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Assessing Meaningful Learning with Technologies: Teachers' Role

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Abstract:

This research employed the qualitative research approach to bring to light how meaningful learning is assessed with technology. The Missouri Assessment Plan (MAP) as well as the Cognition and Technology Group at Vanderbilt University (CTGV) among others were used as illustrative schools under data analysis. Secondary data were combed from books, schools and / or counties which have made use technologies in assessing meaningful learning, then are scholarly journal articles as well as online resources such as the United States Department of Education website etc. The use of technology in the classroom helps quicker synthesizes of materials presented to learners. For instance, some students grasp concepts and skills better by the use of visual aids such as projection screens which are linked to computers could allow learners to see / read their learning materials/ notes instead of listening to a lecturer simply. Class curriculum can be supplemented with the use of software. Study questions, activities, and sometimes tests and quizzes for a class that could be provided by programs to aid students advance learning even outside the classroom. It is hoped that the findings will add to existing literature on the area of study to serve as a reference for future researchers.

Keywords: *Meaningful learning, computer and telecommunications, assessment, class curriculum, learning materials, use of technology*

1. Introduction

Technology has become a vital component in the modern age we live in. Each passing day there comes to the market something new be it software or gadget which makes living with an improvement in technology. To make living easier is not the only role technology is playing today, it is also playing an equally import role in education. Whiles technology advances, it is applied to be beneficial to learners of all ages in the enterprise of education. The internet could be used to research topics for papers and essays, whereas computers could be used to create presentations such as by way of power point. There is no doubt that as technology advances, learners would have better access to educational opportunities with the acquisition of skills and usage of relevant technology.

It must also be stated, here, that technology has advanced so much so that it has helped children even before they have started formal education. This is evident with the profound and available items such as educational video games and systems for young learners which aid them to be prepared for formal education or schooling. It must be noted that students, in this 21st century must be fully engaged, and this requires the use of technological tools and resources that are supportive and safe. Educators must be collaborators in learning, by constantly seeking knowledge and acquiring new skills along with their students. There must be the on-demand, personalized tech applications that are part of students' daily lives (Arne Duncan, 2010).

1.1. Research Problem

It is with such backdrop that this research has been conducted on assessing meaningful learning with technologies and to provide some suggestions and recommendations are aimed at arresting the situation to some extent.

1.2. Research Question

The research question for this study is how do teachers assess meaningful learning with technologies? (Qualitative)

2. Literature Review

In this section literature on computer and telecommunications as well as assessing meaningful learning with technology have been reviewed.

2.1. Computer and Telecommunications

According to (Shuldman, 2004), computer and telecommunications technologies' implementation in schools has been a national, state, and local educational goal (Glennan & Melmed, 1996; National Task Force on Educational Technology, 1984, as cited in Reiber & Welliver, 1989). Schools have put in a great deal of effort in terms of money as well as facilities, such as wiring buildings and classrooms, as well as accumulating an impressive computer inventory (Becker, 2000b; Office of Technology Assessment, 1995). Such a great deal of investment underscores society's great expectations, aspirations that education will integrate technology into the classroom successfully. It must be added that technology's integration into schools and its usage in ways that impact student learning has become more difficult than anticipated (Scheffler, & Logan, 2000, citing Houghton, 1997).

2.2. Assessing Meaningful Learning with Technology

Technology is making it possible to assess a much wider range of important cognitive competencies than was previously possible. Computer – enhanced assessments can aid in the assessment of problem-solving skills by presenting complex, realistic, open-ended problems and simultaneously collecting evidence about how people go about solving them. Technology also permits users to analyze the sequences of actions against models of knowledge and performance associated with different levels of expertise. (National Research Council, 2001).

In Virginia's Fairfax County Public Schools, for example, a web-based system termed the Electronic Curriculum Resource Assessment Tool has been designed to create and access lesson plans, assessment tools, worksheets and others resources approved by the district. In a related development Manor New Tech High School students (Texas) out-performed the state average by 16 percent in science as a result of a project-based learning and the integrated use of technology (www.ed.gov/technology) Cited in Anyanful, 2014.

2.3. Summary

A review of related literature on computer and telecommunications and then assessing meaningful learning with technologies has provided a basis for this article on assessing meaningful learning with technologies: the role of teachers.

