What will users expect from virtual learning methods?—A conceptual model to analyze future leaning method enhancements

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Abstract: ICT (information and communication technologies) add enormous approaches to utilize computing into users' daily lives. Every aspect of social needs has been touched by ICT, including learning. VL (virtual learning), with the life span of slightly above a decade, still looks for possible approaches to enhance its functions with significant pressure from related disciplines for continual improvements. Very recently, with the introduction of Web 2.0, Semantic Web, and 3D (3-Dimensional) Virtual Environments, users have expanded their horizons of expectations. Along with this technology advancement, there has been a noticeable social and demographic transformation from recent years. Sociologists refer these as new generations of the human kind with high intellect, multitasking nature and high awareness of their environments. At present, they are getting into the education stream with high eager for creativity, flexibility and entertainment. Most of the present students in primary and secondary levels in schools show such characteristics and advance their expectations frequently. On the other hand, VL still has not accommodated new social networking and entertainment approaches as it confines to limitations from traditional learning pedagogies and administrative rules. So far, the only successful step it could take forward is the blended learning, which is now fading its novelty. The simple yet foremost essential question is, how far could people retain the students willingly with present VL methods? Alternatively, will it become another unimpressive rigid approach of learning to the future generations? This paper discusses possible approaches to evolve VL methods and models to make the future learning enjoyable yet comprehensive task. The paper tries to analyze briefly the different parameters significant to VL in a holistic manner, while providing an abstract model to analyze learning activities.

Key words: virtual learning methods; learning strategy development; learning preferences; generations Y and Z; social networking; net generation

1. Introduction

Education is a fundamental necessity for any human being, which the developed societies consider as the main qualification for being competitive among the others. As a result, enormous efforts have been made throughout the civilizations for enhancing the education processes. ICT (information and communication technologies) have shown a remarkable potential for making educational activities more effective and efficient when used along with educational pedagogies. ICT affect many systematic disciplines to alter and revise their traditional workflows to improve their productivity. Hence, the e-learning is a growing area of interest that many universities are focused on gaining the maximum benefits through ICT. During the past decades, there were

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significant works on improving the related technologies (Perera, 2009, pp. 2379-2384). It is not only the e-learning that made things better, but many believe that blended approach would produce even better results. The term "blended learning" is used to describe a learning situation that combines several delivery methods with the goal of providing the most efficient and effective instruction experience by such a combination (Williams, 2003, pp. 22-25). Many higher-education institutions have adopted the use of VL (virtual learning) environments and incorporated e-learning into their traditional teaching mechanisms as part of a blended-learning approach (Evans, 2008, pp. 491-498). Blended learning combines multiple delivery media that are designed to complement each other and promote learning behaviours (Singh, 2003, pp. 51-54). In fact, blended learning tries to provide a common platform for traditional learning aspects with possible combinations from VL technologies.

"Potential for a greater learner autonomy where learners are more empowered through control of tools and content development" (Field, 2007, pp. 30-38), can be seen with advanced technological development, especially ICT related. So far, the blended learning has tried to mix traditional aspects of learning with technology, but missing the vital concept of learner autonomy. In fact, the technological advancement is so rapid and it moves further deviating from the learning approaches that people use today, making a more autonomous and creative person. It is now indeed the time for the requirement of another paradigm shift for learning activities to bridge the gap between people's learning methods and today's technology offerings. Essentially, it is meaningless to focus on situational aspects from time to time and find many different solutions as people could never be able to develop sustainable learning methods. "To effectively accommodate, support and promote the knowledge production process, instructors need to select appropriate learning models and strategies …" (Dabbagh, 2007, pp. 217-226), therefore, the main motivation of this paper is to introduce strategic guidance for future planning of learning approach improvements irrespective of technological changes time to time, while offering education to new generations to meet their behavioural preferences.

This paper is organized as follows. The section 2 discusses the present problem with VL from the view of socio-behavioural concerns. Then in the section 3, the paper introduces an abstract model for analyzing learning methods and their strategic positions respect to key aspects of today's VL. Section 4 gives a brief summary of possible technologies to move forward with VL improvements, where as the section 5 discusses the issues that the users are going to encounter with these learning enhancements. Thereafter, the conclusion summarizes the possible policy implications, and finally, and the references will complete the paper.

