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Effectiveness of Activity-Led Learning as Pedagogy for Nurturing Pre-Service Technical and Vocational Education Teachers' Professional Skills

By

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**ABSTRACT**

*Learning through activities is an essential ingredient or task in any technical and vocational education (TVE) programme that facilitate pre-service TVE teachers' competency development. Beside, enhancing professional skills of student is a major concern in TVE so as to enable them to effectively function suitably in the world of work. Current instructional pedagogies in practice were reported in several parts of the literature for not meeting the aforesaid desires befittingly. Over the years, activity-led learning (ALL) pedagogies were reported as promising instructional approaches in other fields related to technical and vocational education (TVE). These fields among other include but not limited to engineering and computing (Tovey & Davies, 2011, Bird & Cheah, 2014 and AICPA 2010), in building and architecture (Igarashi, 2015) and in computer science (Wilson-Medhurst, 2015, Wilson-Medhurst & Green, 2012 and Iqbal, 2011). Hence, this paper reviewed and shed light on theoretical support underpinning ALL, Concept of ALL, relevant of ALL pedagogies for teaching in TVE and finally, professional skills (PS) and need for TVE students to acquire PS. In conclusion, the paper emphasize the rationale behind activity led learning in engaging students particularly in this current economic challenges that require TVE students to develop and apply their technical and scientific knowledge, as well as their new professional. Hence, the paper suggest for the implementation of these strategies and where necessary research on activity-led leaning be conducted to ascertain it veracity particularly in TVE in the context of Nigeria.*

**Keywords:** Technical and Vocational Education, Activity-led Learning, Pre-service TVE Teachers, Professional Skills,

**INTRODUCTION**

In education, trends come and go. Some explode on the scene, seem promising and impacting, but then fade away as quickly as they appeared due to rigidity of form or lack of student improvement. Other trends endure, prove their merit by being easy to put into practice in the classroom, being adaptable and changing with the times, and most importantly, promoting student success in meaningful and lasting ways. Instruction and assessment that engages students in their own learning is one of those lasting styles in education.

It is generally agreed upon "that activity is important for learning and attaining victory in school" (Klem and Connell, 2004). The challenges that most teachers face within their

classrooms, such as trying to deal with lack of student motivation, students being uninterested in content material and social and behavioral disruptions can also be addressed by making attempts to engage students in the learning process. The strategies, in which teachers can employ to improve student understanding, motivation, and behavior, are quite numerous though they all have very similar characteristics and the same goal in mind. Terms such as "collaborative learning, activity-led learning, problem-based learning, project-based learning, self-directed learning, and engaged learning" are sometimes used almost synonymously because there are similarities in the ways these philosophies are put into practice" (Theroux, 2004). These teaching strategies or philosophies lead to the development of habits and qualities in students that will lead to them valuing learning and becoming life-long learners. "Each of these teaching philosophies encourages the development of autonomous learners who are motivated to become, and responsible for being, in control of their own learning processes.

Regardless of whether students work in groups or alone students learn how to take responsibility for their own learning" (Theroux, 2004). This idea of student responsibility is such an important concept in learning, as much of the research cited throughout this study will demonstrate. Some of the components of this research are rather recent, especially the findings related to technology and student engagement, but the significance of students being responsible for their own understanding has been studied and known by educators for many years. Laurillard, (2002) reveals that an individual that sees himself and his situation clearly and freely takes responsibility for that self and for that situation is a very different person from the one that is simply in the grip of outside circumstances. This difference shows up clearly in important aspects of his behavior. Bacon places much emphasis on the importance of intrinsic motivation and the idea that students cannot be forced in to engagement. Intrinsic motivation is very clearly defined by Garcia-Reid, Reid, and Peterson (2005) as, "... the innate, natural propensity to engage one's interests and exercise one's capacities, and in so doing, to seek and conquer optimal challenges. Such motivation emerges spontaneously from internal tendencies and can motivate behavior even without the aid of extrinsic rewards or environmental controls". (Janes, et. al., 2000) states clearly that "recent research has detained that if students are to be more deeply engaged and intrinsically motivated, educators need to re-evaluate the current ideas about motivation". As is the case in Carless's article, the author laments that, "Responsibility has both visible components (behavior) and invisible components (cognition, affect, and attitude)" (Carless, 2008). Though both components are equally important to student achievement, the research conducted in conjunction with the present study focuses on and will be used to support many benefits that activity-led learning strategies have on the "invisible components".