3. Methodology

The research approach used for this work was the qualitative. The qualitative research approach was used to search through existing data collected by the United States Department of Education, other documents, published books as well as previous research studies of education on assessing meaningful learning with technologies. Case studies of four schools and / or counties which have introduced integration of technology education programs have been utilized.

Secondary sources were used. Data were examined for the relationship between technology and curriculum regarding how meaningful learning is assessed by teachers using technologies. Data collected from the United States Department of Education were analyzed for any reflections of patterns of improvement of schools, and/ or students as a result of technology on curriculum innovation and suggestions of future success have been made.

4. Data Analysis

The research question being addressed in this section is: how do teachers assess meaningful learning with technology? Assessment, (as cited in Jonassen, et al., 2008) is the process of gathering and analyzing data to determine if intended learning outcomes have been achieved (Gagne, Bridges, & Wayne, 1998). Cited in (Jonassen, et al., 2008, p. 219).

4.1. Illustrative Schools and / or Counties

In recent years the New Jersey Department of Education included literacy in her Core Curriculum Standards (NJCCCS) as another technology guideline. The preliminary draft had a section termed "workplace readiness skills" which sought to address technology and computer skills. (New Jersey Department of Education, 2004a).

4.2. Virginia: Fairfax County Public Schools

In Virginia's Fairfax County Public Schools, for example, a web-based system termed the Electronic Curriculum Resource Assessment Tool has been designed to create and access lesson plans, assessment tools, worksheets and others resources approved by the district. (www.edu.gov).

4.3. The Missouri Assessment Program (MAP)

Presently, statistics available show that students enrolled in e MINTS classrooms score higher than students who have not been enrolled in e MINTS and also low-income and special education students in e MINTS classes normally score higher than their non-e MINTS colleagues. The statistics stand as 232 Missouri districts, 10 Utah districts, 56 Maine districts, 2 Nevada districts, as well as 1 Illinois district, representing 1,000 classrooms and 22,500 students now take advantage of the e MINTS program offerings. Retrieved from <http://www.ncrel.org/sdrs/>

4.4. Cognition and Technology Group at Vanderbilt University (CTGV)

SMART Model: An example of embedding assessment strategies within extended – inquiry activities can be found in work pursued by the Cognition and Technology Group at Vanderbilt University (CTGV) on the development of a conceptual model for integrating

curriculum, instruction, and assessment in science and mathematics (Barron et al., 1995; CTGV, 1994, 1997) cited in National Research Council, 2001, p. 275.

4.5. Implications

Assessing meaningful learning can be done with technologies as evidenced in this section. This buttress and answers the question how teachers assess meaningful learning with technology. It is evident that with technologies in assessing meaningful learning the educational sphere would be better and also meet the ever changing faces of technology.

4.6. Summary and Conclusion

This study has looked at how teachers assess meaningful learning with technologies. It must be mentioned that due to the data examined were all secondary sources with technologies have been spelt out.

4.7. Limitations of the Study

The attempt to generalize the findings of this study is compromised by the following limitations. First, only secondary sources were used. Also the numbers of illustrative schools and/ or counties are few which makes it difficult to generalize findings to other educational settings, states and other countries.

4.8. Recommendations

"Teachers must be offered training in using computers," notes (Sulla, 1999),"but their training must go beyond that to the instructional strategies needed to infuse technological skills into the learning process." Retrieved from <http://www.ncrel.org/sdrs/>

Governments should, therefore, encourage teachers, students, educational administrators, heads of educational institutions, policy makers, regional directors of education, and district directors of education among others, with the provision of the necessary facilities needed for smoother incorporation of technology in almost all the spheres of life, and then create the awareness on the role technology plays in curriculum innovation and thus influence curriculum design and development at all levels of education in developing countries.

4.9. Concluding Remarks

Concluding, technology should be embraced at all levels of development, whether at the planning stage, implementation stage, and/ or evaluation stage. With the several merits of technology in almost all the spheres of life, one could only side with the many researchers that technology is here to stay and that life would be, probably, better off with a total integration of technology, in spite of the teething hitches that technology might seem to have in developing countries such as accessibility and / or reliability among others. Technology will light our path to a better life, rather than an invader and / or a challenge in its way.

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