2. Problem background

Due to the increasingly diverse population, education is changing toward a more global and technology-rich environment designed to meet these diverse and changing needs of students (Gunter, 2007, pp. 196-202). As a result, many isolated researchers try different methods for incorporating new technological methods as they are not following a proper behavioral analysis on students' preferences and the technology fit. In general, any system approach needs to convince its users through different methodologies with a sufficient amount of customizations to achieve the adaptability of the system. Adaptability is one of the important factors, which helps to increase the acceptance of an e-learning system. The issues of how to support adaptability in learning systems and how to provide students with personalized learning materials can be partially solved by providing student-centered, self-paced and interactive learning materials along with introducing automatic and dynamically adaptive learning methods (SUN, Mike & Griffiths, 2005, pp. 846-847).

Recent studies have shown that, "The successful implementation of educational technologies depends largely on the attitudes of educators, who eventually determine how they are used" (Albarini, 2006, pp. 49-65). This is another important issue, as educators are going to use the available new technologies with their preferred way, but students expect it differently. This is where the socio-behavioral input is needed to train educators to work with digitally oriented new generations.

2.1 New generations' learning tastes

Demographic and socio-behavioral analyses show that, there are 3 major generation groups at present, namely, generation X, generation Y and generation Z (still at the definition level). In the present context, generation X refers to people at ages around or above 30 years, born up to 1980. They expect more self-esteem and flexibility of what they do, at the same time with less technology preference. Most of the present learning methods are focused on this group and pedagogical confinements aligned with their requirements. Generation Y, is usually defined as those between the ages 11-25 or often with 30 as the upper limit. They care less about salaries but more about flexible working, time to travel and a better work-life balance. In addition, employers have to meet their demands (Asthana, 2008). Generation Y is described as self-confident, self-reliant, independent and goal-oriented. Perhaps the generation Y may put a bigger premium on having fun, and is more relaxed and able to take uncertainty in stride. They are special, sheltered, confident, team-oriented, achieving, pressured and conventional (McIntosh-Elkins, McRitchie & Scoones, 2007, pp. 240-246). "Generation Y members have used computers since a young age and are e-learners" (Allerton, 2001, pp. 56-60). They live to be trained, enjoy the challenge of new opportunities, seek work-life balance and like to be involved in decision-making (Allerton, 2001, pp. 56-60). Present high school and university students are in this category and show different interests with what they have been offered in learning.

Generation Z is the present youngest generation of the human race, who were born after the Internet information and communication and became the mainstream of people's lives, i.e., after mid 1990s. There are not many behavioural characteristics clearly identified with this generation, as they are still around 12-13 years of age at most and many of them are in the present primary education system. Palfrey and Gasser (2008, p. 1) defined this generation as "digital natives". They have digital identities from their birth and every activity of their lives, digitally related and will have heaps of digital records of their life as they are growing. What can be anticipated is that, they will be more autonomic, entertaining themselves and create their own environment irrespective of what happens around them and less tolerable with rigid, routine and stereotypic activities.

Both generations Y and Z are more extraverts with highly connected to social networks. Extraversion refers to high activity, assertiveness and a tendency towards social behaviors (Furnham, Dissou, Sloan & Chamorro-Premuzic, 2007, pp. 99-109). Individuals high in extraversion enjoy human interactions and take pleasure in activities that involve large social gatherings. Indeed, work-life balance is one of the top priorities of students (Comeau-Kirschner & Wah, 1999, pp. 26-32). Proserpio and Gioia (2007, pp. 69-80) have argued that, people will no longer teach a verbal or even just a visual, but a virtual generation of students with digitally oriented mindsets. The clear differences between the generation X with the Y and the Z indicate that it is highly essential to alter present learning methods to accommodate new generations' requirements.

