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21st century education: progress or doom?

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Abstract

The reflection on teaching methods is as old as the hills and it has encouraged the introduction of new strategies and methodological approaches, especially since the 17th century. A brief historical overview of the primary methods in language learning since then enables us to realise the underlying, persistent thought in educators' minds of all times that there must be a more complete, more perfect approach to provide pupils and students with success. Every new method presents itself as the ultimate answer for the painstaking question: How can we reach students and teach them something worthy of their future? Method after method, approach after approach dethrones the previous, proclaiming to the winds that it is the panacea for all evils and that a new dawn in education is to rise. However, we have yet to see this bright future of education, even if this constant struggle has fuelled our will to continue searching. In the 1970s, it was the communicative approach; a couple of decades later, project- and task-based learning. From the beginning of the new millennium on, technology has again been hailed as the definitive response, that enlightened manner to get hold of students' attention and lead them through avenues of budding success. It has been become fashionable to publicise surveys and case studies on the miracle advantages of using Twitter and similar technologies in the classroom, persuading us that we have finally found the answer. Nonetheless, various studies emphasise the harmful effects of the excessive use of screens, social networks and virtual reality. From our standpoint, this may be an attempt to use the same gadgets students do – and convince them that we are on the same side of the fence – though the truth is that we are no more than "another brick in the wall" and we often feel the bricks are tumbling down. Education may no longer be heading for progress but rather for doom. In our attempt to obey to the winds of change, we have perhaps neglected the importance of high standards and quality, content and practice, of the human contact to establish the liaison between knowledge and feelings. Bearing in mind these considerations, our aim is thus to reflect upon the future of education and where it might lead us.

Keywords: education systems; teaching methodologies and approaches; technology; the future of education.

Resumo

A reflexão sobre a metodologia de ensino tem estado sempre presente e incentivado a introdução de novas estratégias e abordagens metodológicas, especialmente desde o século XVII. Uma breve abordagem histórica dos métodos principais no ensino das línguas permite-nos compreender a ideia que subjaz aos educadores de todos os tempos: tem de existir um método mais completo e perfeito que torne os alunos um sucesso. Qualquer novo método apresenta-se como sendo a resposta última para a questão que persiste: como podemos alcançar os nossos alunos e ensinar-lhes algo útil para o seu futuro? Método atrás de método, cada um destrona o anterior, proclamando-se como a panaceia para todos os males e o início de uma nova era na educação. Contudo, ainda não vislumbramos este brilhante futuro, mesmo que esta luta incansável tenha sido essencial para esta procura de melhoria. Nos anos 70 do século XX, surgiu a abordagem comunicativa; umas décadas mais tarde, aparece o ensino por tarefas e baseado em projetos. Desde o início do novo milénio que a tecnologia tem sido apresentada como a resposta definitiva, a abordagem esclarecida que prenderá a atenção dos alunos e os conduzirá por novas avenidas de sucesso. Tornou-se também comum divulgar estudos centrados nas vantagens milagrosas do uso do Twitter, e tecnologias afins, em sala de aula, convencendo-nos de que a resposta tinha finalmente sido encontrada. Não obstante, outras investigações sublinham os efeitos

perniciosos do uso excessivo dos ecrãs, das redes sociais e da realidade virtual. Na nossa perspetiva, esta apresenta-se como uma tentativa de fazer uso das mesmas ferramentas que os alunos, e persuadi-los de que estamos unidos, quando de facto nada mais somos do que mais uma pedra do mesmo caminho e este parece estar a ruir. A educação pode já não estar a dirigir-se para o progresso, mas antes para a perdição. Na nossa tentativa de ouvir os ventos da mudança, talvez tenhamos ignorado a importância dos padrões de qualidade, do conteúdo e da prática, do contacto humano para estabelecer a ligação entre conhecimento e afetividade. Com base nestas considerações, o nosso objetivo é refletir sobre o futuro da educação e por onde este nos levará.

Palavras-Chave: sistemas educativos; metodologias e abordagens de ensino; tecnologia; o futuro da educação.

1 Introduction

Education is not the filling of a pail, but the lighting of a fire.
William Butler Yeats

I aim at attempting to understand the role of human teachers in the current state of education. As Yeats emphasises, teachers are not here to fill up buckets, but to spark students' interest and engagement. The questions I have been facing are as follows: Will human teachers be discarded in the future? Will technology, namely virtual reality and artificial intelligence, overpower us? Will that be the way to boost students' success in a highly competitive and demanding marketplace?

