculated efforts to mobilize every prerequisite resource and engage the learner to impart what is worthwhile in the learner experientially and concretely.

Similarly, Alexander (as cited in Cogill, 2008) defines pedagogy as the act of teaching together with its attendant discourse. It is what one needs to know, and the skills one needs to command in order to make and justify the many different kinds of decisions of which teaching is constituted.

The Tavistock Institute (2002) submits that in Greek, Pedagogy literally means 'slave who takes master's son to school'. But currently, is generally taken to be synonymous with 'instruction', covering 'teaching methods' and 'teaching styles'. It is in this view that they quote Educational Resources Information Centre (ERIC) that 'pedagogy' is considered to be a synonym for 'instruction' and this in turn is related to 'teaching methods' and 'teaching styles'. Similarly, British Educational Index (BEI) holds that 'instruction', 'pedagogy' and 'teaching' are subsumed within the descriptor 'teaching process'.

Faraday, Overton, & Cooper (2011) and Lucas, Spencer, & Claxton (2012) contended that the word 'pedagogy' does not have universal acceptance in Britain but agreed that pedagogy is necessarily concerned with the particular practices and processes by which knowledge is produced, skills are developed and habits of mind are cultivated.
On the other hand, The Learning Skill Improvement Services (LSIS) Excellence Gateway in Faraday, Overton, & Cooper (2011) suggest that the term pedagogy denotes more than just a set of teaching techniques. Pedagogy encompasses:

a. what is taught/learned – the content  
b. how it is taught or learned – approaches to teaching and learning  
c. why it is taught or learned – the underpinning values, philosophy or rationale.’

These three elements work in synergy and so, for example, the ‘why’ would have a strong influence on what is taught or learned and how.

Therefore, pedagogy is the totality of processes in line with the principles of a course of study which the teacher and learners actively engage for the purpose of acquiring and transferring life-skill in a particular vocation.

**Pedagogical Applications in Technical Education at Tertiary Level**

At the Tertiary level of education, Technical Education takes a more elaborate and detailed magnitude to build quintessential Technologists, Managers and Teachers, who would drive the Nation toward achieving her National goals as enshrined in the National Policy on Education. According to Famiwole and Okeke (2013), Technical Vocational Education and Training (TVET) is that form of education whose primary purpose is to prepare an individual for employment in a recognized occupation. Thus, Federal Government of Nigeria (2013) defined Technical Education as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economics and social life.

But the pedagogical applications obtainable in teaching Technical Education are General Education based. That is why we do not have competent graduates that can selflessly handle technological project to finish. The curriculum of Technical Education in the views of Ogwo and Oranu (2006), Papřoková (2013) would be
adjusted with teaching pedagogies that best provides a sound prerequisite of getting job after graduation to become self-reliant or self actualized indeed.

The list of pedagogical approaches that produce best industrial-oriented results are endless and none could claim to be the best in its sense because other factors must come into play. According to State of Victoria (2004) among other scholars submits no set of pedagogical principles can claim to be the final or complete word on quality learning and teaching. This means that pedagogical principles are expressed in ways that refer directly to particular practices for specific learning areas in each technical courses or trades. In the words of Queensland Government (as cited in Wikispace (n.d):

> Effective teachers use an array of teaching strategies because there is no single, universal approach that suits all situations. Different strategies used in different combinations with different groupings of students will improve learning outcomes. Some strategies are better suited to teaching certain skills and fields of knowledge than are others. Some strategies are better suited to certain student backgrounds, learning styles and abilities.

Supporting this assertion, Chapuis, (2003), Ogwo and Oranu(2006) maintained that the crux of the matter is that a teaching procedure, whatever it may be, works well not just because of what it is in itself but because it meets the requirements of the learning situation to which it is applied. This means that effective pedagogy, incorporating an array of teaching strategies that support intellectual engagement, connectedness to the wider world, supportive classroom environments, and recognition of difference, should be implemented across all key learning and subject areas in technical education. Barr and Miller (2013) made it clear that best practices could be marred if the physical environment that promotes learning is not put in place and sustained.