2.2 Issues of transitional learning activities

Whenever there is a new and affordable technology available, people tend to apply it for their education system, thinking that they could solve infrastructure and social issues affecting education through that. However, users often never foresee the technological situation in learning context as well as in the near future. They could

observe this situation with most of the learning development activities as educators are trying to introduce dozens of new teaching approaches with different technological infrastructure to overcome learning difficulties. This makes students confuse about technologies they use, and ironically, the technologies they use to learn at schools always lag from the technologies available for them in the outside. This makes those students lack of interests in the technologies used for teaching. Unfortunately, with resource constraints, teachers cannot afford the latest technology either. However, if people carefully examine, in most of the cases, the affordable technologies can be customized and used for advanced and attractive teaching methods. For that, people need to examine students' preferences without confining themselves to rigid learning processes.

Having discussed the main problem area for this analysis, the next sections try to provide a strategic view with potential technical considerations for implementation.

3. The conceptual model for analysis

It is difficult to foresee the learners' requirement in a situational manner without a strategic drive for analyzing. Trying to use tailor-made learning methods as new technologies emerge only provides temporarily solutions and can be more probable to affect learners negatively. As it can be seen from above, without considering the appropriate factors with suitable combinations, teachers would not be able to get optimum learning methods to entertain students with new technologies.

The model that is proposed here correlates the 3 prime aspects of VL. Most of the scholars have acknowledged the pedagogical aspects and technological aspects, but not the socio-behavioural aspects. Here, the model introduces the socio-behavioural aspects as a new paradigm to the learning method analysis. Some may think that, this aspect has been already there with the learning activities. Even if it is the case, it has never been used for a thorough analysis at the policy level. This model, can help people to analyse many possible outcomes when different aspects get dominating, allowing teachers to design the learning methods more appropriately and consistently, without getting affected from frequent technological changes or pedagogical constraints.

The model shown in the Figure 1 is the abstract view of how these 3 aspects combine each other for a future VL environment. According to the proposed model, more overlapping of aspects altogether, gives ideal VL environments. If the combinations are not balanced with all aspects, the prominent aspects will make the learning activities less effective.

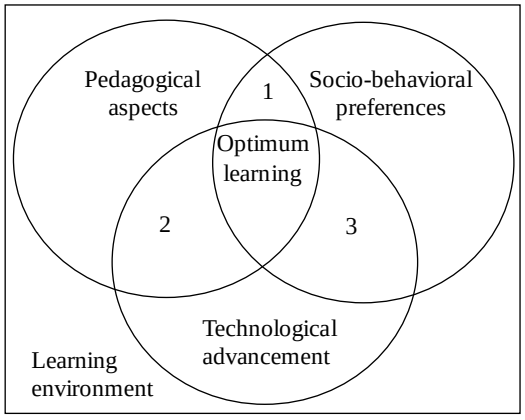

Figure 1 Analysis of learning process improvements—A conceptual model

There are 3 sub-areas according to the model shown as 1, 2 and 3 in Figure 1, indicating possible problem areas. For the best results in future learning methods, people have to avoid these situations and try to make them acceptable to all aspects.

(1) Overlapping area 1: This indicates the combination of pedagogical aspects with socio-behavioural preferences, but no consideration is for the available advanced technologies for improving learning methods. The course environments may somewhat be attractive to students and meet pedagogical requirements, but will not operate productively due to the overhead learning processes without technological support.

(2) Overlapping area 2: This area represents the combination of pedagogical aspects with advanced technological solutions, but no consideration is for making the learning process attractive to the audiences. In fact, today's typical VL environments are more vulnerable to fall into this category, and in the future, situation can be worsened as new preferences emerge. Unfortunately, today what users are often doing is, trying to make VL align with pedagogical constraints and including blended aspects to widen the VL scope, without taking into account on how students perceive these methods.

(3) Overlapping area 3: This indicates the combination of advanced technologies and students' preferences, without the pedagogical aspects of learning. Most of the latest pervasive and social networking solutions come under this category. Educators cannot use them, as they are, since they do not include formal learning methods.

Moreover, the area outside the circles and inside the rectangle (the complement of the set union of the aspects), represents the overhead/informal activities that users encounter within their learning environments. It is assumed that, almost all the practiced learning approaches have less impact on this component. It is important that even future learning methods should not have a significant portion of their processes from this aspect. This area represents neither effective nor productive learning methods at any level.

