

DIGITAL LEARNING TECHNIQUES FOR DEEPER LEARNING IN HIGHER EDUCATION OF UAE

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ABSTRACT

Globalization and technology has reached to an extent where even a normal school goer prefers to achieve 'anywhere, anytime learning'. It has been studied that that a major share of students attending Bachelors and Masters Program in UAE belong the category of working students who prefer studying while they work as the fitness in the job market in current scenario demands knowledge , skill and competencies with additional work related experience. And those who achieve this synergy gain the advantage of being well placed at work. The research paper aims to establish the need to integrate Digitally Smart Learning Techniques to the enhance the quality of education and the learning environment at the university levels including level 5, 6 and 7 of qualification comprising of the Associate level, Bachelor/Undergraduate Level and the Masters/Graduate Level as guided by the National Qualification Authority's Quality Framework of Emirates (QFE Framework).

The QFE Framework has been developed to incorporate several international taxonomies to ensure the higher educational qualification delivered in academic institutions of UAE is able to meet the quality and standards of international university programs.

The researcher's experience emphasizes the assumption that data synthesizing, information storing and reflection/interpretation can be enhanced by using apt digitally smart techniques of learning. The study also embeds existing digital technology in course delivery and learning process related to the three levels of learning aspects viz., Knowledge, Skill and Competency with sub strands of ;

- a. the identification of autonomy and responsibility in different situations
- b. self-development by working and operating in new and different situations and

The paper further attempts highlight the role of digitally smart techniques in deeper learning with reference to level 5, 6 and 7 of QFEmirates.

Key Word: Smart Learning, Digital World, Higher Education, QFEmirates

1. INTRODUCTION

The U.A.E is a promising leader in the development arena, driven by the ruler's vision and the nation's efforts. Education is the main priority in this area of development. The government has made every effort through innovative ideas and investments to make the vision of a complete and intelligently educated nation a reality. But to what extent the vision has been implemented in worth research.

Review of literature has revealed that the nation still lies in the bottom ten countries in the PISA and TIMSS score evaluating mathematical and science based skills of Secondary Level students.

While U.A.E score in PISA during 2012 is in 49 the TIMSS score during 2011 is below average. The potential issue arises when these students move forward towards higher education where these analytical skills become of a grave importance to achieve the Level based competencies.

This paper takes the above issue as a study opportunity to understand the Level 5, 6, 7 based competencies to be achieved by the students in QFEmirates Framework as documented by the Ministry of Higher Education and

Scientific Research. The study tries to assess the possible digital smart learning techniques that can be implemented and enhanced to make the teaching and learning process easier and evidently smart.

Today, when digital technology plays an inevitable role in our lives to get communicated and connected the effort to get this digital wave efficiently implemented into learning and teaching in the higher education levels to yield quality results deeper and smarter thinking process is worth a research.

2. LITERATURE REVIEW

Digital and Information Technology with the advent of technology has taken an inseparable role in course delivery and learning. Technological influence has been having a massive impact on the humankind due to the ease it gives in communication, information and connection. They open a stream of choices leading easy and quick access to vast amount of information but as rightly stated “the access to this infinite virtual repository is only as valuable as one’s capacity to assess, analyze, decipher, disaggregate and apply knowledge in practical, real – world situations” (McCarthy, Cavanaugh and East, 2014). This aspect apparently is not satisfactory among the Level 5, 6, 7 students of Higher Education as per research results by our team covering 100 faculty members delivering Level 5, 6 and 7 courses in U.A.E. (Olcott, 2014)

The formidable challenge to academic institutions is to think different and encourage teaching digital more than traditional class room methods. The digitalization of colleges can lead to a much more personalized education community which enhances knowledge sharing at a faster and pace along with innovative strategies being used to better deeper learning in students. It is now a must to get the learning process connected to practical performances.

Siemens (2008) in his study suggests the theory of connectivism as a learning theory that has been designed by several nodes connected to networks that elucidate synchronous and asynchronous learning process. It is derived from the theory that the three major sources of information in digital era includes;

- a. Class room training with digitally connected information sharing technology
- b. Social networking platforms and
- c. Virtual reality platforms

Hence, Connectivism encourages digitally enabled learning resources to be brought to forefront to ensure smart learning.