## **RATIONALE OF THE REVIEW**

The objective of this review is to offer technical and vocational educators and learners with information that supports the best instructional practices which lead to students thinking critically about their own learning and playing a more active role in their own education. "The most fundamental factor affecting students' learning in the classroom is the quality of their teachers" (Handsnet, 2006). With that in mind, this literature review also serves to inform educators of the important role that they must play in allowing and assisting students to do so. There are many teaching strategies as well as information regarding what a

classroom that values social interaction, authentic problem solving, and personal reflection looks like highlighted in this study. It is the author's hope that the research cited and philosophies focused on lead readers to see the immense value of activity-lead learning in students' professional skills development and success in school, as well as throughout the rest of their career lives.

### ***Problem Statement***

Traditional classroom instruction, where the known is teacher-centered lecture and student memorization of facts or practicing of skills leaves a lot to be desired in the areas of effectiveness of teaching individuals and student involvement. "Research has shown that students learn in different ways. In order to reach all students, teachers must be prepared to address those differences" (Janes, et. al., 2000). In addition, educators using solely traditional teaching methods need to be encouraged to make a change, or at least additions, to how they teach and attempt to get students more involved in the learning process (Diettrich, Hahne, & Winer, 2009 and Lowe, Murray, Lindsay, & Liu, 2009). The uses of independent and/or cooperative activity-led learning strategies, integrating technology into the curriculum, and encouraging students to self-assess are all instructional methods that would complement the current teacher-centered lecture. Although, activity in learning is part and parcel of TVE but currently, instructors and students are needs to be encouraged to embrace this important instructional concept in their teaching and learning (Aliyu, Khata, Sukri & Buntat, 2015). Review of this kind that shed light on these concepts particularly on activity-led learning are small in number within the literature on TVE. Hence, this research work aims to review pertinent literature on the effectiveness of ALL as pedagogy for enhancing students' professional skills in technical and vocational education.

### ***Theoretical Background of Activity-Led Learning***

Activity Led Learning has its roots in two most widely known education theories, John Dewey's "Learning by Doing" and Jean Piaget and the theory of constructivism. They both encourage learners to engage in problem solving and place the majority of the responsibility of learning in the learner's hands (Inman, 2001 & Knight, 2007). Dewey's main argument against traditional education during his time was that learning should not merely involve the reading and learning of lessons and other forms of rote memorization. Instead, he advocated the use of investigation, problem solving, and critical thinking skills to educate and prepare students to be contributing members of a society he felt needed fixing. Cam, (2006) also encouraged incorporating what we know today as student prior knowledge into lessons. By finding out what students already knew about a topic or what experiences they may have had regarding the subject of study, new knowledge could then be built upon prior knowledge, leading to more lasting learning (Carless, 2008). Constructivism promotes learning by doing and creating new knowledge from experiences. Social interaction is important and necessary to learning, therefore activities that place people together in groups to engage in conversation and share ideas is a key characteristic of constructivism. Assessment practices, within the context of constructivism, lead to learning as well as inform what has been learned by the student, or formative assessment. It is not advised that traditional tests be the sole method of checking for understanding. An open channel of communication between teacher and student should be used frequently to assess the level of understanding on the student's part and determine

feedback given by the teacher to help improve that understanding in the future. At its core, constructivism encourages students to be stewards and owners of their own learning.

### **Concept of Activity-Led Learning (ALL)**

Activity Led Learning is a pedagogy in which the motivation for learning is provided by stimulating activity that engages and stimulates students and creates challenge, relevance, integration, professional awareness and variety. ALL is pedagogy and a learning philosophy, designed to produce students who have confidence in their ability, capability to achieve and capacity to reflect, innovate and renew. Activity led learning (ALL) was advocated in the Faculty of Engineering and Computing at Coventry University to implies a range of approaches in project based learning which places learning in a real world context and is self-directed by the learner. "ALL according Igarashi, (2015) is a pedagogical approach in which the activity is the focal point of the learning experience and the tutor acts as a facilitator. An activity is a problem, project, scenario, case study, research question or similar in a classroom, work based, laboratory based or other appropriate setting and for which a range of solutions or responses are appropriate. Activities may cross subject boundaries, as activities within professional practice often do. Activity Led Learning requires a self-directed inquiry or research like process in which the individual learner, or team of learners, seek and apply relevant knowledge, skilful practices, understanding and resources (personal and physical) relevant to the activity domain to achieve appropriate learning outcome(s) or intention(s). To be appropriate, the learning outcomes or intentions must be consistent with the aims, outcomes and