Effective pedagogical practice promotes the wellbeing of students, teachers and the school community - it improves students' and teachers' confidence and contributes to their sense of purpose for being at school; it builds community confidence in the
quality of learning and teaching in the school (Queensland Government, in “Wikispace” (n.d.). Therefore, good pedagogy requires a broad repertoire of strategies and sustained attention to what produces students in a specific content domain, with a given group of students and a particular teacher. Ogwo and Oranu (2006) put it that teachers besides teaching well should exhibit some measures of identification with the fortunes and traits of their subject particularly Technical Teachers. Ober (2013) were of the view that undergraduates and teachers as well require rich and specific training in the subject content and its methodology to guarantee their effectiveness which is an ideal for the 21st century world.

In our contemporary society today, Technical Education serves more than just bagging baccalaureate. It serves as engine for being Entrepreneurs and Industrialists among others. If Technical Education is Entrepreneurial in it whole sense, then I agree with Okeke (2010), Adirika and Alike (2010) and many other scholars that pedagogical applications in Technical Education must produce the following traits no matter the country: independence, persistence, determination, self-confidence, creativity, organize, goal-oriented, visionary, risk-taking, tolerance for failure, perseverance, hard work, commitment, honesty and honour etc

**Empirical Survey of Pedagogical Application in Technical Education in the USA**

In a Nationwide study carried out by Fletcher, Djajalaksana and Eison (2012) in 54 States of USA, 387 Lecturers were sampled in the Career and Technical Education. To this end, the six most frequently used pedagogies from the finding were determined based on frequency statistics from the ratings. These were: Questioning (47.6%), whole group discussion (34.3%), guided study (32.6%), interactive lecture (31.5%), self-directed learning (31.3%), and problem-based (30.0%). Additionally to extend it, the results have major writing project (27.8%), lab activities (25.4), demonstrations (25.4%) and Student presentation (27.1%). The results typify that the pedagogies deliver the specific objectives of the trades. These were typically useful
for instructional strategies which align with more of a constructivist approach to teaching and learning in USA.

**Best Pedagogical Applications in Vocational Education in Great Britain**

They identified 18 numbers of tried and tested teaching and learning methods in the City and Guild skill Training Centre:

**Learning by watching:**

Learning how – or how not – to carry out an activity by watching others is a very common way of learning. Taking a cross-cultural perspective on human development, cultures where home and work are not separated, children are able to learn life skills through direct observation and participation, what she calls ‘pitching in’. Ethnographic studies have shown that by watching a range of ‘mature’ activities within the context of productivity, for which the activity is being taught, (Rogoff as cited in Lucas, Spencer, & Claxton (2012).

**Learning by imitating**

Imitation is regarded as the as the fundamental way of people learning be it behaviour or arts of doing things Faraday, Overton, & Cooper (2011) and Lucas, Spencer, & Claxton (2012). It is important to note that the nature of Technical Education is such a sensitive course that lends its basis of learning to imitation. The key issue here is that there is no way students can practice without imitating first what their Lecturers had done the same way they saw it. It is on this ground that trial and error; with accompanying reinforcement will fine tune the leaner to mastery. Thus, ‘do as I did’.

**Learning by Practicing:**

At this point, the learner is to break the virginity of gap in touching the material, equipment, machine and tools. The five segments exist here according to Faraday, Overton, & Cooper (2011) and Lucas, Spencer, & Claxton (2012):

a. Getting the feel: Here the body has no recollection of how the action should feel; no muscle and mental memory track. It is when this first contact is
established in the learner that the body establishes a template on how to go about it naturally.

b. Automating: At this point, the muscle memory as been established on Processes and expectations. Guessing aimlessly is reduced or relinquished but time, determination and attention are needed.

c. Picking out the hard part: If peradventure the expectations were not met, the learner reverses his actions and consider at which part on the process he erred.

d. Improvising: When automated memory sacks creativity on the learner, it becomes dull. Thus bringing in creativity leads to improvisation to discover new ways of arriving at the same expectation.

e. Doing for real: Skills and knowledge acquired become refined when they are applied in the real life situations which may be competitive, stressful, or pressured. Fletcher, Djajalaksana and Eison (2012) captured it as guided practice, problem based learning, lab activities, and demonstration.