4. Potential solutions

De Freitas and Neumann (2009, pp. 343-352) have indicated that the greater ubiquity of open standards-based e-tools and services is prompting a range of integrated and collaborative tools and functionality. Indeed, these tools provide good platforms to link both pedagogical aspects with users' preferences.

Social networking systems are very popular among younger generations at present. Facebook, MySpace, Twitter, and many similar social networking solutions have penetrated into students' lives, where most of them spent reasonable time with their preferred systems. Not only that, but also students use these as informal methods to share their opinions, plan group activities, participate in virtual events, share content, and so on.

Edirisingha and Salmon (2007) found that, pod-casts contributed to informality and engagement. Pod-casting can also make learning more appealing to a diversity of learners and can generate greater inclusive nature (Cebeci, & Tekdal, 2006, pp. 7-57). Rich media content through pod-casting and mobile sharing is another possible solution to make learning activities more attractive to users while making their learning more autonomous.

3D VL environments are another possibility to incorporate game flavour with learning activities. The "digital classroom" provided by 2D tools does not resemble the reality of the conventional classroom (De Lucia, Francese, Passero & Tortora, 2009, pp. 220-233). There are many successful implementations of 3D VL environments available from universities and will be used for school education in the near future.

Finally, moving further, Mixed Realities would generate extraordinary results with combining all possible virtual and real technologies for comprehensive learning. LIU and others have indicated that the mixed reality as a

new technology to edutainment, with potential to revolutionise learning and teaching with high engagement (LIU, Cheok, Mei-Ling & Theng, 2007, pp. 65-72).

However, people also have to consider the relative cost of introducing new technologies to the learning arena for better results. Any technology that students are widely using already for their entertainment would be a great option.

5. Challenges to overcome

Introduction of social networking, user-generated content and heterogeneous technologies have resulted in dozens of issues emerging with present learning methods. Indeed, it makes the most of the educators worry. Some of the most prominent potential issues and possible remedial actions are briefly discussed, here.

"Many studies have specifically examined how an instructor's feedback impacted on students—students' interactions and satisfaction, and Wize and others have found that, a moderated online discussion community by an instructor can elicit greater participation among students than an un-moderated one" (Heejung, Shin & Lim, 2009, pp. 749-760). As the educational activities should be formal in nature, it may be not possible to use new entertaining technologies without moderation. For example, the way social networking forum postings (language, spellings, short words, abusive words, etc.) made by students among their friends may be unsuitable for proper learning. A moderator must be present to ensure the appropriate learning mix with the formal learning.

"In education, there is a growing concern with the Internet triggered dishonesty sparked by the massive use of the Internet" (Akbulut, Sendag, Birinci, Kilicer, Sahin & Odabasi, 2008, pp. 463-473). The Internet can facilitate many kinds of unethical behaviours, such as plagiarism, piracy, fraudulence, falsification, misuse, etc. (Ross, 2005, pp. 29-31). With the social networking and rich content sharing methods, students could easily alter available content and claim the ownership for assessments. Furthermore, it would be difficult to access control on students' activities to ensure proper assessment-based learning activities. Future research is essential to implement technological solutions to overcome these issues.

Yet, the educators govern the learning methods and models, and therefore, they have to be convinced about the new approaches. They have to be trained and provided with sufficient guidance on how to work with new generational students and new technologies. There are one or two generational gaps with present educators and students, making the delivery of education happen according to the educators' mindsets, even the methods accommodate all aspects in balanced nature. Therefore, to achieve effective results from these improvements, present academia must be openly convinced on the benefits of changes.

6. Conclusion

This paper has introduced a conceptual model to analyse VL processes with their main aspects. The paper also has very briefly, yet comprehensively, rationalized the problems that existing VL methods and models would experience in near future with new students generations, if the required improvements are not done. Since the situational approaches for analysing these issues would not provide sustainable solutions, this paper has introduced an abstract model to analyze VL methods with prime aspects and their combinations. The technologies and potential issues discussed here would only guide the pathway, but essentially need further research on possible avenues of improvements with suitable technical customization. There are enormous untapped potential researches relating to learning method improvements for future. Unfortunately, so far, researches focus more on isolated technical approaches, without considering the broad spectrum to provide sustainable solutions to next

generations. Whether, educationalists evolve the present learning methods would decide their acceptance from future students.

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