The Potency of Information Technology in addressing Learning Anxiety Disorder (LAD) using the E-learning Education Framework

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Abstract

The evolution of Information Technology (IT) has undoubtedly catalysed the growth and advancement of higher education through its e-learning (online) education systems. Whereas there are many valuable research works on the dynamics of the tangible and some aspects of the intangible means by which IT has played its famous roles in advancing the e-learning education system, the same cannot also be said about empirical studies that focus on identifying and evaluating solutions to certain psychological issues that critically affect many adult learners. While the IT tangible attributes include systems, tools and platforms, the intangibles are the nonphysical factors that influence designs and delivery strategies, policies within the sector, and service consumer's preferences. Beyond the physicals, the intangible elements have significantly influenced the evolution of the e-learning education system of the information age in very critical ways, howbeit unnoticeably.

Further to the popular E-learning systems' attributes of cost-effectiveness, flexibility, availability and accessibility considered as major attractions for its rapid grow, there are the silent but salient attributes of Dynamic Personal Learning Environment whose right application is capable of offering very potent solutions to the subsisting but largely ignored challenges of **Learning Anxiety Disorder (LAD)**. The concept of LAD is derived from Social Anxiety Disorder (SAD); and, it is construed to be a product of unwarranted self-consciousness, misappropriated Ego, severe Shyness, and Phobia resulting into learning inhibitions, disenchantment for socially-involved learning and possible diminution of cognitive abilities.

Therefore, this project is set to examine the notion of Learning Anxiety Disorder (LAD), evaluate the potency of Information Technology in addressing its challenges to the adult learner**; and assess available mitigation strategies through the e-learning Dynamic **Personal Learning Environments** features. The objective shall be to find how these can be harnessed for innovative policies and practices aimed at making the e-learning system and its products much more viable in comparison.

Keywords: E-Learning, Online Studies, Open and Distance Education, socially-involved learning, Severe Shyness, Phobia, Ego, Learning Anxiety Disorder (LAD), Social Anxiety Disorder (SAD), Personal Learning Environment, Information Technology Intangible elements.

Introduction

Our contemporary electronic society (e-society) has continued to evolve with diverse solutions to issues of social, cultural, psychological, economic and political transformations. These are very pertinent issues to human development and general living in the information age. Although there are many research works offering varied interesting solutions, most of these works have not fully explored certain underlying IT elements beyond the physical tools, systems, and platforms for the purpose of maximizing the potentials of contemporary IT innovations. One vital aspect of these IT innovations that has changed the way we live and work is the **E-learning** phenomenon, and the unique solutions it offers to certain social issues that fundamentally affect many learners. Understanding the unique contributions of Information Technology through the e-learning concept, and how the e-learning attributes of

Dynamic Personal Learning Environment can be rightly applied in dealing with the challenges of **Learning Anxiety Disorder (LAD)** will play significant roles in making educational institutions, policymakers, service providers and the entire academia devise better ways of maximizing these unique values.

There is presently no doubt about the existence and significances of certain psychological issues associated with socially-involved learning, some of which include Severe Shyness, Unwarranted Self-Consciousness, Misappropriated Ego, Phobia, Anxiety and others. There is also abundant information in the academic cycle indicating how these can impair human development as they cause deficiencies in cognitive abilities and general learning tendencies when they degenerate into Learning Anxiety Disorder. In addition to the interactive learning and networking platform displayed by contemporary e-learning solutions, a unique element of the e-learning solutions is identified as dynamic *Personal Learning Environment*, and there are clear indications that this can be a potent instrument for solving age-long psychological problems, when rightly applied.

The problem

The problem this work aimed at solving bothers on Learning Anxiety Disorder (LAD); it hopes to solve this problem by discovering and examining some nonphysical attributes of the e-learning concepts that are capable of addressing the fundamental psychological issues associated with Learning Anxiety Disorder (LAD) so as to significantly reduce their effects on cognitive abilities and general learning outcome in higher educations. The motivation is based on the assumption that unveiling the dynamics of the operations of these intangible but salient elements will be of great use in equipping the academia for making the most of the opportunities offered by the e-learning phenomenon.

Synopsis of the e-learning phenomenon

Without losing sight of the fact that the transformation that ushered in the e-learning phenomenon started simply as correspondence and distance studies, after which the open education concept joined, the evolution of this concept into flexible and computer-mediated education with the different flavours of Computer-Based Trainings (CBTs) marked the beginning of the global revolution that has completely changed the higher education landscapes. These concepts have grown and transformed into the online and e-learning solutions, the latter finds regular applications in distance and open education, but more so, in computer-Based Trainings and online studies.