3. DIGITALLY SMART LEARNING AND SMART LEARNING ENVIRONMENTS

Smart Learning is the effect of digitalization .The wide acknowledgment of this advanced move has pushed instructors to accept an easier mode of information exchange. Smart learning can be actuated by digitalization of learning components as they grant an opportunity to personalize the course to suit the understanding levels of the students. Typically, the concept has been well embraced by keen learners as even they would prefer quicker and smarter learning systems which would be a lesser burden to their hectic work schedule. The smart learning environment basically revolves on how smart instruments incorporate smart sheets, smart phones, smart tabs and smart TVs to distinguish and spread and share data in a digitally powered smart learning environment and

- a. One or more computerized gadgets are utilized to coordinated components of information sharing
 - b. The advanced gadgets basically point to improve the educating and learning involvement counting data, appraisal, collaboration and feedback.
 - c. The advanced digitalization allowing learners and give fitting information that could support them to easily relate their work to learning and provide appropriate information to the stakeholders involved.
- (Smart Learning Environments, 2015)

Lock (2006) mentions, “The realization of online learning communities to facilitate teacher professional development is a matter of carefully and deliberately designing dynamic learning environments that foster a learning culture. This requires a pedagogical framework . . . where people engage in shared learning experiences mediated through technology.”

Lock also confirms that a positive and creative environment should be created developed to engage students in smart learning as he shares “the creation of a safe and trusting space, the relevancy and currency of content in meeting the needs of the learners, the nature and richness of online discussions, and the nature of participation and interaction”

In the words of Middleton, Smart Learning involves teaching and learning with smart phones and tablets in post compulsory education with essence focus on utilizing innovative and smart mechanisms in education as this is a requirement in an ever dynamic learning environment. (Middleton. A, 2015)

Andrew Middleton research on smart learning states “learning in the age of personal, flexible and connected smart devices.” He also recommends three simple ways of perceiving this idea by;

- a) Using smart devices as an alternative to conveniently do things
 - b) Use smart devices to do things better than we used to do and
 - c) Use smart devices to do things differently than we used to do before.
- Further he emphasizes that challenges the assumption that

- d) Smart devices need to be used to provide the learners with access and sharing of extensive useful information breaking the traditional methods of learning. (Middleton. A, 2015)

The reading on Smart learning as stated above emphasizes the research assumption that Smart and digital learning supports improvements in the learning environments. Hence, these research revelations affirm linking smart digital mechanisms into learning as accepted by developed nations a step to quality ensured deeper learning efforts.

4. DIGITALLY SMART TECHNIQUES IN SMART LEARNING

The relationship between digital smart techniques and learning experience encapsulates the fundamental nature of Smart Learning.

The much seen interest in inseparable application of digitally supported devices in education evidences the role of personalization of learning which has been accepted equally by instructors and learners equally.

Moreover, Digitally Smart instruments such as portable, wireless and internet connected multi-functional technologies including smart phones, tabs, smart TVs etc., and smart boards are an all attempts to design and customize learning experiences to suit the student levels.

Digital smart mechanisms support the teachers to regroup and personalize smart and innovative learning techniques into academic delivery to make sure exceptional changes are attained in learning environment and results attained.

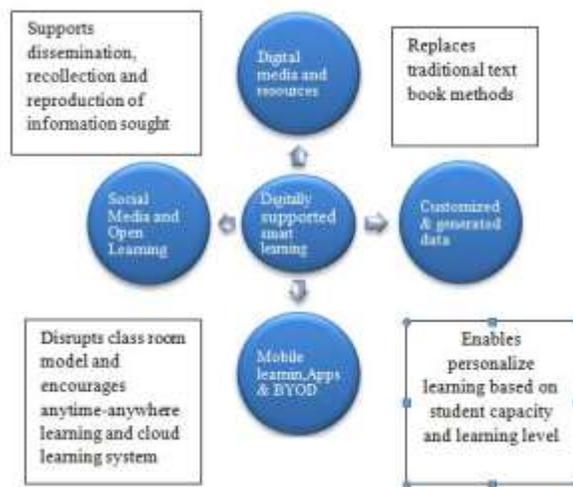


Fig-1: Digital smart learning interventions and impact on traditional education system

It is clear from Fig.1 that a shift from traditional learning to smart digitalized learning can disrupt, transform and enable changes enhancing student learning and teaching experiences.

