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**“Do Activities” as Effective Means to Enable
Lifelong Learning**

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“Do Activities” as Effective Means to Enable Lifelong Learning

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Abstract

This paper presents theoretical groundings and current research findings on the importance of engaging learning activities that promote lifelong learning. Highly relevant theories are discussed to include but not limited to the thoughts of John Dewey (see Archambault, 1974), Richard Gagne (1985, 1987, 1992), Benjamin Bloom (1956), Ellen Langer (2004), David Merrill (2001), and William Horton (2011, 2016). Contemporary teaching approaches for modern learners are explored. Research show that engaging and interactive activities are more effective means of engaging students to learn better and achieve lifelong learning. Factors that are responsible for effective implementation of learning activities within the teaching-learning process are discussed in this paper. The definitions of lifelong learning and student inclinations to learn better through hands-on learning activities are presented. The design of “DO” activities is very necessary as an integral part of the whole design for instruction. However, for these activities to be more effective, there must be first of all the alignment of all instructional elements: from objectives, to learning content, to activities, to implementation strategies, assessments and evaluation tools. The use of best practices in the implementation of the learning activities is just as vital in the whole instructional process.

Keywords: Instruction, Teaching, Learning, Learning Theories, Instructional Design

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Introduction

Various scholars and experts suggest that activities must be at the heart of learning. The most notable educational thinkers whose philosophical views on education have emphasis on the importance of learning activities include: John Dewey (see Archambault, 1974), Benjamin Bloom (1956), Richard Gagne (1985, 1987, 1992), Ellen Langer (2004), John Keller (2010), Merrill (2001), and William Horton (2011, 2016). Evidence from research shows that learners feel they benefit and learn better through learning activities. The “DO” activities as part of the instructional process are not a standalone formula that will ensure lifelong learning. All factors in effective teaching and learning must be considered, such as the alignment of all instructional elements (from learning objectives, to selection and design of materials or content for learning, as well as design of learning activities, to assessments, to feedback, and evaluation). It is underscored in this paper that while “Do Activities” are effective means of achieving lifelong learning, it is the alignment of all instructional elements, and the use of best practices that will truly ensure lifelong learning.

Theories on Learning Activities

John Dewey’s “Learning by doing”

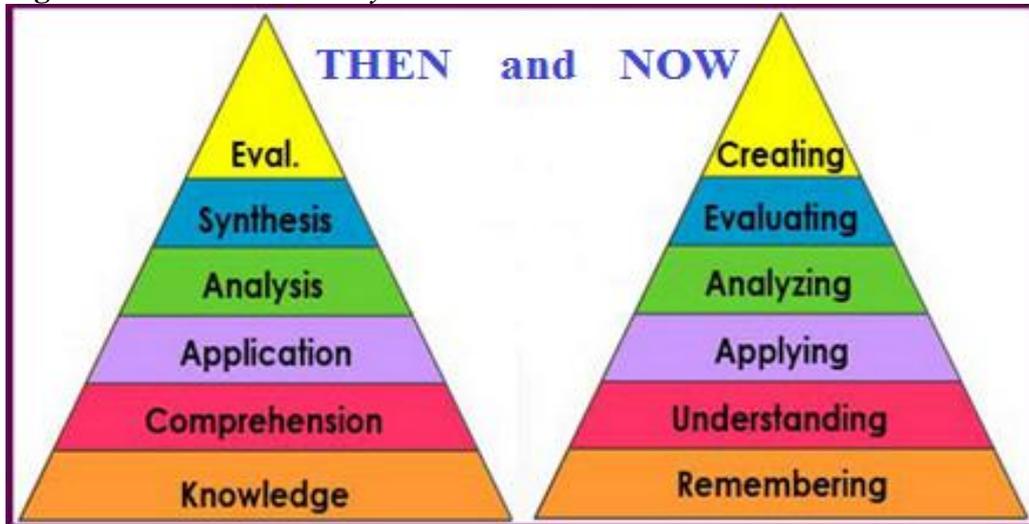
The earliest thinker and philosopher who fought for the embodiment of the “learning by doing” philosophy, which is now taking shape in most contemporary teaching approaches, is John Dewey (for a collection his work, see Archambault, 1974). Dewey believes learning can occur naturally if learners are actively engaged in activities that allow them to think, reflect, explore, practice, and apply the concepts or theories. According to "Only A Teacher School House Pioneers" (n.d.), “Dewey's concept of education put a premium on meaningful activity in learning and participation” and urges educational institutions to make “curriculum relevant to student lives” (John Dewey (1859-1952)).