In some cases, the terms 'e-learning' and 'online studies', are used interchangeably to imply the same thing; but in reality, their meanings are not necessarily the same. The point of intersection in their meanings is that both online and e-learning are computer-mediated education system, whereas the point of deviation lays in the fact that e-learning encompasses both online and offline learning solutions, but the online studies (as the name implies) is basically about studies accessed directly online over the internet or on any live network. The offline studies (regular CBTs) may come in the form of CDs, DVD, Flash Cards, hard drives and other forms of external computer information storage system. Apart from the fact that these are 100% Information Technology based education systems, the users do not require the regular physical class facilities that may involve the physical presence of class instructors, observers or class members.

Arrival of the Web 2.0 innovation and its value addition

As Information Technology (IT) solutions to the real-world challenges continue to thrive and remained ubiquitous, the internet web 2.0 innovations emerged with their dynamic, highly interactive, and scalable social media applications. The low cost of computers and gadgets, the multiplicity of user-friendly applications, the affordable and functional internet solutions, and the contemporary society's unbridled embrace of these IT innovations greatly transformed everything people do in the information age, the education sector is not left out.

Today's internet with all it offers in the web 2.0 skin provides a convergence of all social, cultural, economic, political, and human development structures. In the education sector under the human development structures, web 2.0 offers an array of interesting highly interactive educational multi-media platforms, extremely sophisticated electronic libraries, huge knowledge repositories, broad-based encyclopaedias, the wiki information gateways, databases of dynamic search engines, interactive learning objects, and teaching aids of divergent classes and natures. The blending of the IT innovative dynamic powers with highly interactive educational applications has enabled multi-media simulations and live experiments, application of artificial intelligence in designing and administering tailored learning solutions; these are fast changing the way people learn, behave, think, interact, develop skills, acquire, synthesize, preserve and propagate knowledge. Therefore, it is evident that IT presents new opportunities for education, and this is with reliable solutions for subsisting learning problems in the sector. The modern-day e-learning systems' unique approach to social engagements and human development are all together challenging existing learning and social structures of the traditional institutions' approach to dealing with the persisting LAD problems that have impaired education and cognitive development for many. Perhaps, understanding some of these facts will provide the answers to the questions bothering on the underlying indefinable but critical elements shaping the communal adoption of e-learning technologies in today's society, as well as the key components that influences the choices people presently make in this sector, and what actual value these deliver to each category of stakeholders.

Synopsis of learning anxiety disorder (LAD)

The notion, **Learning Anxiety Disorder (LAD)** is a conception of this project. It was nonexistent as an established distinct subject of study, and as a result, it has not particularly received the research community's attention before now. It is derived from the established subject of **Social Anxiety Disorder (SAD)** which also acknowledged having a number of branches but did not explicitly establish LAD as one of those branches for deeper analysis. The study of LAD is focused on social and psychological challenges that form impediments to learning and cognitive abilities. LAD can be simply defined as the complications of persisting unwarranted self-consciousness, severe shyness, nervousness, or misappropriated ego resulting in anxiety that obstructs learning adventures, and may possibly impair cognitive abilities. For a simplifying explanation, it can be said that whoever that has a susceptibility that can be approximated to Social Anxiety Disorder (SAD) manifested in severe shyness or misappropriated ego and phobia for learning, is a clear case of Learning Anxiety Disorder (LAD)

Learning anxiety disorder (LAD) build-ups

Shyness as a component of LAD can be defined as a feeling of serious discomfort which causes an inhibition of free expression for an individual in interpersonal situations, which also seriously interferes with the individual's pursuit of interpersonal goals. The feeling of shyness is not a very pleasant one; it prevents people from social interactions, from making friends and, from expressing themselves. Given that humans are naturally social beings, no life can be enjoyed under such circumstances. Whereas it is a known fact that a lot of people experience some sort of shyness and anxiety when confronted with learning new things or with strangers, more often than not, teachers or trainers are never really bothered about learning anxiety disorder in adults; to many, it is a surprise why a full-grown adult will have such psychological issues as shyness to the extent of inhibiting one's personal development without the person in question doing something to get out of it. Ironically, those that are not shy cannot easily rationalize why their fellow adults are shy, and most times, rather than find a way of helping them; they either ignore or ridicule them.

The opportunity offered by e-learning concept to LAD objects

There are indications that the rapid and consistent growth of the e-learning phenomenon in our evolving e-society is as a result of the unique sphere it has created (howbeit inadvertently) that accommodates a certain class of people with peculiar social and psychological needs. Such needs include overcoming the limitations of shyness, phobia, anxiety, etc. to socially-involved learning. Unfortunately, the direction of existing research works in areas closely related to this show that this group of people and their learning challenges have not been adequately provided for, particularly with respect to the adult learning group. The neglect of these challenges within the adult learning framework is probably based on the assumption that an adult learner (unlike the child learner) is not completely helpless in matters of this nature - the adult learner should have been able to overcome such challenges naturally, or be able to find self-help in exploring different trial and error procedures without necessarily requiring a guide. Whereas the above assumptions are over simplified and also not correct, the implication of leaving the landmarks as they were is that many are denied a lifetime opportunity of learning and development; more so, those that already have the solution are not aware of what they have so as to take good advantage of it.

