Encouraging learner-centred approaches to foster students' creativity and innovation skills by implementing student-made e-books

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Abstract

According to the 21st key skills framework, in every subject, at every grade level, instruction and learning have to include commitment to a knowledge core, high demands on thinking, and active use of knowledge. As a consequent challenge, in order to improve the effectiveness and longevity of learning results, teachers are advised to implement well-designed learning activities and meaningful projects, fitting the students' interests, to boost students' multiple intelligences and strengths, trigger their intrinsic motivation, encourage students to work collaboratively and use pertinent tools to present their creations. Having implemented innovative applications in class, aiming at students achieving their own, new, not predefined creations, we propose the free tool 'bookcreator' and a five-step process for creating and publishing a collaborative e-book. The benefits of implementation in class and certain restrictions in use are discussed.

Keywords: learner-centred pedagogy, 21st century skills, project-based learning (PBL), creativity, e-books

1. Introduction

During the last decades, some progressive educational transformations have been developed in the form of a broader and more flexible curriculum and a more learner-centred approach to teaching and learning (Kalantzis, 2006). The research literature review, which aligns with student-directed pedagogy and the development of the 21st century skills, will provide a conceptual framework to clarify the objectives of this study, which focuses on the findings that project-based learning through meaningful tasks activates learners' intrinsic motivation, multiple intelligences potential, and creativity and innovation skills. Instead of staying inert, knowledge is seen as dynamic, ever changing with our experiences and learning becomes interactive. The learning process is equally important as the learners' product that we have selected to be a collaborative student-made digital book. Not only do students reflect on what they have

learned, but also on how and why, so they can build deeper connections. Also, the teacher's role shifts to be the facilitator who supports students to learn a set of strategies for elaborating and monitoring the understanding necessary for independent learning.

2. Theoretical framework

It has been noticed that traditional teaching methods are rather decontextualized from students' lived experiences, making the knowledge obtained in schools irrelevant to their lives. Since Dewey (1938) conveyed the benefits of experiential, hands-on, student-directed pedagogy, the project, learner-centred, method has been a long-standing tradition in education (Grant, 2002; Markham, et al. 2003). John Dewey emphasized that knowledge is not a steady state but rather is a process where experience interacts with previous knowledge and theoretical concepts in order to become learning.

Nowadays, abundant literature of emotional intelligence studies evidently demonstrate the advantages of students' disposition to be internally motivated to learn, contrasting to learning when it is depended on external factors, such as approval, performance or rewards (Goleman, 2005). Whenever students have an emotional connection to what is being learned—a personal experience or enquiry—understanding becomes deeper and learning can be sustained and retained longer (Elias & Arnold, 2006).

When collaborative/interactive teaching methods are used (Slavich & Zimbardo, 2012), and well-designed learning projects which fit to students' interests, passions and strengths are carried out, research findings illustrate that intrinsic motivation can contribute decidedly to active engagement, more profound understanding, and the longing to expand one's learning (Darling-Hammond, L., et al., 2008, Arends, 2004). Collaborative learning promotes the exchange and reflection on different views and thus students broaden their mindsets. As project work is carried out in small groups, learners train their capabilities for team-work and collaboration (Henze & Nejdl, 1997).

What is more, encouraging learner-centred approaches to match diverse learning styles and providing multiple ways for students to express their understanding, is highly essential for effective learning (Gardner, 1999). Therefore, teachers need to provide enough variety in the activities they use by encompassing less traditional learning modalities, such as kinaesthetic, visual, interpersonal, intrapersonal, musical, or naturalist. In addition, students are supported in the representation of their ideas by using cognitive tools, such as computer-based laboratories, hypermedia, graphing applications, digital images and so on.

The learner-centred approaches we put forward, empower both students and teachers to conduct research, integrate theory and practice, and apply knowledge and skills (Walker et al., 2015). Regarding the teacher's role, it mainly focuses on managing and facilitating the learning process, providing suitable feedback and, notably, the type of classroom environment that is conductive to creative learning. He/she becomes the

"guide on the side," who supports students' research, discovery, and sharing of their own findings in learning projects (Trilling & Fadel, 2009). Teachers who familiarise students with project-based learning (PBL), create tasks and conditions under which learners' thinking is being triggered– a co-creative and co-constructive process that involves inquiry, dialogue, and skill building throughout the project (Markham et al., 2003). Then, considering teaching as an improvisational process, points out the collaborative and emergent nature of effective classroom practice and indicates why teaching is a creative art (Sawyer, 2004).