Steve Wheeler through his research encourages studying the relationship between learning and technology. Through his blog Web3.0: the way forward? (2010) he suggests how multimedia brings the world into classroom.

5. UAE HIGHER EDUCATION AND QFEMIRATES

The QFEmirates Framework is the results of immense hardship and in-depth research efforts coined by a decree to realize a nation's goal to develop and maintain a qualification system that encourages individual and lifelong learning to ensure future citizens of UAE are prepared well to face globally competitive environment and challenges.

The framework also attempts to contain a standard frame of reference for achieving academic learning outcomes designed for each qualification to realize quality completion of education.

The QFEmirates supports the educational stakeholders with a better understanding of qualification as it means “a formally approved parcel of learning outcomes to standards set by the relevant accreditation/awarding body, which can be achieved by a learner.”

The statement being multi-layered tends to be perceived differently and moves to a subjective natured understanding from various categories of readers including the teachers and policy implementers in academic institutions. The QFE through its ten levels of national and international qualifications also lays sets a clear alignment between of qualifications and certification systems worldwide. (Qualifications Framework Emirates, 2012)

The three main features incorporated by QFEmirates include;

- a. Various levels of complexity and depth of knowledge to be encompassed by a learner on completion of a qualification.
- b. The Range of learning objectives and outcomes to be achieved in terms of knowledge, skill and competence required to be achieved by the learner on completion of the qualification.
Each of the learning outcomes further gets divided into vertical strands of learning outcomes supporting understanding, application and assessment of the learning outcomes to be achieved within a level of qualification.
- c. A qualification structure states the types of qualifications and titles for these qualifications

5.1 QUALIFICATIONS FRAMEWORK FOR EMIRATES STRUCTURE

The QFEmirates Framework comprises of 10 levels of descriptors with 5 strands of learning outcomes;

- Knowledge
- Skill
- Aspects of competence further divided into 3 sub strands in terms of
 - Autonomy and responsibility
 - Role in context and
 - Self-development



Fig-2 Strands of Learning Outcomes. (Qualifications Framework Emirates, 2012)

6. OBJECTIVES AND SCOPE OF THE STUDY

The objectives of this paper is to

- Introduce the learning level established by QFEmirates
- Explain different digital mechanisms that can enable smart learning process
- Identify the right digital mechanism corresponding to Level 5,6 and 7 of QFEmirates
- Suggest simple and practical digitally smart learning mechanisms for Level 5, 6 and 7 qualifications.

This study scope is focused on Level 5, 6 and 7 of QFEmirates is titled Associate Degree, Higher Diploma and Bachelor in Higher Education and the learning outcomes and techniques that can enhance digitally smart learning in these levels.

7. RESEARCH METHODOLOGY

The paper adopts a qualitative and quantitative approach by conducting a research on 100 faculty members across U.A.E handling course delivery for level 5, 6 and 7 of QFEmirates.

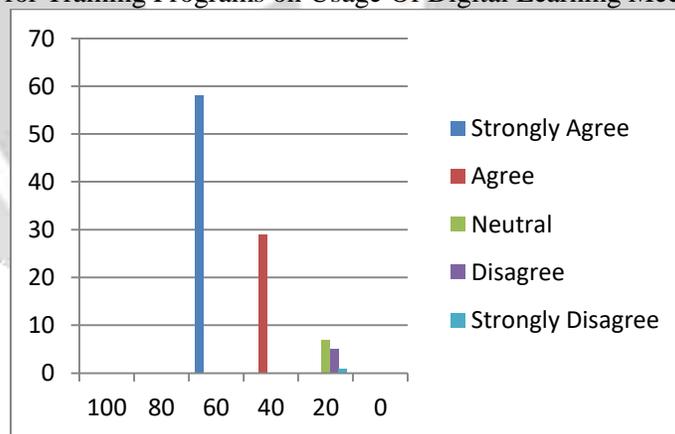
The qualitative data has been obtained from faculty meetings and orientation feedbacks apart from literature review on deeper learning and digitally supported learning