The e-learning unique feature of **Dynamic *Personal Learning Environments*** shows great potentials for dealing with the challenges of learning inhibitions and diminution of cognitive abilities resulting from Learning Anxiety Disorder (LAD). The Dynamic ***Personal Learning Environments*** is considered a critical element of the numerous nonphysical components of IT innovations prevalent in the e-learning solutions framework. Understanding the principles of these elements and devising how best to structure the learning experience in an e-learning platform can be of tremendous help to Learners that are susceptible to LAD.

Literature review

Haven already stated that LAD is a new concept conceived by this project, it will be out of place to find existing literature that directly dwell on the subject, except for those relating to its parent notion (SAD), and its identified formational components like self-consciousness, ego, shyness, anxiety, etc.

As far back as 19 years ago, William A. Draves wrote an authoritative piece titled 'How the Internet Will Change How We Learn'; his pronouncements then could be termed prophetic. William A. Draves was the President of the Learning Resources Network (LERN), the then global largest lifelong learning association having more than 4,000 members in 8 countries at that time. He asserted that "Online learning is rapidly becoming recognized as a valid learning delivery system. The number of part time students in higher education, to name just one educational system, now outnumbers full time students. …Online graduate programs and certificate programs have doubled over one year ago. Online learning has grown exponentially in the business sector, …Surveys by the American Society for Training and Development (ASTD) see online training replacing much of on-site training in the near future". He added that "Online learning will do for society what the tractor did for food. …More people will be able to learn more, for much less cost, and with a tremendous variety in choice of topics and subjects. It is something that societies of the past could only dream about" (Draves W. A., 1997).

However, in outlining the underlying elements behind the evolution of e-learning, he identified the under-listed as the key forces driving the online learning (e-learning) phenomenon:

Business demands: he predicted this to be a key force due to business inherent needs to remain competitive and profitable, and this can only be achieved by employees' ability to constantly learn. He also identified **Youths exuberances** which in combination with work demands and competition will drive youths to be exploring online learning as the most viable option. Finally on that note, **competition** among the educational institutions was also pointed out as a driving force for innovations in the e-learning sector.

On the aspects of **Interactivity** in learning and **Socialization** among learners as vital elements of the e-learning systems in contemporary times, Tony Bates made a strong case for these attributes and their valuable contributions in strengthening the evolution of the e-learning phenomenon in contemporary times. He has a readable account of this in his 2011 research report, titled: 'Understanding Web 2.0 and its Implications for E-Learning'. The article asserted that, through the innovative internet web 2.0 technologies; an e-learning solution can be stretched beyond the provision of computer-mediated learning platforms, tools, and systems to the incorporation of the desirable attributes of web 2.0 to bring about a blend of interactivities and purposeful social networking. The blending of social media platforms with web 2.0 applications provides the learner an opportunity to enhance his or her experience with "a whole new range of web-based tools and services …to create their own digital learning materials, **personal learning environments**, and social networks" (Bates T., 2011). Authoritatively, Web 2.0 bridged the gap between the dazzling stunts of the e-learning phenomenon and the core strengths of the traditional education as it provided advanced, affordable, reliable and dynamic tools for integrating the core traditional educational principles of interactivity, simulation, learning-by-doing, and multimedia audiovisual learning with the evolving e-learning concept.

The conventional education systems' extensively promoted ***Learning-by-doing*** educational concept also has very strong presence in the web 2.0 e-learning platform. Hayne W. Reese defined learning-by-doing as "learning from experiences resulting directly from one's own actions, as contrasted with learning from watching others perform, reading others' instructions or descriptions, or listening to others' instructions or lectures" (Reese H. W., 2011). The web 2.0 fully enabled learning-by-doing in very dynamic ways within the e-learning system; with this, the dividing line between producers and consumers of knowledge in learning is not as bold as it used to be. E-learning in the new era has extended the horizons of learning that it has become more than just quest to access information, but learning is now blended with access to people and knowledge construction. Emphases is now laid more on participatory and collaborative learning as a culture; today's e-learning solutions with the enablement of web 2.0 has become more interactive offering very powerful learning environments that enable learners to also participate in the creation and pruning of knowledge at the same time (Yun-Jo An, Bosede Aworuwa, et.al (2009).