In addition, Wilson-Medhurst et al, (2008) reveals that activity-led learning utilizes cooperative learning: "a self-directed process in which the individual learner, or team of learners seek and apply knowledge, skilful practices and resources (personal and physical) relevant to the activity (being undertaken)." In fact, it was based on the ideas that, Igarashi, (2015) came up with the following as features of ALL

1. It is an **outcomes** and action focused pedagogy
2. Learning is not simply about acquiring knowledge i.e. '**knowing that**', but also about '**knowing how** as well as being a social and moral practice
3. Aims to support learning and development in all the domains of learning **cognitive** (knowing), **psychomotor** (doing/acting) and **affective** (being) as found in Bloom's work.
4. Emphasis on learning and growth, burden on teachers (facilitators)/others supporting learning, curriculum and environment to support that growth and provide for **continuity** as advocated in the work of renowned philosophers particularly John Dewey; principally on development judgment capacities

In essence, Wilson-Medhurst (2015) modeled the concept of an Activity-Led Learning (ALL) as a form of pedagogy in which the activity is the focal point of the learning experience and the tutor acts as facilitator. Learner(s) is/are stimulated by activity in the form of a problem, opportunity, case study, simulation, research question etc in a class-room, work-based, laboratory or other educational context. In fact, ALL takes many forms and has a range of implementations within the various disciplines, but at its heart activity-led learning requires "a self-directed process in which the individual learner, or team of learners, seek and apply knowledge, skilful practices,

and resources (personal and physical) relevant to the activity being undertaken. More so, for any activity there are a range of possible solutions and responses (i.e. no one 'right' answer); also Integrative". Certainly, Wilson-Medhurst et al, (2008) came up with the ALL model as depicted in figure 1 below:

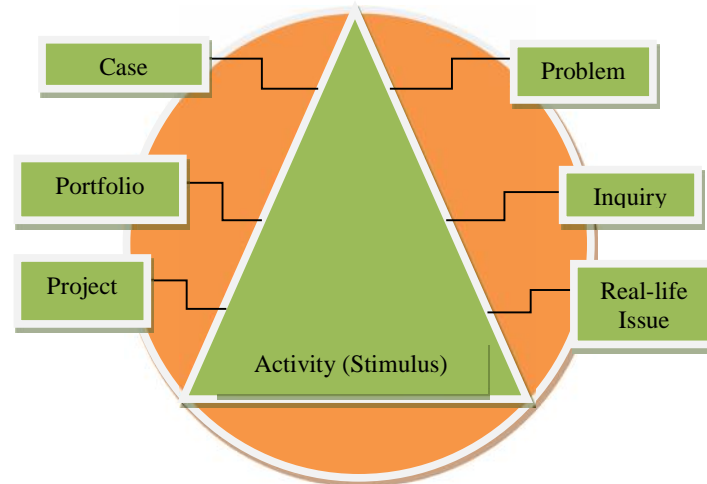


Figure 1: Activity Led Learning Model

### **Relevant of ALL in Teaching Pre-Service TVE Teacher**

ALL pedagogical concept according to Igarashi (2015) involve various kinds of learning activity e.g. researching information, presenting findings, writing reports and papers, practical constructive projects, problem based learning, project based learning, either individually or in teams and in real or simulated situations. All of these activities will feature to some extent, some or all of the following mental acts: creativity, deliberation, organizing knowledge, identifying relationships, critical thinking, judgment, discussion and information sharing, reflection, modeling, creating schemata, memorizing and recording. Chikaire, Orusha, Onogu & Okafor, (2011) and Diettrich, Hahne, & Winer, (2009) lament those learning activities as special and relevant in the teaching and learning of TVE subject particularly in the area of skills acquisition.