The Taxonomy of Learning: Then and Now

The Taxonomy of Learning which was developed by educational psychologist Dr. Benjamin Bloom (1956) was later revised by Anderson and Krathwohl (2002) by adding to the top most level of the Taxonomy, “Creating” and by changing the nouns to verbs (e.g., application to applying, synthesis to evaluating). The “Creating” part of the taxonomy requires performance, execution of knowledge and skills and/or creating an output (See Figure 1). The new taxonomy of learning shows levels of learning with an emphasis on promoting higher forms of thinking skills for learners and increasing their

abilities to apply the knowledge learned. Learning must go beyond rote memorization and focus on acquiring analytical, evaluative thinking skills. Bloom's Taxonomy is widely utilized in the design of models and frameworks for instruction, education and training (Papas, 2015).

Figure 1. Bloom's Taxonomy: Then and Now



The figure shows the original and new version of Bloom's Taxonomy. The then version is adapted from Bloom, B. S. (Ed.). (1956). *Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain*. Addison Wesley Publishing Company. The new version is from Anderson, & Krathwohl (2001). *Taxonomy for learning, teaching, and assessing: A revision of bloom's taxonomy of educational objectives*. New York: Longman.

“The Nine Instructional Events”

Richard Gagne's (1985, 1987, 1992) “Nine Instructional Events” promote activities at the heart of learning and coincide with the “learning by doing principle” of John Dewey (see Archambault, 1974) The nine instructional events correspond to the cognitive processes as shown in Figure 2, Gagne's Nine Instructional Events (Gagne, Briggs, & Wager, 1992):

Figure 2. *Gagne's Nine Instructional Events*

GAGNE'S NINE EVENTS OF INSTRUCTION



(Gagne, Briggs, & Wager, 1992) as illustrated in Gagne's nine events of instruction - conditions of learning. (n.d.). Thepeakperformancecenter.com. Retrieved from <http://thepeakperformancecenter.com/business/learning/business-training/gagnes-nine-events-instruction/>

The nine instructional events (Gagne, Briggs, & Wager, 1992) allow for a strategic design and implementation of the teaching and learning process, and each step is briefly described below:

1. Gaining Attention – use of attention grabbing and interest sustaining materials
2. Informing learners of objectives - discuss with learners what they are going to accomplish from the lessons learned
3. Stimulating Recall of prior learning- connect new lessons to previous ones and refresh learners' memory of the past lessons
4. Presenting the Stimulus – 'teach the lesson' as content expert, instructors, professors, or educators should be able to effectively share his or her knowledge or expertise in a brief presentation or through a SCORM compliant material.

5. Providing Guidance – provide practice and opportunities for learners’ engagement through learning activities.
6. Eliciting Performance – learning activities must be geared toward the demonstration of knowledge or skills learned or creating an output.
7. Providing Feedback – during events numbers 5 and 6, the educator, instructor or professor must be highly engaged and must provide communication feedback to learners.
8. Assessing Performance - in conjunction with events number 6, 7, and 8, there must be a formative assessment during discussions or during graded or non-graded activities so that learners can deliver the expected output or performance for the summative assessment.
9. Enhancing Retention and transfer- learners may present, perform, or create an output that demonstrate quality learning achievement (for example, students build an e-portfolio of their video recorded presentations, quality written works in class)

If the goal of learning is to develop cognitive abilities, learners must be given the opportunities to practice or apply concepts that can sharpen their thinking skills (i.e., solving problems, making well-informed decisions). In order to influence attitudes of learners, they must be exposed to respectable role models or persuasive messages. What if the course requires speaking or writing skills? It is only logical that practice opportunities shall be focused on exercises that build speaking and writing skills, while at the same time, incorporating opportunities for sharpening learners’ thinking skills.