Throughout this paper, I seek to shed light on the relentless drive that has haunted teachers and educators to come across the 'perfect' teaching method, from ancient antiquity to the 21st century. The turn of the millennium marked an increasing interest in learning by doing, especially Task-Based Learning (TBL) and Project-Based Learning (PBL). In this context, we home in on the commonly accepted 21st century skills and how they should be encouraged in any classroom. Finally, while analysing the high hopes that rest upon technology, we intend to understand the real impact technology has had on education around the world. The standpoint in this paper will be on language learning methodology.

2 Brief overview of teaching methods

It is commonly accepted that education was always directed to the privileged classes from classical antiquity to the Protestant Reformation (Guisepi, s/d). Although the idea for universal education was then born, we would have to wait another three centuries for it to see the light around Europe: free and compulsory schooling, as Queen Victoria envisioned (interestingly a way to ward off the fear of a revolution). Regardless, the outset of this system was fraught with social inequality, since lower class children were regarded as a waste of money and resources, labeled as backward and daft, consequently widening the gap between academic and non-academic, intelligent and non-intelligent.

The reflection on teaching methods was nonetheless present at all times, in an attempt to chance upon the most complete and perfect approach to enable pupils to become knowledgeable and successful. From the moment the traditional method of grammar and translation started being popular at the end of the 18th century, reform movements came out as violent reactions. According to Stern (1991), the former was based on the presentation of the grammar rule, followed by a vocabulary list and translation exercises, thus being a deductive approach. Its procedures depended on short grammar lessons packed up with rules, highlighted and illustrated with examples pupils had to study and memorise, including exceptions. The latter approaches contradicted the supposed success and put forth alternative ones, such as the natural, the phonetic, the anti-grammar or the intuitive method (Melero Abadía, 2000).

These critical methods were grounded on three principles, from Howatt's perspective (1991): "the importance of discourse; the generalisation of texts connected with relevant topics; and the central place of oral methodology" (p. 171). There was clearly an attempt for language teaching to become inductive and to start focusing on other aspects apart from grammar rules, reading and translation.

However, the persistence of the grammar and translation method would find its way into the 20th century, when another milestone in the history of teaching methodology occurred: Audiolingualism, stemmed out of the "Army Method", the post-II World War American program for language learning (Bowen, s.d., p. 1), which reflected the influences of behaviorism in psychology and education (e.g. Thorndike) by means of pattern-drills.

In the following two decades, according to Nunan (1991), there came a myriad of humanistic methods, supported on Earl Stevick's thought, which stated that language classes were places of fear and should then become places of affection, individualisation and leisure. These were the silent way, suggestopedia, the community language learning and total physical response.

Notwithstanding, the most renowned approach of the end of the 20th century was undoubtedly Communicative Language Teaching (CLT), which developed an emphasis on communicative skills, as Larsen-Freeman (1987) states, by exercising functions in social contexts and not merely as the layering of vocabulary and syntactic structures. CLT organised language into functions and notions (rather than grammar structures), then integrated the importance of students' needs and, finally, introduced group work, task completion and meaning negotiation.

At the turn of the millennium, various formula-like approaches mushroomed, as Case (2008) upholds, such as the Present-Practice-Produce (PPP), the Test-Teach-Test, Authentic use-Restricted use-Clarification and focus (ACR), the Observe-Hypothesise-Experiment (OHE/III) or the Engage-Study-Activate (ESA), as well as other recent approaches, for instance Computer Assisted Language Learning (CALL) or Content and Language Integrated Learning (CLIL). Besides the increasing presence of technology, PPP has enjoyed considerable longevity in the language classroom, becoming more than an educational fad.

In a nutshell, throughout the history of teaching methods, the aim of language teaching has shifted from grammar items, rules and exceptions, and their application to translation tasks, to emotional engagement, oral skills and communication.

2.1 Learning by doing

Contrary to the overwhelming success of technology as a means to enhance learning and motivate students, the idea of learning by doing also gained ground after the height of the communicative approach. Despite a seemingly modern idea, the fact remains that "learning by doing" goes back as far as Confucius, Aristotle and Socrates, and was more recently stressed by John Dewey in his 1897-book "My Pedagogical Creed" (Kruger, 2015). As Boss (2011) points out, Dewey endorsed "learning that's grounded in experience and driven by student interest" (p. 4), challenging "the traditional view of the student as a passive recipient of knowledge (and the teacher as the transmitter of a static body of facts)" (p. 4). For this American psychologist, education should be life itself and thus bring about "active experiences that prepare students for ongoing learning about a dynamic world" (p. 4). Two other educators could be mentioned, namely Maria Montessori and her methodology directed to young children, as well as Jean Piaget's insightful approach to constructivism in education – the need for "asking questions, investigating, interacting with others, and reflecting on these experiences" (Boss, 2011, p. 6).

