A Teaching Suggestion in the COVID-19 Disease Pandemic Period:
The Educational Website Enriched by Web 2.0 Tools

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ABSTRACT

The effect of the COVID-19 pandemic shows that schools must adapt new approaches in order to continue to provide teaching and learning at schools. To achieve this, students must be equipped to learn in a multifaceted, multitasking, and technology-driven world, and the utilization of Web 2.0 tools has been revealed as important in this endeavor. The aim of this study is to introduce an educational website enriched with Web 2.0 tools designed for science teaching and in addition to show the effect on achievement and motivation. Therefore, the effect of an educational website supported by Web 2.0 tools on achievement and motivation was investigated in a quasi-experimental design with a pretest-posttest control group. The unit of "Force and Energy" was presented through an educational website enriched by Web 2.0 tools. The positive effects of using the website on the achievement and motivation of the students in the results brought to mind the use of an educational website supported by Web 2.0 tools as an alternative or support to online training during the COVID-19 pandemic.

KEYWORDS

5E Learning Model, Academic Achievement, Educational Website, Motivation, Science Teaching and Learning, Web 2.0 Tools

INTRODUCTION

The COVID-19 pandemic has shown people that in order to maintain the process of teaching and learning, schools must adapt to these changing conditions. Uncertainties regarding what will happen in the near future and how long this situation will continue remain. Therefore, authorities are looking for alternative education to create a sustainable situation. Nowadays, the development of information and communication technologies (ICT) and that these technologies are easily prepared have influenced all fields, including education (Mališů & Šaloun, 2020). Technology already has been used in education over many years, and now online education has begun to occupy a more significant place than ever. Due to the COVID-19 pandemic, existing education systems around the world have been suspended and a move toward online distance education has started. This means that students must be equipped to learn in a multifaceted, multitasking, and technology-driven world.

LITERATURE REVIEW

WEB-2.0 TOOLS

The internet has several critical roles in education as a learning environment. In the early days, the internet and particularly the web were a fixed structure, because there were no active viewers (Kaldoudi, Bamidis, Papaioakeim & Vargemezis, 2008). With the development of computer and internet technologies, web service has improved, and an important example of this is Web 2.0 tools, particularly as an approach to the delivery of education. The term social software is applied to Web 2.0 tools since they promote the switch from web readership to web literacy (Cin Şeker, 2020).

The concept of Web 2.0 was first used by Darcy Di Nucci in 1990, but it was O'Reilly and Dale Dougherty who popularized it in the following years (Moshahid & Pt, 2017). In 2003, O'Reilly Media referred to a new term called Web 2.0, which allowed easier sharing of information on internet. Social media applications, such as YouTube, MySpace, Facebook, Flickr, and Twitter, are examples of Web 2.0 technologies (Peltier-Davis, 2009). Briefly, the dynamic structure of Web 2.0 creates web technologies that are widely used today, providing fast and easy access to information, and offering information production opportunities (Çekinmez, 2009). Web 2.0 is not an upgrade of Web 1.0; it is a set of new technologies, tools and services that support group and community activities. The user is no longer a recipient, but a participant (Kaldoudi, Bamidis, Papaioakeim & Vargemezis, 2008). The next-generation Web 2.0 presents matchless opportunities for teaching and learning applications in the areas of collaboration, communication, inquiry, literacy, and personal expression (Drexler, Baralt, & Dawson, 2008). Web 2.0 tools are very important for teaching and learning, allowing students to learn better in school (Moshahid & Pt 2017). Web-based learning environments can be used as motivation, teaching, modeling, feedback and evaluation tools (Wijekumar, 2005). Web 2.0 tools ensure great occasions for education (Konstantinidis, Theodosiadou & Pappos, 2013), yet their application appear to be underused by teachers (Elmas & Geban, 2012). In addition, teaching with Web 2.0 tools provides students and teachers with a better chance of communicating, with teachers also being able to give their students quick feedback (Halili, 2018). By supporting learning as an enjoyable and experimental approach, Web 2.0 tools also offer students the opportunity to work outside school. In addition, with supporting interactive and collaborative activities, students are given learning environments suitable for the digital age (Olea, 2019). Today, people can easily engage in learning by inter connecting without time and place constraints due to the progress in information and communication technologies (Genç, 2010). Using of Web 2.0 tools in education is important, because of that Web 2.0 tools can be used to improve new learning strategies that can increase student motivation, participation, self-directed learning and simplify learning (Redecker, Punie & Mutka, 2008).

The results obtained from studies using Web 2.0 tools in education have shown that teaching with Web 2.0 tools is more successful than traditional methods, providing collaborative and active learning and increasing students' learning (Huang, Hood & Yoo, 2013; Baig, 2011; Bayrak Karadeniz & Bayram, 2012; Akgün, Özden, Çinici, Aslan & Berber, 2014; Ballıel Ünal, 2017; Karagöz & Korkmaz 2015; Çetin & Günay, 2010; Canan Güngören, 2019; Buluş Kırıkkaya, Dağ, Durdu & Gerdan, 2016; Ureña-Torres, Tenesaca-Luna, Arciniegas & Segarra-Faggioni, 2017), and web-based teaching and using of web 2.0 tools in education have positive effects on student motivation (Wang & Reeves, 2007; Balaman & Tüysüz, 2011; Akgündüz & Akınoğlu, 2017; Karahan & Roehrig, 2016; Durovic, Dlab & Hoic-Bozic, (2018).

Aim Of The Study

In the past years, online education was not preferred by teachers and students. The 2019 coronavirus disease pandemic (COVID-19) has particularly affected education and the economy in all countries (Rajab, Gazal, & Alkattan, 2020). At present, almost all countries carry out online education. But, in

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