Merrill’s First Principles of Effective Instruction

David M. Merrill’s (2011) *First Principles of Effective Instruction* also proposes for highly engaging learning activities, and advances the thought that learning can be best achieved if learners are allowed to engage in doing things that relate to real-world scenarios. John Dewey’s (see Archambault, 1974) educational thoughts and philosophy deserve credit for this principle. Learners must be shown examples and models of what exactly they are supposed to learn and what exactly are they expected to do or accomplish. When learners are to be introduced to new concepts, they must first be given the chance to go through the familiar concepts. This principle is also within Gagne’s Nine Instructional Events (Gagne, Briggs, & Wager, 1992) and could also be attributed to Vygotsky (1978) who advanced the scaffolding theory. In Merrill’s "First Principles of Effective Instruction" (2001) learners must be enabled to demonstrate their knowledge and skills through a concrete work output or through performance.

Horton’s World of Learning Activities

William Horton (2011) offers a more succinct version of Bloom’s Taxonomy through three levels of learning activities, known as the “Absorb,

Do, and Connect model” (see Figure 3). This author dubs the model as The ADC of learning. In the ADC of learning, the “absorb activities” are the “nouns” of learning. The “do activities” are the “verbs” and the “connect activities” are the “conjunctions of learning.” If analyzed thoroughly, Horton’s ADC is an embodiment of the various learning theories discussed above. Horton (2011), explains that the first stage in learning consists of “absorb activities” where “the learner may be physically passive yet mentally active -- actively perceiving, processing, consolidating, considering, and judging the information” (p.47). Absorb Activities may include but not limited to: reading, listening to audio materials, or watching videos. The “do” activities stage is considered the most important as this is the phase that requires “learners to spend up to 50% of his or her time involving in these activities” (p.1). Horton (2016) explains that the “do” activities engage learners to actively process the information into knowledge and skills through activities that involve: discovering, analyzing, interpreting, verifying, integrating, organizing, debating, evaluating, condensing, refining, elaborating, practicing, and applying. The “connect” activities expose learners to real-life tasks which prepare them for the challenges at work and in their personal lives. Lifelong learning is the goal of “connect” activities. To this end, it can be seen that some schools require student internships, promote research and innovation projects. For some courses connect activities may come in the form of writing quality academic papers, essays, conducting research, conducting presentations, teaching, mentoring peers, volunteering in the community, leadership in campus organizations as real-life and work relevant learning tasks.