Indeed, the concept of ALL is identically related with Kolb learning theory. Kolb & Kolb, (2005) sets out vision of an effective learning environment in which the learner needs to be engaged in a combination of several modes of learning activity. In fact the ALL environment according to Iqbal, et al (2011) provide opportunities for the learner to experience concrete events, conceptualize abstractions, observe and appreciate and take action in situations with real consequences. These mental acts are not necessarily dependent on action. Learners usually make logical judgment about something creative without having created it and yet engage in creating something then inevitably make a judgment albeit a automatic one as to how suitable or aesthetic it is. This particular characteristic of ALL support or underpinning the principle integration of several experiential learning methods in used since the inception of TVE (Killen, 2015 and Hoboken, Routledge, & Levine 2005). Furthermore, information sharing and discussion in ALL environments are not consequences of creativity or judgment though learners engage in it and receive peer critique even in an informal and

unstructured way and reflect upon the exchange of values and creativeness and judgments may be altered.

Finally ALL emphasized the development of self-awareness and making judgments about one's own capabilities. The learner may not be engaged explicitly in thinking about how well they perform a certain task or understand particular issues but a consequence of developing systems of knowledge and models of reality will impact upon the way they view themselves and their position in relationship to that body of knowledge.

### ***Need for Pre-Service TVE Teachers to acquire Professional Skills***

One of the critical goals of technical and vocational education training is for the acquisition of knowledge, attitude and professional skills that are relevant in the modern world of work. The training of TVE students is supposed to be toward the production of goods and services that are not only important to themselves but to the society. Udofia, Ekpo, Nsa & Akpan (2012) stated that the acquisition of life-long professional skills requires effective and efficient instructional strategies, appropriate evaluation methods and utilization of standard teaching materials; tools, machines, and equipment to ensure the production of desired graduates with the most up dated professional skills. These skills range from career technical skills to other forms of employability skills that are needed for effective functioning in the global world of work (Salihu, 2010). Certainly, such categories of skills are in high demand in the labour market, but could be suitably integrated in the teaching of TVE programs. This is one of the reasons that Saviour, Ezekiel & Patrick (2012) lamented that philosophically, a good occupational education program is pragmatic in structure to include activity-led learning forms which can emphasize on professional skills acquisition to the students at any level of TVE. For this to be achieved efficiently and effectively, an active approach of instruction that can expose TVE students are needed to improve the present trend in TVE.

In fact, the social constructivist tradition of Vygotsky (1978) holds that the learner learns by participation in a social environment or community and emphasizes the importance of social context and culture in both cognitive and psychomotor development of the learner. Social interaction is considered central to development whereas in individual constructivism the social interaction is held to be a stimulus that drives the individual to construct knowledge (Liu & Matthews, 2005). It could be argued that ALL is found in both Piagetian and Vygotskian constructivist theory. Hence, the important of integrating ALL in the teaching of TVE course in Nigeria institutions cannot be underscored particularly in the current emergence economy.

Indeed, review of technical and vocational education curriculum across all its level; while in consultation with industry to guarantee a demand driven approach and increase the relevance of the TVE programmes to the needs of industry, jointly agreed that professional skills are deemed necessary in the delivery of the programmes. This will enhance the capacity of the institutions offering TVE to gives necessary supports and services to the industries, broaden craftsmen that will be produce to serve the immediate community's needs.

### **CONCLUSION**

Based on the review carried out in the paper it was concluded that activity-led learning strategies for teaching professional skills in TVE is determined effective. Categories of ALL strategies were also revealed in relation to the ALL learning environment structure based on

the work of experts established from the literature. In the light of this review and changing nature of the economy it can be assume that provision and utilization of active instructional strategy is deemed imperative in teaching pre-service TVE teachers. Certainly, the curricula of TVE programmes are designed to extent the potential ingredients of providing an education and experience that is outstanding in the field, allow the students to develop intellectually and personally, meet the diverse needs of students, employers and society in the 21st century, equip students to find graduate employment, gain professional advancement and/or start up new enterprises, enable students to undertake work related to their study, to develop their job seeking skills, to learn through community engagement and volunteering, and to recognize achievements through appropriate qualifications and award.

### RECOMMENDATION

This review recommends for the implementation of the ALL strategies through provision of the right environment that can support the ALL in TVE training schools especially at the prevocational and technical college levels so as to lay a sound foundation to the students. Perhaps, educators that see the need to implement the ALL strategies within their classrooms should conduct further research, speak to a colleague or administrator that is well versed and experienced in using them, and attempt to gradually apply these methods within their own classrooms.

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