3. The 21st century competencies

The new competencies needed for navigating education and the workplace in the current century have been labelled as the 21st century skills (Griffin, McGaw, & Care, 2012) and are characterized as being critical for functioning effectively in society (Griffin et al., 2012; Dede, 2010; Trilling and Fadel, 2009). Across the European key competencies and the American key skills frameworks, it is generally considered that collaboration, communication, digital literacy, citizenship, problem solving, critical thinking, creativity and productivity are essential for living in and contributing to our present societies (Voogt, & Pareja Roblin, 2012). They outline three sets of key skills, as follows:

- Learning to Learn and Innovate
- Information, media, and technology skills
- Life and career skills

Focusing on the first set of the 21st century skills, "Learning to Learn and Innovate", which are:

• Critical thinking and problem solving (expert thinking)

• Communication and collaboration (complex communicating)

• Creativity and innovation (applied imagination and invention),

we gather that the above-mentioned competencies can be fostered in the context of well-designed class projects.

Creativity, in particular, is a capacity that has been growing in importance as a key 21st century thinking skill (Wegerif & Dawes, 2004). The prominence has now shifted, from reproducing information and content, rather to content creation and sharing in virtual environments. Likewise, the locus of capacity has shifted to thinking, resilient individuals who connect with the sociability of collaborative learning, group work, emotional empathy, a holistic understanding of the global as well as local consequences of one's actions (Kalantzis, 2006). What is more, Reinking et al. (1998) argue on how the development of digital technologies changes the notions of text, of readers and

writers and eventually of literacy itself. Besides, Craft (2003) proposes to focus on "the creativity of everyday life which involves *"a life-wide resourcefulness which is effective in successfully enabling the individual to chart a course of action by seeing opportunities as well as overcoming obstacles"*.

A supportive climate for developing creative abilities and qualities can be created through the interaction between inventive and effective teaching (by the creative facilitator), and creative learning (by the active learner) (Lin, 2011).

4. Implementing "Book creator" in the matter of Project-based learning

The project approach provides a way to introduce a wide range of learning opportunities into the classroom, supported by Web 2.0 technology that enables users to produce and widely share content in new ways. Innovative technological tools available today for accessing, searching, analysing, storing, managing, creating, and communicating information to support students' creativity and critical thinking are stirring the 21st century skills angles. In this study, we are proposing a tool when teaching in any content areas, either Primary or Secondary classes, such as Languages, History, Environmental projects, civic education, STEM education and so on.

There are a lot of inspirational resources available for teachers, like the one illustrated below:
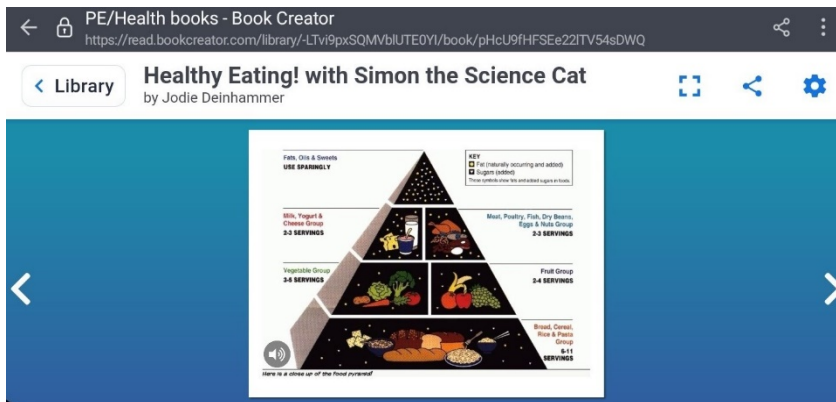
Picture 1. *The food pyramid, Healthy Eating project published by Jodie Deinhammer*

The "Book creator" may be used in project-based learning in the following simple steps:

Introductory Step. Pedagogical contract and Teambuilding

The students unanimously co-decide on the terms of regulating their collaboration. Also, the class discusses on the essential criteria that need to be met for the project to

be effective and students are invited to assume accountability. For this reason, the checklist proposed by the Buck institute for education may be used as a point of reference
(https://my.pblworks.org/resource/document/pbl_essential_elements_checklist)

Step 1. Brainstorming

Drawing on their subject knowledge, students begin by brainstorming possible chapter topics and then putting them in an order. This technique helps students generate diverse possible solutions (Sternberg, 2003).

Step 2. The writing process

Once the topics are distributed to the working teams, students launch the pre-writing stage by selecting relevant websites, reading the information they have collected, and taking notes to organise their ideas. Students use Google Docs and share their documents with the teacher who provides them with feedback, so as to support them to make sure that data/facts are accurate, to narrow information to their particular topic, to provide syntax and grammar corrections and incorporate appropriate transitions between the sections.

Step 3. Information ethics

The project of creating and publishing an e-book is an excellent tool to teach students digital citizenship. Students learn to create proper citations for texts and Creative commons images, or create their own photos, charts etc.