**Learning through feedback**

Feedback is a natural way of encouraging learning in its entire ramification. It is the learners’ basic mechanism for charting progress. It is also innermost in formative evaluation. Feedback in education involves:

- Data on the actual level of a measurable attributes
- Data on the reference level of that attribute
- A mechanism for comparing the two levels, and generating information about the gap between the two levels.
- A mechanism by which the information can be used to alter the gap.

Faraday, Overton, & Cooper (2011) and Lucas, Spencer, & Claxton (2012) agreed that feedback goes a long way to consolidate in the learner the sense of fulfilment, modification of character, attitudes, values and job habits and attained the desired set objectives of the programmes.

**Learning through conversation**
Conversation between the teachers, instructors and learners on the cause of teaching and learning creates a friendly atmosphere. Good Technical Education teachers deliberately seek to engineer rich conversations between learners at different stages, ideally putting apprentices and those studying for qualifications at higher levels in the same workshop space so that young and old, novice and expert can talk to each other improve in knowledge, attitude and skill acquisitions (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012).

To them, the following takes place during conversations:
- Clarifications or elaboration questions
- Counter-argument
- Context-or perspective-oriented questions

**Learning by teaching and helping**
Best pedagogical applications require that the teacher should established learning by teaching and helping. What I mean by this is creating room for group or peer learning without immediate intervention of the teacher. Constructivist approach of learning comes into play and students develop maturity in organizing their knowledge in the trades. Brady (2011) submits that the teacher facilitates by asking both questions that clarifies substantive issues in the dilemma, and questions that are more generic.

Benefits of peer learning are as follows:
- Development of collaborative heart, team work, and becoming competent.
- Enhanced opportunities for learners to engage in enquiry and reflection.
- More practice in communicating subject matter to others, and more experience of having it critiqued by peers on the same leaning journey.
- Better identification by individuals of their own learning needs and development of the ability to plan how these might is best addressed (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012).

**Learning by real-world problem solving**

For effective transfer of learning to take place, it is important that teachers had established strong knowledge base full of principles and safety of modus operandi of
any given project (Chapuis, 2003). Learning by attempting to solve real life problem is a sinew quo non to effective best application of pedagogy in Technical Education. It is a pragmatic education in all ramifications. You would agree with me that it brings out the ingenuity of the learner. Rau, Chu, Lin and Chang (2006) contended that problem-based or real world problem Pedagogy got good efficacy in Finland and Singapore because to them, the teacher uses practical problems as core themes in class and encourage students to conduct group discussion in order to develop students’ ability in active learning, critical learning, critical thinking and problem solving.

**Learning through enquiry**

At this point, the enquiry approach is when the teacher develops a mechanism that would allow the learners to develop the thinking faculty but heavily depends on how flexible the teachers’ pedagogies were (Das, Dewhurst and Gray, 2011). It makes the learner to be philosophical in handling machine, tools and equipment with materials. Technical Education is not a stereotype discipline. The ‘why’ and ‘how’ talisman should be the propelling force in teaching students to understand the rationale behind every action and not just swallowing whatever the teacher says hook, line and sinker (Thomson-Bunn, 2014).

**Learning by critical thinking**

Critical thinking is the application of appropriate skills and strategies in order to obtain a desired outcome (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012). In fact the ideal best application of correct Technical pedagogy involves monitoring thinking process, checking whether progress is being made towards the desired goal, and ensuring accuracy.

The realm of critical thinking is on meta-cognitive approach (Stewart, 2008). Meta-cognition simply means thinking big. Teachers help the learners to understand the way they are processing information (Ogwo & Oranu, 2006, Stewart, 2008). Questioning, visualizing, and synthesizing information are all ways that Technical Education Students can examine their thinking process through the application of best teaching approach suitable in Technical Education (Çalişkan & Sânbül, 2011). When Teachers
apply these teaching skills, they come to the level of developing strong inclinations in acquiring automatic technical behaviour (Taatila & Raij 2011).