On the social and psychological issues of self-consciousness, shyness, stress and anxiety that impair learning, using children as a case study, Kasper Alex G. reports that the experience of shy children in attending school is very frustrating compared to their non-shy counterparts. He insists that many sides of the learning environment are hinged on interacting socially with learning colleagues and instructors. Major effect of this situation for self-conscious or shy learners is high levels of stress and anxiety; the Teachers perception of shy children as less intelligent than non-shy children does not help either. He concluded that "Such notions can be harmful to these students, and thus cause more severe aversion symptoms. School personnel have the responsibility to identify shy students, develop a better understanding of their individuality, and provide an effective environment in which they can grow and learn" (Kasper A. G., 2012). Whereas the above Kasper's analysis of the situation is valid, I am not sure of the completeness and effectiveness of the suggestion in his conclusion wherein he proposed that the issue can be addressed providing "...an effective environment in which they can grow and learn" (Kasper A. G., 2012). It is apparent that such an approach will not yield the desired result under the conventional education system. **Reasons**: even if the shy student is isolated from the class crowd to be taught alone in an attempt to create an effective environment, there is already a sensitization of the presence of psychological challenges; this can lead to social withdrawal-syndrome or stigmatization. Yet, in such scenario, the presence of the teacher, the teacher's reactions and responses to the students will heighten the anxiety. Most especially, the consciousness that the student is being isolated as peculiar case and at the same time under the watch of someone can still create a fertile ground for **severe shyness**.

Severe shyness is capable of degenerating into phobia. Phobia is basically a kind of irrational fear that creates a state of psychological horror; it is of various dimensions. A particular type of phobia may be developed either as a result of cognitive and behavioural factors in addition to the social theories of learning and mind conditioning. According to **American Psychiatric Association**, "A phobia is a type of anxiety disorder, defined by a persistent fear of an object or situation" (American Psychiatric Association, 2013)." It is not just an ordinary fear that is considered a phobia, but a type of anxiety disorder with a level of persistency in its nature: "...phobia typically results in a rapid onset of fear and is present for more than six months. The affected person will go to great lengths to avoid the situation or object, typically to a degree greater than the actual danger posed" (en.wikipedia.org, 2016).

The major concerns for the listed conditions like severe shyness, phobia, and anxiety are their capabilities to result into stress, other severe psychological conditions, and also their capacity to wrongfully influence a potential learner's decision not to engage in any learning adventure. According to en.wikipedia.org, 'The affected person will go to great lengths to avoid the situation or object'. The implication however is that any person that have that level of phobia for learning will go to any length to avoid leaning irrespective of the overall effects to the person's personal development. Even if the learner is compelled to participate in learning, not much can be achieved based on Quervain et al, 1998 report, excerpts: "The effects of stress on memory include interference with a person's capacity to encode memory and the ability to retrieve information" (de Quervain et al, 1998). "During times of stress, the body reacts by secreting stress hormones into the bloodstream. Stress can cause acute and chronic changes in certain brain areas which can cause long-term damage" (Henckens M. J. A. G.; Hermans E. J., et.al 2009). In agreement with the above, Robinson O.J., Vytal K., et.al affirmed that: "The impact of anxiety on cognitive function is a major contributing factor to these costs; anxiety disorders can promote a crippling focus upon negative life-events and make concentration difficult, which can lead to problems in both social and work environments" (Robinson O.J., Vytal K., et.al, 2013). Specifically on the symptoms and impacts of anxiety on cognitive functions, Jim Folk and Marilyn Folk submitted that: "symptom can also be described as not being able to remember new information the way you are used to or think you should. The difficulty retaining new information can be so apparent that it may startle you. … learning impairment symptom can come and go rarely, occur frequently, or persist indefinitely. … learning impairment symptom may precede, accompany, or follow an escalation of other anxiety sensations and symptoms, or occur by itself....can precede, accompany, or follow an episode of nervousness, anxiety, fear, and elevated stress, or occur 'out of the blue' and for no apparent reason" (Folk J. & Folk M., 2016).

However, Hendricks L., Bore S., et.al hinted that irrespective of the cause, humans are not completely helpless with respect to anxiety, stress or anger: several things can be done to deal with our worries, phobia, or control our emotions and resulting anxiety - the first step is to recognize that we are anxious and then figure out what may be the cause (Hendricks L., Bore S., et.al 2013). In line with the Hendricks L., Bore S., et.al suggestion, it may be logical to say that such solutions, particularly in the case of LAD, can be found in the Information Technology enable E-learning solutions when rightly harnessed.

On the side of misappropriated ego resulting from self-consciousness, expressed in apprehension for the depletion of one's ego, Thompson K. R., Wesley A. H., Sanchez D. J., et.al have a readable piece on how ego depletion can sap cognitive resources. A closer review of his work may present a pointer to why those that have issues of misappropriated ego are desperate to protect its depletion even at the point of sacrificing apparently useful personal development goals or learning adventures that could have been of tremendous benefit to them. "Implicit skill learning occurs incidentally and without conscious awareness of what is learned. However, the rate and effectiveness of learning may still be affected by decreased availability of central processing resources. Ego depletion theory states that humans possess a limited store of cognitive resources that, when depleted, results in deficits in self-regulation and cognitive control" (Thompson K. R., Wesley A. H., Sanchez D. J., et.al, 2014).