Therefore, and in line with this trend, it is worth mentioning Jane Willis, who proposed Task-Based Learning (TBL) in 1996, centred on the development of tasks, in which language is the main tool for the whole process of learning, and still considerably enticing nowadays. As a case in point, Richard Frost (2004) reports on his experience with TBL and assesses its advantages in comparison with PPP. According to Frost, TBL does not determine beforehand the language that is to be learnt. Students must complete a central task in accordance with what the teacher details: a pre-stage, where the teacher introduces the topic, provides instructions and shows a recording of people doing the intended task; the task itself, which must be completed either in pairs or in groups; the planning stage, when students plan an oral or written report to present to the class; the report stage, with occasional feedback from the teacher; the analysis which aims at highlighting relevant parts of students' presentations for them to analyse; and, finally, the practice stage when students practice the selected language areas to boost their self-confidence and knowledge. In Frost's opinion, TBL is "enjoyable and motivating", students

are free from language control because of the natural context that is set up, language arises from the students' needs and there is an undeniably strong communicative component.

In addition to TBL, Project-Based Learning (PBL) made considerable strides in the new millennium, being hailed as the grand discovery for the 21st century and elected as the underlying method of a considerable number of foundations, institutes, universities or schools, such as Edutopia (George Lucas Educational Foundation), BIE (Buck Institute for Education) and the Project Approach for Aalborg University in Denmark.

I will now concentrate on PBL applications by two institutions. One such example was retrieved from a brochure published by the First State Military Academy, where readers are apprised of the constructivist approach, an "innovative [approach] by its emphasis on collaborative learning" (Goodman, 2010, p. 2). According to this, students work on a project over an extended period that can range from one week to a whole semester, engaging around a life-like problem or challenge. They must not only get to know the contents, but also develop skills, designing the process to cater for their needs and lead them to a solution, which requires the use and development of 21st century skills, namely divergent and creative approaches to their initial problem. Hence, they work independently and are bound to make choices by themselves or in their groups, reflecting and encouraging a tolerant atmosphere to error and change. In this context, teachers are no more than facilitators and coaches. Goodman (2010, p.3) qualifies TBA using the following adjectives: fruitful, effective, resultant, practical, serviceable and susceptible to develop 21st century skills.

According to BIE's website, because PBL "yields great results" (Larmes & Mergendoller, 2015a, para. 2), teachers must be rigorous when adopting it, encompassing three parts: student learning goals, essential project design elements and project-based teaching practices. Figure 1 presents the essential elements.

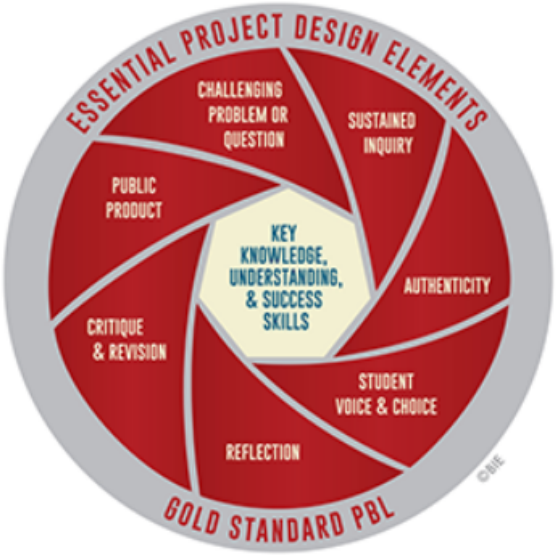

Figure 1: Essential project design elements according to BIE (Larmes & Mergendoller, 2015a).

From Larmes and Mergendoller's (2015a) perspective, student learning goals focus on acquiring knowledge and understanding, as well as developing key success skills, dubbed 21st century skills. As for the essential project design elements, they encompass seven features (Larmes & Mergendoller, 2015a). First and foremost, students must be provided with a challenging problem or question that will make their learning meaningful because it stems from a real need to actually come up with the answer. Secondly, a sustained inquiry must follow: students seek information and investigate in an active and in-depth manner, which consists of an iterative process because not only does it involve a diversity of sources, but also stimulates the equation question → answer → deeper questions. Another relevant characteristic lies in authenticity or real-world learning and to achieve this the selected problems must

have a real impact on others, allow the creation of a product to be used by others and/or deal with students' own concerns, interests, cultures, identities and the like.