**Learning by listening, transcribing and remembering**

The above approach is like traditional chalking and talking. However, part of the most necessary aspect of Technical Education gives a session for bilateral listening, transcribing and remembering the concepts, ideas, theories, principles and processes (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012) in the entire modus operandi on the course of instruction. Instructions are given as this point to clarity and not continual problem solving. Instructions and interactions build socio-personal relations necessary for building the spirit of enterprise.

Faraday and Lucas submitted that Teachers can deploy their ingenuity in the class in the following ways:

- Using verbal instructions and explanations
- Using appropriate music to complement learning where necessary
- Encouraging debate, discussion and analysis
- Talking in a positive way
- Using word patterns such as rhyme, rhythm, or mnemonics to learn information
- Reading out loud
- Engaging learners to question one another
- Using audio recordings of relevant materials

Unfortunately, this pedagogical undoubtedly been over used in delivering content in Tertiary Education in Nigeria. They talk more than required when possibly other means of facilitating learning would be more appropriate.

**Learning by drafting and sketching**

Ideas and conceptions in Technical Education first exist in the mind. It can only find expression in concrete terms through the process of drafting and sketching. Technical drawing is a block base that cuts across every trades and occupation in Occupational analyses of Industrial Technical Education (Ede, 2001). No doubt, best practices in
pedagogical application at higher institutions employ sketching and drafting to achieve the following objectives:

a. Allow the collection of sensory impressions.
b. Make possible the creation of a whole
c. Facilitates discovery and formation of problems
d. Enables the learner in communicating his learning to others.
e. Consider design problems and develop design solutions
f. Improves spatial visualization abilities in technical design.
g. Develop three-dimensional pictures shapes in their minds
h. Training perception and mental imagery in three dimensional representations

(Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012).

**Learning by reflecting**

Reflection or consideration on is a fundamental part of learning but not ample to produce better practice on the part of the learner though provides enabling momentum for future action. Perkins (as cited in Lucas, Spencer, & Claxton, 2012) argued that mere practice can lead students to entrench their old patterns of thinking rather than re-patterning and de-patterning to develop more effective thinking.

Best pedagogical applications connect theory to practical and reflection to action (Thomson-Bunn, 2014). Thus, learning becomes effective when the teacher helps the learner to consider, and re-think, their existing thought and behaviour patterns. Reflection begins from the mind and too many battles on while teaching is going on. So making the mindful is one way to make their brains work.

Much is left to be desired in application of reflective learning. Reflectiveness has been seen as being ready to learn, willing, and able to become more strategic about learning (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012). The reflective learner therefore:

i. Plans: taking onus to organize his learning content
ii. Revises: changing plans to cope with the unexpected
iii. Distills: drawing out a useful lessons for practice from experience

**Learning on the fly**

This concept is about learning the ethics and etiquette of work habit and social life skills and training as it crops up in the course of teaching and learning. Most times it does occur in an informal manner and very insightful and rich in building the generic skills like approachability, charming, enthusiastic and possessing a strong sense of humour (Brady, 2011). The following facilitates informal learning:

- v. Enough task variation
- vi. Participation in temporary groups.
- vii. Opportunities to consult experts inside and outside the work place
- viii. Changes in duties and work roles that stimulate learning
- ix. Work roles that allow for peripheral participation in communities of practice
- x. Work roles that allow for facilitation of informal communication, problem solving, and innovation within communities of practice.
- xi. Structures and incentives for knowledge sharing
- xii. Job mobility
- xiii. Autonomous job (Faraday, Overton, & Cooper, 2011) and (Lucas, Spencer, & Claxton, 2012)