These, put together have direct bearing to the notion of Learning Anxiety Disorder (LAD) which also has been described as an aspect of Social Anxiety Disorder (SAD) associated with a persisted state of learning inhibitions resulting from communication nervousness or subduing fear when learning involves facing and communicating with others (socially-involved learning). In such scenarios, the learner will show lack of composure to put his or her mind and brain in a state of relative peace for harmonious operations in processing fast flowing information as common in learning environments. en.wikipedia.org referred to **Social Anxiety Disorder** (**SAD**) as **social phobia**, explaining that it: "is an anxiety disorder characterized by a significant amount of fear in one or more social situations causing considerable distress and impaired ability to function in at least some parts of daily life" (en.wikipedia.org, 2016). Apart from genetic and health related conditions, Learning Anxiety Disorder (LAD) has its rooting in attitudes associated with low self-esteem and negativity. In most cases, LAD will easily play out when a leaner has adjudged the learning environment to be unfriendly; the information being received construed to be very difficult or complex to allow a quick grasp. The learner may have considered himself or herself as not being capable of trying and getting it right in few reasonable attempts; and the instructor or people that are present in the learning environment as grossly unreasonable people that cannot understanding and show sufficient patience without ridiculing the learner on any attempt. The above situation can sometimes be compounded by misappropriated ego, pride and arrogance. Nevertheless, the case of misappropriated ego is usually provoked when one has given out an inflated impression of his or her self-worth, particularly in the area of knowledge and power. Learning can be inhibited if the victim of misappropriated ego is overtaken by the perceived need to always maintain the inflated impression of his or her self-worth without due consideration of the opportunity lost in the process.

The prevalence of Learning Anxiety Disorder as with Social Anxiety disorder is evident on the fact that: "…despite the recent technological advances in social communication, and the fact that social bonding is a crucial psychological aspect of being human, there are certain individuals for whom social interactions are difficult, leading to real-life anxiety. Although they crave the company of others, socially anxious individuals shun social situations for fear of being found out as unlikable or worse" (**Farfan G., 2013**).

Methods

The methods employed in this study include synthesizing of academic materials from research papers containing valuable information on matters related to the studied subject; analysis of observational data from a number of people that are practically engaging in e-learning and or regular studies students; these are in addition to review of personal experience in the course of studying online from different institutions with a variety of learning platforms; also x-rayed are accounts of individuals that consider themselves susceptible to Learning Anxiety Disorder (LAD) who are using e-learning platforms to overcome the challenge. Online surveys were conducted using social media platforms to reach out to responders. Samples of the questionnaire and survey responses analysis are in appendix 1 of this report. The survey was conducted with the premium services of surveymonkey.com and can be accessed through the below link: https://www.surveymonkey.com/r/JKP2XTQ

Survey question are phrased to reflect the audience language semantic structures so as to enhance responder's understanding of the meaning to minimize misdirected responses.

Results

A state of Learning Anxiety Disorder (LAD) resulting from unwarranted self consciousness, severe shyness, misappropriated ego, nervousness, and phobia is real. The same state of LAD will persist, even when the desire, ability, and opportunity to participate in a socially-involved learning adventure is available, but the willingness and courage to take the appropriate step is inhibited by reason of severe shyness, phobia or unbridled emotional fight against depletion of misappropriated ego.

The fact that most of the people responding to the project survey questionnaires are nontechnical individuals notwithstanding, their alignment with the notion that the contemporary e-learning platform on its face value has the capacity to address the need is a clear statement of understanding of what can be achieve with what is currently available technologically, even as they may not be 100% sure of how that can be achieved.

Figure 1: Online Survey Report (Abridged for space)

Retrieved from: https://www.surveymonkey.com/r/JKP2XTQ (29th October 2016)

Can e-learning (online studies) be effective in encouraging learning or improving learning experience for those with learning anxiety disorder?		
15. Do you think that there are people who are NATURALLY VERY SHY to the extent of not wanting to learn something new in the presence of others so that their level of ignorance will not be discovered and they become ridiculed?		
Answer Options	Response Percent	Response Count
Yes	81.8%	27
No	18.2%	6
answered question		33
skipped question		1
16. Do you think that such situation (as described in question 15) can really prevent some people from participating or inhibit them from performing well in a class involving face-to-face learning?		
Answer Options	Response Percent	Response Count
Yes	84.8%	28
No	15.2%	5
answered question		33
skipped question		1
17. Do you think that such people (as described in question 15 above) can learn better if they are giving a kind of cover that does not bring them into physical contact with people they are supposed to learn from so that their weaknesses or ignorance are not exposed?		
Answer Options	Response Percent	Response Count
Yes	75.8%	25
No	24.2%	8
answered question		33
skipped question		1
18. Do you think there are people that are naturally POMPOUS OR FULL OF EGO to the extent of not wanting to learn something with some class of people so that they are not humbled, disgraced or disrespected when their ignorance is discovered?		
Answer Options	Response Percent	Response Count
Yes	71.9%	23
No	28.1%	9
answered question		32
skipped question		2
21. Do you think that e-learning (online studies) will be able to provide such people (as described in question 18) with this kind of protective cover as it is not		

usually a face-to-face learning, and understanding that they are shielded will make them to want to try learning?		
Answer Options	Response Percent	Response Count
Yes	87.9%	29
No	12.1%	4
answered question	33	
skipped question	1	