Figure 3. Horton’s ADC Model as a Simplification to Bloom’s Taxonomy

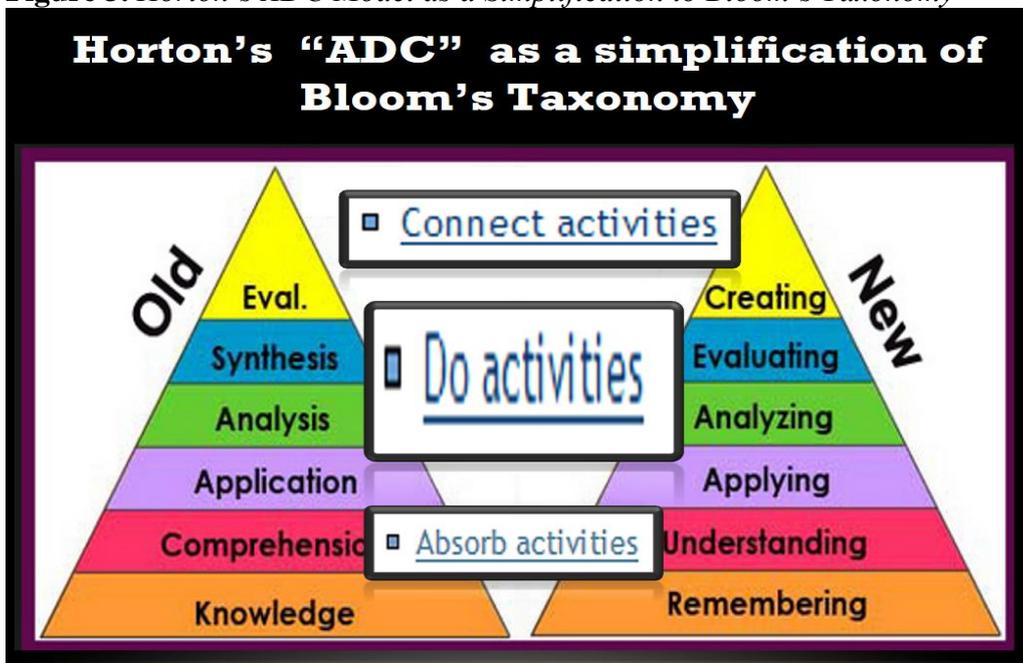


Figure 3 provides a visualization for Horton’s ADC Model as a simplified version of Bloom’s Taxonomy lifted from Myrene A. Magabo. (2014). Horton's world of activities [PowerPoint slides]. Retrieved from <http://mmagabo.weebly.com/teaching-philosophy--strategies.html>

Evidence from Research

Does Active Learning Work?

Current research and studies show that engaging and interactive activities are more effective means of enabling students achieve learning. In his study, Michael Prince (2004) concluded among other things that:

... students will remember more content if brief activities are introduced to the lecture. Contrast this to the prevalent content tyranny that encourages faculty to push through as much material as possible in a given session. Similarly, the support for collaborative and cooperative learning calls into question the traditional assumptions that individual work and competition best promote achievement.

Michael Prince’s (2004) study (see Figure 3) reveals that students consider “hands-on activities as fun, helpful in their understanding of the materials and, make them remember more the lessons learned.

Figure 4. *Students Feedback on Learning Activities*

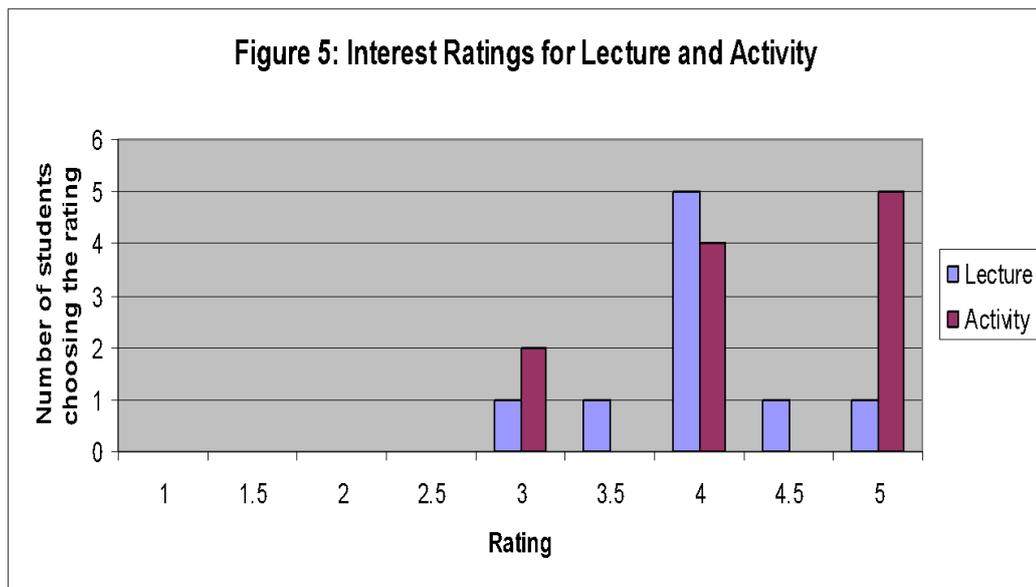


Figure 4 presents comparison of student rating for lecture and activity choice taken from Prince, M. (2004). Does active learning work? A review of the research. Journal of Engineering Education, 93(3), 293-231.

Prince’s study hinges on the work of various educational researchers such as Zady, Portes, & Ochs (2003), Guthrie (n.d.), and Stohr-Hunt (1996). Zady, Portes, & Ochs (2003) claim that in general, “studies of...activities-based science instruction continues to show higher student achievement and engagement” (p. 41). Guthrie (n.d.) believes that greater comprehension is attained if learners engaged in hands-on activities than when using text

materials alone. Similarly, Stohr-Hunt (1996) presents supportive findings after analyzing the impacts of the frequent use of hands-on activities in the science curricular programs. All these aforementioned studies show significantly higher post-test scores for students who are in classes with more hands-on activities than those students with classes that have only few or no learning activities at all.