**Learning by being coached**

Coaching is a preparation or development process in which an individual is supported while achieving a specific personal or professional competence result or objectives. Not in general or overall growth and development but in job specifics. It is in the form of apprenticeship. Lucas, Spencer and Claxton (2012) maintained that Master has to stand over student’s shoulder and see through to say ‘no’, it is not like that but like this. That is how one learns the standard practical way of solving a problem and not pseudo learning.
The following functions are fulfilled in the process of coaching in Technical Education:

a. Planning
b. Dictating or facilitating
c. Supporting emotionally
d. Talking through failure
e. Focusing on performance
f. Being trustworthy
g. Keeping it fun
h. Encouraging reflection

Learning by competing

At the point that all learners must have had a justifiable and relative permanent change in industrial behaviours and manipulations as a result of experience from the task and performance objectives, the teacher uses the constructive competing exercises to cement learning. New evolving concept which budded from existing knowledge could be used to create innovative learning.

Different kinds of stamina developed in outstretching their limits and abilities put them ready to compete in the labour market with favourable intellectual experience. This is because the heat of competitive learning helps to sharpen the developing skills in Technical Projects.

It is important that learners and teachers who are involved in competitive learning:

a. Understand their own competences
b. Being able to share their knowledge
c. Understanding the meaning of learning
d. Developing an attitude that holds collaboration and competition as tools for learning in the long term, rather than focusing on the short term ‘win’ only
e. Having the opportunity to collaborate and compete in an ‘open’, ‘permissive’ learning environment where the teacher focuses attention on collective knowledge of the group rather than individual competence.
Learning through virtual environments
The current of globalization has brought about ‘no barrier’ in learning environment. Teaching and learning can easily be done outside the physical. By this I meant virtual environment where E-learning is employed to simulate the acquisition of skill through digital online classroom, laboratory, workshops etc (Chinien, 2005). Lucas, Spencer and Claxton (2012) outlined that the teacher employs virtual environment pedagogy for the following benefits:

a. The task environment is free from danger
b. An authentic task, or work environment can be replicated
c. Cost saving can be made
d. Faster way of putting one through
e. Learners are motivated
f. Learning can be more efficient and faster.

Learning through simulation
Simulation is the use of a prototype or model of anything to practise learning and acquisition of skills especially before handling a real life situation. Learners familiarizes themselves with all the attributes of the objects of learning before having a real life practice on the object especially when it is delicate, not reachable, or expensive (Lucas, Spencer and Claxton, 2012). It closes the gap between industry and classroom practise before smooth transition into the world of work. Drama, mime, imagination, or role-play simulations are used to create dynamic models of phenomena.

Simulation therefore should according to Lucas, Spencer and Claxton (2012) meet these requirements in Technical Education:

a. Learners must have full support before, during, and after the simulated activity.
b. The tutor’s role must not become diminished through the change to simulation ‘facilitator’.
c. The simulation must be realistic and the roles capable of conceptualization.
d. Learners must have adequate prior learning, basic under-pinning skills, and access to required information.
Learning through playing games

Even though it sounds childish, the efficacy of using a game-like approach to drive in critical and concrete points in education generally cannot be undermined. Games work well as ways of starting a topic (Lucas, Spencer and Claxton, 2012). Using a television quiz format can be engaging way of helping learners implant necessary factual knowledge and establish a mental familiarity that would facilitate learning.

They can work well in the early stages of establishing a rapport with and within a group, as an approach to of team-building and better understanding of learner’s wider interests. Technical Education has multi-faceted trades and precision learning content students must be familiar with through game as would be used as best application to excellent pedagogy.

Empirical Survey of Pedagogical Application in Technical Education in Nigeria

As at the type of this work, there was no available researched work for holistic survey of the entire country. It is either State or regional with selected areas of coverage. In a study carried out by Idris and Rajuddin (2012), in Tertiary Institutions in Kano State offering Technical Courses, a survey of 220 Technical Teachers were used to determine the influence of teaching approaches among Technical and Vocational Education Teachers towards acquisition of entrepreneurship skill in students. Results showed that Problem based method, context based, students centred, demonstration and computer based teaching methods were seen as significant predictors of entrepreneurship skills among students of Technical schools. Ogwo and Oranu (2006) were of the view that best pedagogical applications Technical Education at Tertiary level are conventional. Meaning that what is obtainable in a country is obtainable in another because theories of Vocational Education are imperatives.