Information sought quantitatively focused on the smart learning techniques in the institutions for aiding course delivery and the effectiveness of this technology in the results in achieving the sub strands of competence established by QFEmirates for Level 5, 6 and 7.

8. ANALYSIS AND INTERPRETATION OF THE STUDY

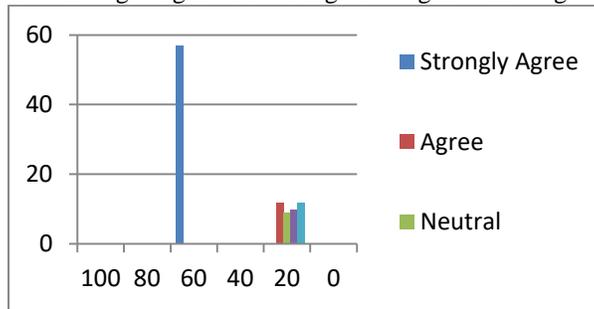
The following analysis is an excerpt from the pilot study of the research conducted at the institution to analyze the preference of smart learning mechanisms to be implemented in the campus.

Fig –8.1, The Need for Training Programs on Usage Of Digital Learning Mechanism For Teachers.



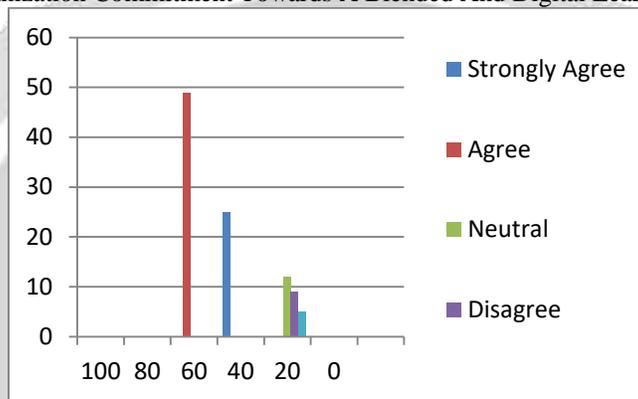
Inference: Figure 8.1 reveals that majority of the teachers are in favor of having training programs on usage of digital learning mechanism for teachers.

Fig-8.2, The Need For Training Programs On Usage Of Digital Learning Mechanism For Students



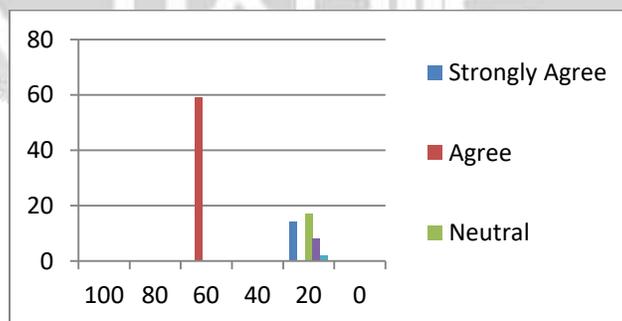
Inference: Figure 8.2 reveals that majority of the teachers are in favor of having training programs on usage of digital learning mechanism to student.