Implications on "Productive Learning Activities"

Sarah W. Freedman and Colette Daiute (2001), recommend three principles in the teaching - learning of writing classes. These three principles centered on "productive writing activities." The term "productive writing activities" highly resonates with learning activities that endeavor to help learners *do or accomplish the writing* tasks within the discussion activities. Words or talk alone about "what should be" or "what is" in writing does not really help learners write as expected. Unless learners are immersed in the actual writing activities, the discussion or talk cannot guarantee the accomplishment of a well-written essay or research paper. Productive writing activities must, therefore, constitute learning-teaching activities that help learners "see and do" what must be done exactly to produce a well-written writing assignment.

The Learning Pyramid

Even though the Learning Pyramid (see Figure 5) is clouded with controversies that question the lack of validity and empirical study to support its claims, the theories and studies discussed above resonate with the ideas espoused in the Pyramid. The learning pyramid, illustrates that lecture, reading, audiovisual and demonstration make learners passive to the process; while discussions, practice by doing, teaching others, projects, and other participatory learning activities directly engage learners. The learning pyramid can be made part of a study hypotheses and could be validated using in-depth studies that apply both quantitative (empirical) and qualitative methods.

Figure 5. Learning Pyramid

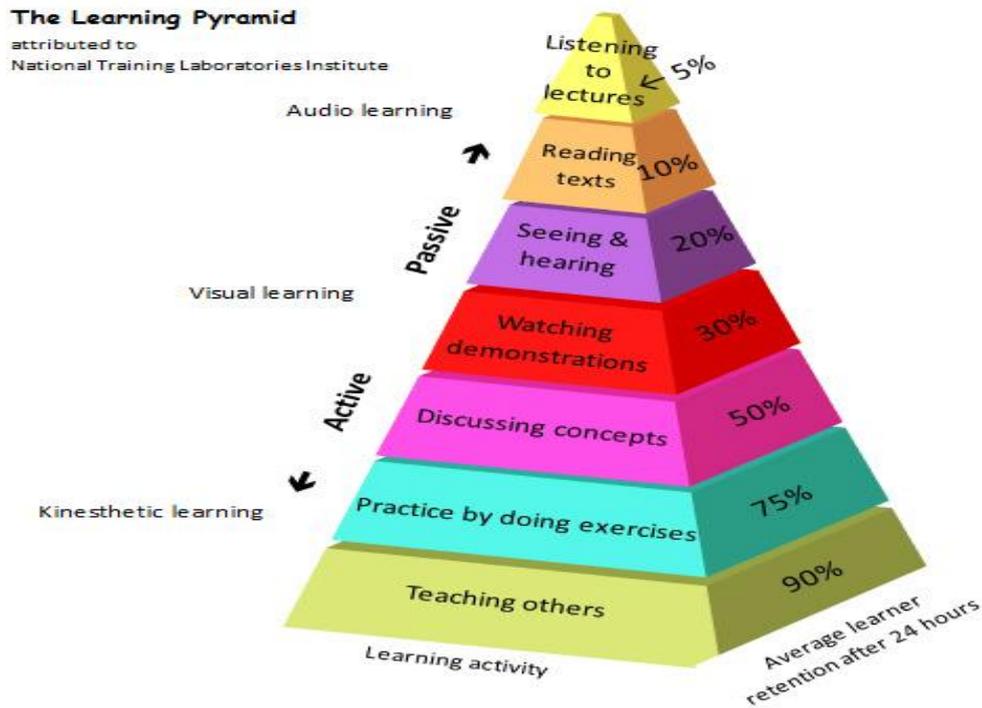


Figure 5 above is the Learning Pyramid reprinted from Literacy basics - Community literacy of Ontario. (2013). Retrieved from <http://literacybasics.ca/training/instructional-strategies/>

Data from Reflective Teaching Approach

Reflective teaching is valuable in assessing the effectiveness of the course design and the corresponding learning activities. A very unobtrusive approach can generate candid and meaningful responses to questions such as: “What is the most helpful aspect of the class that is helping you to learn well?” Or, “If there is anything you want to change, in this class, what is it?” Or, “In terms of instructional help or support, which one is helping you the most?” An open and friendly learning environment is needed to make learners feel unafraid to openly say, “I would prefer more quizzes than exercises” or say, “The only thing I would like to change is to have no activities or exercises because I don’t really like them.” Or say that, “I prefer to just read and get grades from quizzes.” Or, “I am always feeling overwhelmed and at a loss with all these learning activities.”