Best Pedagogical Application: A Pre-Requisite for Job Performance

Technical education at tertiary level all over the world is now the prerequisite for getting a job or achieving self actualization in the Industrial world of work
The world of work is becoming sophisticated and complicated due to technological and scientific innovations. Supporting this, Okoli (2010) were of the view that changes in the structure of employment rate, growing intellectual labour exigencies as well as higher unemployment rate of individuals of the lowest education category requires that pedagogical approaches in Technical Education at Tertiary level must be sound, productive and functional. They contend that Tertiary Education is becoming frequently the fundamental prerequisite qualification for entering in new technological sphere and labour market in the information society where both service and production are more and more complicated.

On the other hand, Chapuis (2003) described best pedagogical application for teaching Industrial-based trades as Productive pedagogies. The four dimensions of these pedagogies are:

1. High degrees of intellectual quality
2. High levels of demonstrable relevance or connectedness
3. Highly supportive classroom environments
4. Strong recognition of difference

In this vein, Fletcher, Djajalaksana and Eison (2012) shared Chapuis (2003) view on critical ingredient that productive pedagogies in the teaching and learning technical education at Tertiary level should possess are in Table 1, which gives their graduates competencies and professional readiness in the ICT-based global economy.

Table 1. Four Dimensions of Productive Pedagogy

<table>
<thead>
<tr>
<th>Intellectual Quality</th>
<th>Relevance/connectedness</th>
<th>Supportive Environment</th>
<th>Recognition of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher order thinking</td>
<td>Knowledge integration</td>
<td>Student direction</td>
<td>Cultural knowledge</td>
</tr>
<tr>
<td>Deep knowledge</td>
<td>Background knowledge</td>
<td>Social support</td>
<td>Inclusivity</td>
</tr>
<tr>
<td>Deep understanding</td>
<td>Problem-based Curriculum</td>
<td>Academic engagement</td>
<td>Group identities</td>
</tr>
</tbody>
</table>
Substantive conversation  | Connectedness beyond classroom  | Explicit criteria  | Active citizenship  |
---|---|---|---|
Problematic knowledge  |  | Student self-evaluation  | Narrative  |

Adopted from Chapius (2003)

**Summary**

Best Pedagogical approach takes a more precise and productive approach at Tertiary level. At this level, the Teacher and the students engage in more practical, hands on the job through questioning, whole group discussion, guided practice, interactive lecture, self-directed learning, problem based learning, Questioning, whole group discussion, guided study, interactive lecture, self-directed learning, and problem-based. Additionally to extend it, the results have; major writing project, lab activities, demonstrations and Student presentation. Learning by watching, by imitating, practicing, feedback, conversation, teaching and helping, real-world problem solving, enquiry, learning by critical thinking, by listening, transcribing and remembering, by drafting and sketching, learning by reflecting, learning on the fly, learning by being coached, by competing, learning through virtual environment, simulation, and learning through playing games. Scholars had a consensus that the above outlined pedagogical practises have their peculiarities but insisted that results on the part of the Learner are the defining factor.

**Recommendation**

Drawing inspiration from the conclusion, this study makes the following recommendations:

1. The Lecturers should apply the whole group discussion, guided practice, interactive lecture, self-directed learning, problem based learning, Questioning, whole group discussion, guided study, interactive lecture, self-directed learning, and problem-based, major writing project, lab activities, demonstrations and Student presentation.
2. Learning by watching, by imitating, practicing, feedback, conversation, teaching and helping, real-world problem solving, enquiry, learning by critical thinking, by listening, transcribing and remembering, by drafting and sketching, learning by reflecting, learning on the fly, learning by being coached, by competing, learning through virtual environment, simulation, and learning through playing games.

3. Flexibility in applying these pedagogies inter-changeably as situation demands calls for teachers’ creativity.

REFERENCES