Fig-8.3, Organization Commitment Towards A Blended And Digital Learning Mechanism



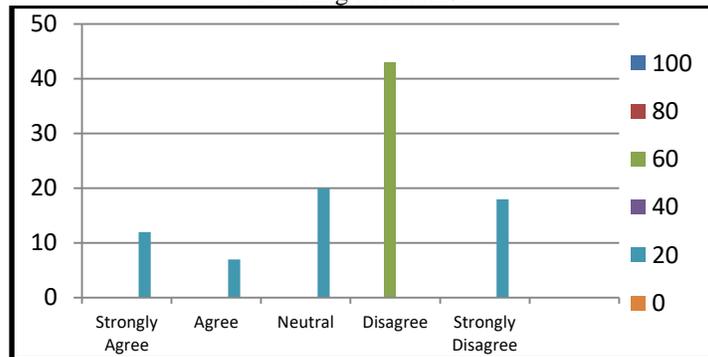
Inference: Figure 8.3 reveals that the majority of the teachers are in favor of organization’s commitment towards the blended and digital learning infrastructure.

Fig- 8.4, The Importance Of Digital Learning Mechanism To Support Student As Well As Teachers To Achieve The Teaching Learning Process



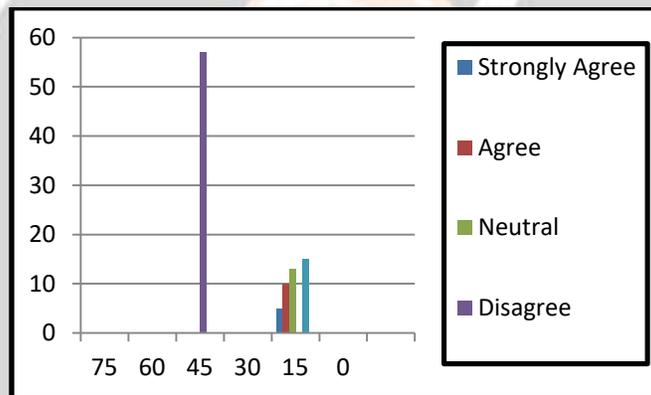
Inference: Figure 8.4 showing the majority of the teachers agreed that the digital learning mechanism would directly support students as well as teachers to achieve the teaching learning process.

Fig-8.5,The Awareness Among Teachers On Level 5, 6 & 7 Of QFEmirates And Their Corresponding Smart Learning Mechanism



Inference: Figure 8.5 reveals the majority of the teachers are unaware of QFEmirates level 5, 6 & 7 and their corresponding smart learning mechanism.

Fig-8.6, The Awareness Level Of Teachers Towards Synchronizing Digital Learning Mechanism With Appropriate Learning Level



Inference: Figure 8.6 reveals the majority of teachers are unaware how to synchronize the various learning level with their appropriate digital learning mechanism.

9. DIGITAL LEARNING AS A STEP TO DEEPER LEARNING

The National Research Council (NRC) in their study on “*Education for Life and Work: Developing to translate work in the 21st century*” proposes techniques to facilitate easy learning;

- a. Varied and multiple presentation of same topics to aid repetition and recollection of information
- b. Encouraging analysis, participation, questioning and justification
- c. Using scenarios, experiments, cases and examples to illustrate as a part of developing observation and inquiry skills
- d. Motivate learner and usage of more formative assessments

Digital learning involves and includes any/all academic instructional practice that uses technology to effectively enhance student learning experience. It enables new strategies being formulated to accommodate online teaching and learning resources into traditional methods to aide and enhance the learning and teaching quality and to encourage deeper learning. (Alliance for Excellent Education, 2012)

Digital technology leverages the teachers’ efforts by making the students proactive partners in learning responsibility and encompassing deeper thinking in them. This requires customization of course materials to

incorporate better student involvement, critical thinking and analysis to meet the competency or role management, accountability and self-development as prescribed for Level 5, 6 and 7 of the QFEmirates.

Digital learning promotes to smart learning in three different ways; personalized skill building and accountability, extended and open access to information through digital sources, ease of use in access of the required information. Deeper learning occurs when the students are encouraged to manage their learning by providing adequate opportunities to understand, revise and practice their lessons which enable deeper understanding of concepts. Meaningful cases, projects that trigger critical thinking and analysis, problem solving scenarios and other deeper skills also need to be nurtured among students.