This open and honest exchange of opinions in every class, helped in assessing learners’ attitudes and beliefs on the effects of their engagement to learning activities. Students’ inclinations to learn better through activities are naturally expressed through conversations, discussions, and reflections, among learners. Plotting these expressed preferences with student learning performances from 2009 to 2015, a consistent pattern shows that more students have greater inclinations to learn better through hands-on learning activities, as compared to those few with less preference for learning activities.

Figure 6. *A Graphical Illustration of Observed Preference on Activities*

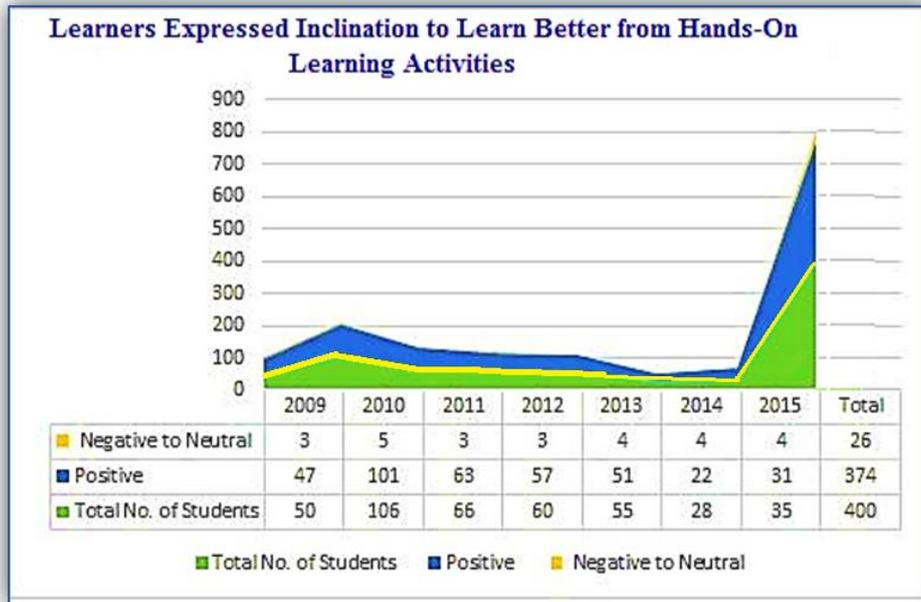


Figure 6 shows a graphical illustration of the general trend observed from 2009 to 2015 as a result of and as part of a continuing reflective teaching practice.

It can be gleaned that a small margin of the yearly class population perceives learning activities as non-meaningful and not relevant in terms of helping them perform better in class. A majority of learners expressed their inclinations to learn better as they engage more in hands-on activities. Most of those who are highly engaged in learning activities have shown sustained improvements in their learning performance.

A Meta Study

Freeman and co-authors (2014), conducted the biggest and most comprehensive metaanalysis, tested the mainstream belief that lectures have high impacts on learning performance, using a meta-analysis of 225 studies. Their analysis reveals that students with classes that allow them to actively engage in learning activities have higher performance scores, with lower rates of failing. The study also showed that under the customary lecture-type classes the failure rates increased by fifty-five percent. The authors also found empirical evidence of student preference for active learning among learners. Using a highly rigorous methodology, and the so-called “trim and fill analyses and fail-safe n calculations” the authors were confident of their results, and that their Meta study is free of publication bias.

Essential Factors to Consider

Meaningful, Strategic, and Relevant Activities

Given the strong indications of the positive impacts of learning activities, it is crucial that meaningful activities are incorporated within the course design or syllabus. Stohr-Hunt (1996) argues that it is not only the use of hands-on activities that will increase learning and retention. The designed activities must be relevant, meaningful, and appropriate to the desired objectives or learning outcomes. Wiggins & Mctighe (n.d.) also emphasize that learning activities must be designed to engage learners in deeper thinking process so that they gain deep comprehension of the concepts they need to learn. It can be seen clearly both from experience and related studies that that to achieve the goals of teaching and learning, the learning activities must be highly purposeful and must align with the desired learning outcomes, and strategic enough to encourage mindful learning engagement.