Discussions

A well-structured e-learning system that has the features of allowing the learner create or adapt a personal learning environment can effectively deal with the challenges of Learning Anxiety Disorder by shielding the learner from all identified issues that can cause Anxiety in Learning. The efficacy of this solution is predicated in the fact that there is not much that an instructor will want to do to teach a learner in face-to-face learning environments that cannot be reproduced or simulated in an e-learning platform with more excellent results using artificial intelligence on an interactive learning platform. Language lessons are usually seen as one of the most challenging learning processes that requires face-to-face instruction; yet, it can be implemented even with better results using e-learning platforms. The fact that this concept has long been implemented is evident on the below excerpts: "...the project is to provide teachers, students, parents and other interested individuals with state of the art tools and technologies for interactive learning and language training. These tools and technologies are being integrated into the CSLU Toolkit, a software environment for building and researching interactive media systems. To date, language-training applications have been developed using an animated conversational agent, called Baldi. The agent is represented by an animated 3D face that produces visual speech—facial movements of the lips, jaw, cheeks, and tongue during speech production. The visual speech is aligned to a speech waveform to produce an animated talking face" (Ron Cole, Tim Carmell, et.al 1998). Also, Gascueña J. M. & Fernández-Caballero A. in their (2005) Intelligent Animated Agents for Interactive Language Training project reported that: "Intelligent Tutoring Systems (ITS) are programs that possess a knowledge-base on certain subject matter. The ITS is designed to transmit this knowledge to students by an interactive individualized process that emulates a human teacher or tutor guiding a student in his learning process. ITS are growing in acceptance and popularity for several reasons: (i) increase in student performance, (ii) a deepened cognitive development, and, (iii) a reduced time for the student to acquire skills and knowledge" (Gascueña J. M. & Fernández-Caballero A. 2005).

Blending dynamic PLE and interactive, collaborative online learning platform

The *Social and Collaborative Networking* that the e-learning solutions offer to users today provide dynamic platform for robust discussion forums that are more accommodating and sweeping in ensuring participants personal involvement than the regular Instructor Led Training (ILT) models. Even as the learner has the unique opportunity of creating a *Personal Learning Environment (PLE)*, the interactive and collaborative online learning platform features remain intact with all of their values. The PLE enables the student to take control of his or her learning space to explore, test, question, and construct their own personalized knowledge while subjecting their ideas and learning to immediate peer review through the interactive and collaborative online learning platform.

This grants the learner a wider audience for critiquing the learner's works, including the instructors and the numerous learning colleagues from all walks of life with diverse experiences and perspectives on the subject matter. Everyone shares his or her view without looking at anyone's face when reacting to posts; everyone's concern is that his or her point is valid. The students learn from all members of the class in addition to learning from the

instructor. These attributes create great opportunities for purposeful personal networking and highly scaled collaborative learning.

E-learning system's abstract teamwork style

Another vital element of the E-learning systems that emerged in the course of the study is its abstract teamwork attribute whereby users are availed with structured gentle but persistent introduction to virtual teamwork. This is achieved through group assignments on learning projects with students working in team to deliver intricate projects with people they have no physical contact with spreading across many geographical locations. The relevance of this attribute is underlined by the fact that virtual teamwork is what contemporary work sphere has become with the internet making the world a global village where many first class organizations like Google, Toyota, Glaxo, Boeing, etc, use this concept to save cost while delivering very complex projects without limitations through virtual teams spread across the globe. In a related study, Xiaojing Liu, Curt Bonk, et.al evaluated the relationship between computer-mediated communication technology, virtual team's learning and creativity from a flow theory perspective; in confirmation of the established place of this concept, the author opined that the role of this concept has made it imperative for more research to evaluate the critical issues of learning and productivity in virtual team with a view to making the most of the opportunity this offers. "Abstract Teamwork has become an increasingly important part of online learning environments. The widespread use of virtual teams in online courses has not been companied by adequate research to address those issues that affected the learning and productivity in virtual teams" (Xiaojing Liu, Curt Bonk, et.al, 2011).

Highly scaled and efficient collaborative learning platform

It was also confirmed that interactive and collaborative e-learning solutions can be structured to addressed major (if not all) concerns of the critiques of e-learning as it offers diverse opportunities for new educational design models delivered as virtual, yet highly active classroom applications.