It evidently touches aspects of Self-managed learning where the learner accepts responsibilities of learning and utilizes convenient accessible resources to aide his understanding of the subjects. This essentially happens through digitalization of the learning process.

Continuous and regular feedback and improved methods of tracking and reporting achievements by students and progress at every stage contributes to deeper learning process. Enhanced access to alternative sources of learning and opportunities to practical understanding and exposure through digital portals will open a wider world of information used by the students if ample support and guidance is given by the faculty at the higher education base.

The following table is an attempt to suggest available digital techniques to support smart learning and how they directly contribute to the learning levels. Some of the smart mechanisms though they indicate Level 5 will contribute smart learning in Level 6,7 and more and the increase is levels in an add up on existing skills with implementation of more critical levels of analysis, relating, interpreting, self-accounting and developing.

Smart Mechanisms (software and Apps)	Usage	Learning objective Covered	Level of QFE met
Chrome	Browser/web search	Knowledge	5,6,7
Google drive/MSWord/MsExcel	Create documents and spreadsheets	Skill	5,6,7
Mail	Native email app	Knowledge	5,6,7
E-Journals and E-books	Electronic reading	Knowledge	5,6,7
PowerPoint	Study and sharing	Skill	5
Blogs	Online cases and study support	Knowledge	5,6,7
I-books/Kindle	Online book resources	Knowledge	5,6,7
YouTube	Sharing videos	Knowledge & competency	5
Wunderlist	Organizing, scheduling and retrieval	Competency	5
Istudiozero	Document creation and publishing	Skill	5
Dictionary	Meaning of words and alternative word suggestion	Knowledge	5
Explain everything	Screen capture and recording video presentation	Knowledge and competency	5
Socrative	Promote student interaction in class	Competence	5,6,7
Keynote	Presentation app	Skill	5,6,7
Mendely	Referencing and Citations	Skill	5,6,7
Podcast	Audio, video, digital media	Knowledge	5,6,7
Videoconferencing	Real time training and information sharing	Competency	5,6,7
Interactive/Whiteboard	Interactive screen for teaching, problem solving	Knowledge	5,6,7
Tumblr	Tutorial	Knowledge	5,6,7
Online tutorial	Tutorial	Knowledge	5,6,7
Facetime	Online one to one communication system	Competency	5,6,7
Virtual Field visit	Coverage of geographically diverse industries	Knowledge and Competency	5,6,7
Moodle	Knowledge sharing, retrieval system	Knowledge	5,6,7
Turn-it-in	Plagiarism tracker and similarity check	Skill	5,6,7
Virtual Flipchart	Simultaneous information and study on virtual boards, problem solving and analysis	Knowledge	6,7
Blackboard	Knowledge sharing	Knowledge and retrieval	5,6,7
Pebblepad and ProjectFoundry	Web based personal learning environment, analysis support. Project making	Knowledge, skill and competency	6,7
DYKnow Cloud	Class room management and roster	Skill and competency	5,6,7
SM4L	Social Media For Learning	Knowledge	5,6,7
SPSS, Phet science, Visual Mathgames, Globaloria, Animoto	Analytical, problem solving. Simulation maker	Skill and Competency	6,7

Fig-4 Smart Learning Mechanisms for Level 5, 6 and 7 of QFEmirates

It is evident that all the above suggested digital mechanisms form part of the Information-Communication - Technology (ICT) tools used by any educational institutions .the dilemma lies in how effectively and validly they are used to be smart techniques that help align the Level of outcomes to be achieved and learning made smart is a subject for future research.

10. CONCLUSION

Blending innovative and smart digital mechanism into learning makes it smart and smart learning is what the current learning population expects.

The Higher Education providers, especially academic institutions need to create favorable learning environments to accommodate quality enhanced digital smart learning experience. The learning population needs to be educationally catered with smart tools to enhance the learner quality. This research attempts to sync the appropriate digitally smart learning mechanisms to meet the level 5, 6 and 7 of the Qualification Framework of Emirates.

With clear goals and achievable targets, more students will benefit from the smart learning system linked to the quality education system.

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