Alignment of All Instructional Elements

Meaningful, strategic, and relevant learning activities can easily be designed if all the instructional elements align with each other. The work of Kemp, Morrison, Ross, and Kalman (2007) provides an instrumental push for continued efforts to apply front-end analysis for all teaching endeavors as well as in considering the context or environment in which instruction must occur. All the relevant learning theories discussed earlier can work best if used within a well-designed instructional model that guides the content or materials and learning activities within a course. The learning objectives, course content or materials, learning activities, assessments, feedback mechanism and evaluations must all be in alignment with each other (Cohen, 1987). The application of varied learning activities and the use of multi-media materials are only part and parcel of the holistic efforts that help address diverse demographical, social, cultural, and learning backgrounds, diverse learning aptitudes and styles—which in essence do subscribe to the learner-centered approach (Huba and Freed, 2000).

There Must Be No Information Overload

In designing course materials, Sweller's (1988, 1999) Cognitive load theory must guide instructional designers, educators, instructors, and professors. Sweller (1988, 1999) highly espouses for the avoidance of too much text materials and not too lengthy lectures or videos. The use of visual aid and multi-media materials must be effective in bringing clarity to new concepts being introduced to learners as they serve as scaffolding materials to help learners achieve long term memory learning. However, these learning materials must be designed in a manner that they do not create cognitive overload.

Small Bites Learning

Dr. Ray Jimenez (2017) is a strong advocate of “small bites learning” and he says that, a systematic and strategic methods must be followed to make chunked “activities effective and help learners learn, apply and improve their performance” (para. 2). Along this thought, succinct and chunked lessons integrated with exercises or hands-on activities must be designed strategically so that learners can learn substantially in a short period of time. This is important considering that many of those who enroll to obtain their education have a lot of other things to do. For college students, most of them have jobs in order to pay for the cost of education. Small bites lessons or course materials that are designed effectively adhere to Sweller’s (1988, 1999) advocacy of avoiding the effects cognitive overload as a result of too many materials presented to the students.

Contemporary Approach for Contemporary Learners

According to Aldrich (2005), the students of today have changed. They have become highly practical, desire personalized approach, are highly visual, and want for more collaboration. The most striking thought from Aldrich about the contemporary learners goes: “Often they are averse to reading. They want more material in less time. And, hardly worth mentioning anymore, they are very computer-savvy” (p. xxix).

Performance Driven and Relevant to Learners

Michael Allen, Julie Dirksen, Clark Quinn, and Will Thalheimer in their eLearning Manifesto (2013) outlined a move from content driven instruction to performance driven. Their manifesto recommends that learning must be relevant to learners and not “efficient to authors.” For them, learning must be within authentic context, allow learners to make realistic decisions, must provide individualized challenges and spaced practice, with real world consequences. It must be considered that the main reason people go to college or earn a degree is for them to land a job or improve their positions in their current jobs. College courses, therefore, must always carry a component of workplace readiness skills which can include technology skills, communication skills, and collaboration skills, among others.

John Keller’s ARCS Model

John Keller (2010) is known for the ARCS (Attention, Relevance, Confidence, and Satisfaction) model among educators and instructional designers. Most conscientious educators, instructors or professors use this strategy in implementing instruction. Attention is captured through “perceptual arousal” (i.e., creating doubt, surprise, disbelief) or by “inquiry arousal” (i.e., hypothetical questions, mind stimulating questions, challenging problems,

conflict, issues, etc.). Relevance through relatedness of lessons to real-life situations, relevance through the usefulness of the knowledge and skills to student life and career goals must be communicated in the beginning of the course.

Confidence building can lead to or result in Satisfaction. The instructional design and instructional process must continue to develop learners' confidence. Communication and the feedback mechanism within the process of instruction must enable learners to see how they are making progress and how they can continue to make progress. Satisfaction comes when learners see that they can immediately apply and utilize the knowledge and skills to their advantage. Maintaining a positive learning environment, providing high levels of motivation for learners are among the most important key factors in keeping learners "in" for learning.