Step 4. The product

Students use Book Creator to produce their books. The final products are multi-modal, including text, audio, drawings, comic strip creation, speech bubbles, uploaded images -to make better sense of the text-, videos, interactive maps and hyperlinks, certain options to add symbols and even sign language. Students brainstorm several options for font style, colour and size, background colour of the pages, shape of the book. There is also the option "Read to me", thanks to which they may record a narrator's voice to accompany the visual content. Before importing text and images, they check each other's work (proofreading).

Step 5. Assessment

The teacher-facilitator provides constructive criticism on the process and the learners' quality of work by reading all documents at each drafting stage. Additionally, the students make self-assessments and exchange peer-assessments.

5. *Concluding Remarks*

Within our pedagogical vocation to prepare our students for life, we, teachers realize how essential it is to enhance their capabilities in creativity, innovation and critical thinking. Project work is unique to each class and this is what it makes it exciting, inspiring, and meaningful to learners (Moss & Van Duzer, 2005). Therefore, next-generation educational practices need to reinforce the development of the 21st century skills (Voogt et al., 2013) through project work in all subject areas, by defining valid, reliable, practical assessments of these skills, which are needed to fill the evaluation gap regarding students' abilities to transfer their understandings to real world situations, as well as their capabilities to respond effectively to teamwork competencies.

The tool "Book creator" empowers educators to meet the individual needs and interests of their learners, differentiate the learning experience accordingly and ensure that all students have an equal opportunity to learn. Learner-driven knowledge adequately meets the three guiding principles of the "Universal Design for Learning" (UDL) (CAST, 2018), which are: i) Engagement, ii) Representation and iii) Action & Expression. Thus, implementing "Book creator" can stimulate interest and motivation for learning across all subjects, offer creative means of presenting information and content and various possibilities to differentiate the ways that students express what they know. Apart from literacy and ICT skills development, this learning process may also enhance their psychological well-being, since students who contribute to the creation of a class-made book, feel a sense of ownership and self-worth. What is more, collaborative creativity prompts conversation among peers which provide feedback for growing. They take interest in one another's ideas rather than focusing only on their own perspective. Furthermore, the tool is an excellent means of inclusive practices, to support special education pupils. Digital portfolios can be used to document milestones and goals reached.

There are only three minor necessary restrictions to mention. First of all, the preferable option of sharing the product is to publish the e-book on line. Otherwise, by printing it out, we inevitably miss the multimedia functions. The second remark is that in "Book Creator online", a teacher can create a library and invite students to join; nevertheless, this feature is not available in Book Creator for iPad. Finally, each teacher starts off with one library for free that can accommodate up to 40 books. For more libraries and books there is a paid subscription.

Digital school is the new reality that students and teachers alike are required to integrate in their daily life. Teachers need to rise to the occasion to make teaching more interactive. The "Book creator" provides creative and enjoyable ways of exploring, presenting and sharing knowledge.

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Περίληψη

Σύμφωνα με το πλαίσιο των κομβικών δεξιοτήτων του 21ου αιώνα, σε κάθε μάθημα, σε κάθε επίπεδο τάξης, η διδασκαλία και η μάθηση χρειάζεται να περιλαμβάνουν προσήλωση σε έναν πυρήνα γνώσης, υψηλές απαιτήσεις στη σκέψη και ενεργό χρήση της γνώσης. Ως επακόλουθη πρόκληση, προκειμένου να βελτιωθεί η αποτελεσματικότητα και η διάρκεια των μαθησιακών αποτελεσμάτων, προτείνεται οι εκπαιδευτικοί να εφαρμόζουν καλά σχεδιασμένες μαθησιακές δραστηριότητες και πρότζεκτς με ουσιαστική σημασία, τα οποία να ταιριάζουν με τα ενδιαφέροντα των μαθητών, να ενισχύουν τις πολλαπλές ευφυΐες και τα δυνατά σημεία των μαθητών, να ενεργοποιούν τα εγγενή τους κίνητρα, να ενθαρρύνουν τους μαθητές να συνεργαστούν και να χρησιμοποιήσουν κατάλληλα εργαλεία για να παρουσιάσουν τις δημιουργίες τους. Από τις καινοτόμες εφαρμογές που έχουμε χρησιμοποιήσει στην τάξη, με στόχο οι μαθητές να επιτύχουν τις δικές τους, νέες, μη προκαθορισμένες δημιουργίες, προτείνουμε το δωρεάν εργαλείο «book creator» και μια διαδικασία πέντε βημάτων για τη δημιουργία και τη δημοσίευση ενός συνεργατικού e-book. Στη συζήτηση εξετάζονται τα οφέλη της χρήσης στην τάξη και ορισμένοι περιορισμοί.

Λέξεις-κλειδιά: μαθητοκεντρική παιδαγωγική, δεξιότητες 21ου αιώνα, μέθοδος πρότζεκτ, δημιουργικότητα, e-book