Interactive e-learning platforms can be structured to accommodate even more learners as active class members discussing limitlessly on threaded diverse subjects with all parties being heard at the same time without losing the smallest details of every perspective, even from the least vocal person. This cannot happen in a regular classroom as more than one person cannot talk at the same time without constituting the discussion into noise. In a conventional classroom, many students may never have the privilege of making contributions for the constraint of time, space, and human seating endurance limits in a single learning section; these are compounded by other psychological issues associated with crowd phobia, anxiety, fear of being put on the spot with follow-up questions that can ridicule the learner, or deflecting the instructor's ego by the way the student phrased his comment; there is also the issue of peer pressures, shyness, complex, etc. It is unimaginable for a traditional single class setting to have the luxury of time, space and other resources to accommodate as many people that can usually be accommodated in an e-learning virtual classroom and effectively get everyone to learn or attempt to give everyone the opportunity to make contributions, or respond to questions thought-through (not on the spot) responses.

Simplifying the e-learning approach to learning anxiety disorder (LAD)

A state of Learning Anxiety will persist even when the desire, ability, and opportunity to participate in learning is there, but the courage and willingness of taking the appropriate step is inhibited by reason of severe shyness, phobia or unbridled ego. Even the most basic e-learning solution is able to deal with these challenges through a careful application of its person learning environment features where by effective learning can happen without the presence of a third party. Any learning system that allows efficient but nonphysical faceless interactions is a good start; the most complex learning, tailored e-learning applications that meet the subject's peculiar needs can be found. The strength of e-learning solutions in dealing

with LAD is founded on the fact that all types of learning seamlessly happen in a virtual environment of social equality where physical appearances and irrelevant human expressions are 100% concealed by the interfacing machines that have no embarrassing display of emotions, no ridiculing reactions, no standby witness to make disgraceful comments, no jeering from classmates, bullying, stereotyping, or treatment of any failure with an iota of disdain. In a situation where these root causes are removed, how then can anxiety and learning disenchantment resulting from shyness, self-consciousness, ego, anxiety, and nervousness be created?

Online learning platforms are designed to create a virtual environment that supports serious learning activates in a relaxed adaptable environment that gives a sense of togetherness to physically separated individuals. Their designs are structured in a manner that could not provide enabling environment for shyness, identity complex, and anxiety cannot be seen by either party. Things like physical looks, size, height, gender, physical challenges, and status utterly concealed, except where the parties have decided to disclose personal matters. The internet will not allow the transmission of odour from a smelly mouth, neither will it transmit the most concentrated body odour, nor the scent of the most expensive fragrance to make a statement of the learner's worth. The learner's body language or any expression of naivety or emptiness that can be embarrassing cannot be seen by the trainer or classmates. In an E-learning environment, it is difficult to put one on the spot by means of ambushing the person with difficult questions in order to ridicule the person by making a show of the person's emptiness. In most cases, the learner has the opportunity of researching learning problems before making attempt to address them; the learner naturally get a chance of rethinking his or her answers before presentation. Even where sarcasm is deliberately employed, the learner is not publicly embarrassed but retains a safe distance and private space to solely absorb any embarrassment and possibly think of a suitable response that protects his or her pride and ego.

Conclusion

In delivering this project, e-learning phenomenon was examined in the context of IT intangible attributes and their potency in dealing with psychological problems that naturally impair learning and cognitive abilities. The roles of the web 2.0 interactive and collaborative platform, and its place in availing a dynamic personal learning environment that is user-defined were analyzed.

Personal Learning Environment features of the e-learning educational concept were considered as a key component of IT innovations that have direct and potent bearing in providing the self-conscious learners with unique and effective shields to privately engage in learning, enhance the previously shy learner's self-confidence and bring about real-life transformations. The learning public's understanding of this will further redefine higher education systems delivery in the information age, the e-learning concept will tremendously grow further to the disadvantage of the conventional education system,

Learning Anxiety Disorder (LAD) was discovered as a major impediment to learning and sound cognitive operations for self-conscious people. LAD reflects the reason why some people avoid socially-involved learning in attempt to ensure that their peculiar psychological challenges are not discovered. It was also discovered that contrary to common misconceptions in certain places, the e-learning education system does not by any means imply a short-change of the values and standards of education deliverables to the recipients; rather, the system offers more in very dynamic, flexible, available, and affordable ways

Further research

Further studies are required to empirically assess LAD's underlying principles with the aim of validating the claims in this paper as regards the formation of the notion, its components, and how measurable are the effects of the proposed cure in very extreme conditions.

Also, Learners' susceptibility to LAD will require further studies to evaluate other factors relating to genetic formations, early development influences and what specific ways that those

with very complicated cases who may not be computer savvy as to have the capacity for taking e-learning can be helped through the listed or other indefinable IT attributes.