Mindful Learning for Lifelong Learning

Ellen Langer (2004) suggests for constant element of surprise in the process of instruction (appealing visual learning materials and engaging activities). Langer sets one example on how individuals tend to be doing the usual routine tasks without really being mindful of how they do it. Whereas, something that appears a little bit out of the ordinary could arrest attention, and can trigger a more mindful attention to it. A variety of learning activities, the use of relevant but attention grabbing materials, thought provoking illustrations, videos, and other strategic and creative activities aid in mindful learning. Mindful learning is the key to lifelong learning. Various other educational thoughts or models strive to ensure that both mindfulness and lifelong learning are achieved within the instructional process.

Lifelong Learning from Theories That Work

The effective use of theories that guide the design and implementation of a course can result in enhanced learning outcomes as well as possibly result in lifelong learning. Lifelong learning may refer to the ability to retain what has been learned and use that knowledge and skills for a lifetime. Or, it could be referred to as the ability to continue to learn and adapt to the changing environments. Lifelong learning is also defined as "the provision or use of both formal and informal learning opportunities throughout people's lives in order to foster continuous development and improvement of the knowledge and skills for employment and personal fulfillment" ("Lifelong Learning," n.d.). According to The Commission of European Communities (2001), "...the objectives of learning" should include: "active citizenship, personal fulfilment and social inclusion, as well as employment-related aspects" (p. 9). For Watson (2003), lifelong learning is a continuous process that sustains and excites the self-empowerment of individuals in acquiring knowledge, skills, values, and understanding that they can use to enjoy life with creativity, resourcefulness, and satisfaction. From the above given definitions of lifelong learning, it can be

summed up that lifelong learning may be utilized immediately, and continuously in order to achieve success and fulfillment as individuals carry with life.

Evaluation of Teaching in its Entire Dynamics

Classroom evaluations and faculty performance evaluations must be genuinely qualitative in such a way that the evaluators must look at the effectiveness of the entire classroom dynamics. In evaluating faculty performance, evaluators must consider the efforts exerted to help drive learning outcomes. For standardized courses, evaluations of faculty performance must look into the challenges that faculty has to manage when the instructional elements of a course do not align well. Quality teaching may not manifest in the length of posts or messages, or of heavy materials, or in the length of feedback on assignments. Quality teaching can be assessed and evaluated through the strategic and productive efforts employed to help majority of the students in class acquire the knowledge and skills they are supposed to develop throughout the duration of the course.

Some best practices in faculty evaluations include a strategic process where the evaluator and the faculty spend a session to exchange ideas about the performance expectations. In this prior to the evaluation or observation of the classroom phase, the evaluator listens to the faculty and gathers insights on how the faculty assesses his or her own methods of fulfilling the teaching performance criteria. When the observation of the classroom is conducted, and the faculty evaluator has completed the teaching evaluation report, the faculty and the evaluator confer again to discuss the perspectives from the evaluator's side. This often results in a highly meaningful learning experience for the faculty, allowing for self-reflections on the teaching performance criteria. This strategic faculty evaluation process allows for a highly mindful and evaluative exercise on the part of the evaluator and the faculty.

Conclusion

The learning theories, studies, and emerging thoughts provide the glaring evidence that engagement to relevant learning activities is extremely vital to ensure quality and lifelong learning. The design of any course for online or on-site learning must follow effective Instructional Design principles, grounded on sound educational theories and principles, and there must be an alignment in all of the instructional elements.. In this fast developing global society, the relevance of a course does not rely on the bombardment of textbook related information or career related articles. The relevance of a course is measured in the way learning activities help prepare and equip learners with knowledge and skills that that they can use to face a highly competitive world that is full of challenges. The theories and principles for effective instruction discussed in this paper can help guide the design of a well-aligned Instructional Design

model and research framework study further the dynamics of teaching and learning. One thing clear at the close of this discussion: effective and strategic “DO” activities proved valuable in achieving lifelong learning. Thus, learning activities are central to the utilization of best practices that are fit for learners in this contemporary time.

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