References

[1]. American Psychiatric Association (2013), Diagnostic and Statistical Manual of Mental Disorders (5th ed.), Arlington: American Psychiatric Publishing, pp. 190, 197–202, ISBN 0890425558

[2]. Bates T. (2011), Understanding Web 2.0 and its Implications for E-Learning; Information Science Reference (an imprint of IGI Global); retrieved from: http://www.tonybates.ca/wp-content/uploads/Final-typeset-chapter1.pdf

[3]. Berger V. dr. (2005), Fears and Phobias; retrieved from: http://www.psychologistanywhereanytime.com/phobias_psychologist_and_psychologists/psychologist_fears_and_phobias.htm

[4]. Cole R., Carmell T., et.al (1998), Intelligent Animated Agents for Interactive Language Training; https://mambo.ucsc.edu/wp-content/uploads/sites/158/2015/02/still98.pdf

[5]. Draves W. A. (1997), How the Internet Will Change How We Learn; retrieved from: http://www.williamdraves.com/works/internet_change_report.htm

[6]. de Quervain et al., Stress and glucocorticoids impair retrieval of long-term spatial memory. Nature, 394, 787-790 (1998)

[7]. en.wikipedia.org (2016), Learning anxeisty associated with social anxiety and shyness; retrieved from: **https://en.wikipedia.org/wiki/Social_anxiety_disorder**

[8]. en.wikipedia.org (2016), Self-consciousness; retrieved from: https://en.wikipedia.org/wiki/Self-consciousness

[9]. en.wikipedia.org (2016), Phobia; retrieved from: https://en.wikipedia.org/wiki/Phobia

[10]. Folk J. & Folk M., (2016), Learning impairment, reduced ability to learn new concepts; retrieved from: http://www.anxietycentre.com/anxiety-symptoms/learning-impairment.shtml

[11]. Gascueña J. M. & Fernández-Caballero A. (2005), An Agent-Based Intelligent Tutoring System for Enhancing E-Learning / E-Teaching http://www.itdl.org/journal/nov_05/article02.htm

[12]. **Guillermo Farfan (2013),** Social Anxiety in the Age of Social Networks; retrieved from: https://www.psychologicalscience.org/publications/observer/2013/may-june-13/social-anxiety-in-the-age-of-social-networks.html

[13]. Henckens, M. J. A. G.; Hermans, E. J.; Pu, Z.; Joels, M.; Fernandez, G. (12 August 2009). "Stressed Memories: How Acute Stress Affects Memory Formation in Humans". Journal of Neuroscience. 29 (32): 10111–10119. doi:10.1523/JNEUROSCI.1184-09.2009. PMID 19675245.

[14]. Hendricks L., Bore S., et.al (2013), The Effects of Anger on the Brain and Body; NATIONAL FORUM JOURNAL OF COUNSELING AND ADDICTION, VOLUME 2, NUMBER 1, 2013; retrieved from: http://www.nationalforum.com/Electronic%20Journal%20Volumes/Hendricks,%20LaVelle%20The%20Effects%20of%20Anger%20on%20the%20Brain%20and%20Body%20NFJCA%20V2%20N1%202013.pdf

[15]. Kasper A. G. (2012), Shyness in the Classroom and its Impacts on Learning and Academic Functions; Thesis; retrieved from: http://www2.uwstout.edu/content/lib/thesis/2012/2012kaspera.pdf

[16]. Lipka R. P. & Brinthaupt T. M. (1992), Self-perspectives Across the Life Span, p. 228, SUNY Press, 1992 ISBN 978-0-7914-1003-5

[17]. Robinson O.J., Vytal K., et.al (2013), The impact of anxiety upon cognition: perspectives from human threat of shock studies; Front Hum Neurosci. 2013; 7: 203; Published online 2013 May 17. doi: 10.3389/fnhum.2013.00203, PMCID: PMC3656338

[18]. Reese H. W. (2011), The Learning-by-Doing Principle; the American Psychological Association: BEHAVIORAL DEVELOPMENT BULLETIN VOL. 11, 2011 ISSN: 1942-0722; retrieved from: http://psycnet.apa.org/journals/bdb/17/1/1.pdf

[19]. psychwiki.com (2010), Self-handicapping; retrieved from: http://www.psychwiki.com/wiki/Self-handicapping

[20]. Thompson K. R., Wesley A. H., Sanchez D. J., et.al (2014), Ego Depletion Impairs Implicit Learning; retrieved from :https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4183724/#

[21]. Xiaojing Liu, Curt Bonk, et.al (2011), An investigation of Flow Experience in Virtual Learning Teams; International Journal of Instructional Technology and Distance Learning; November 2011, Vol. 8. No. 11. http://www.itdl.org/Journal/Nov_11/Nov_11.pdf

[22]. Yun-Jo An, Bosede Aworuwa, et.al (2009), Teaching with Web 2.0 Technologies: Benefits, Barriers and Best Practices; Retrieved from: http://www.aect.org/pdf/proceedings09/2009/09_1.pdf