In the whole process, teachers must ensure that students maintain their voice and choice, enabling them to have a sense of ownership that makes them care and work harder. Of the utmost importance are two other elements: reflection and critique/revision. The former leads students to ponder on the what, how and why, and may also include project journals, scheduled formative assessment, discussions at project checkpoints and public presentations, whereas the latter implies that students must become familiar with giving and receiving constructive peer feedback, which might include adults and experts other than teachers contributing to the ritique process – "bringing an authentic, real-world point of view" (Larmes & Mergendoller, 2015a, p. 15). Finally, students create a public product (either something tangible or a presentation) to be delivered to an audience outside the classroom and provide this process with a social dimension and visibility. From Larmes and Mergendoller's (2015a) viewpoint, this also fosters a positive attitude towards the community, as "a classroom, school or district opens itself up to public scrutiny" (p. 18).

Regarding the abovementioned teaching practices, Larmes and Mergendoller's (2015b) identify a set of seven practices: design and plan the project and its implementation; align to standards (or national guidelines); build the culture, leading to students' independence, growth, inquiry and team work; manage activities, aiding students in organising their tasks, schedules, resources and products; assess their learning; and engage and coach students. In order to accomplish these aims, teachers must resist the temptation of using "off-the-shelf curriculum materials" (Larmes & Mergendoller's, 2015b, para. 1) and learn to give up some of the control of the classroom, by also trusting students more.

A question might arise: what distinguishes TBL from PBL? According to Bilsborough (2013, para. 4, 9-10), despite their similarities, TBL concerns itself with the task and how to complete it, thus language becomes an instrument of communication. In addition, there is no correct answer and students decide the manner in which to carry through the task. As for PBL (Bilsborough, 2013, para. 10-11), it is mainly defined by its various degrees of complexity and the emphasis on real communication, authentic situations, entitling students to make use of a wider variety of language. PBL takes TBL to a higher level: instead of devoting a lesson or two, PBL may take a whole semester or even a year, depending on the intricacy of the project.

2.2 21st century skills

Currently, the majority of pupils and students were born at the end of 20th century or even at the start of the new millennium, which means they are strikingly different than previous generations, as far as learning is concerned. This gives rise to a set of very pertinent questions: How can we reach millennial students? How can we motivate and engage them in a stubbornly traditional educational setting? How can we teach them something worthy of their future?

It has become commonplace to debate the issue of 21st century education and how this differs from education in the previous century. One such example is put forward by the "21st century skills map", drafted by the Partnership for 21st century learning and the American Council on the Teaching of Foreign Languages (2011). Figure 2 summarises the main differences.

In present times, instead of learning about language, students are supposed to learn by using language, since teaching has become learner-centred (hence receptive to TBL or PBL) and skills are no longer presented in an isolated manner, but rather integrated, emphasising the interpersonal, interpretative and presentational modes. Although there is no mention as to whether coursebooks are actually abandoned, the focus should be on thematic units supported by authentic resources, enabling students to bloom as doers and creators, as opposed to the old fact-spillers. Technology is regarded as an enhancer (and not necessarily THE method as such) and language as a vehicle to learn about other areas of knowledge and to achieve real-world tasks. Language is to be used not only inside the classroom, but also in out-of-class contexts and students are expected to share and advertise their work to the local community, be it school or not.

The underlying rationale for this change in paradigm lies in the belief that what is today considered to be true may be proved false tomorrow and students might be studying for jobs that do not yet exist. Hence, teaching ought to be skills-related instruction: scaffolding students to find, interpret and

IN THE PAST	TODAY
Students learned about the language (grammar)	Students learn to use the language
Teacher-centered class	Learner-centered with teacher as facilitator/collaborator
Focused on isolated skills (listening, speaking, reading, and writing)	Focus on the three modes: interpersonal, interpretive, and presentational
Coverage of a textbook	Backward design focusing on the end goal
Using the textbook as the curriculum	Use of thematic units and authentic resources
Emphasis on teacher as presenter/lecturer	Emphasis on learner as "doer" and "creator"
Isolated cultural "factoids"	Emphasis on the relationship among the perspectives, practices, and products of the culture
Use of technology as a "cool tool"	Integrating technology into instruction to enhance learning
Only teaching language	Using language as the vehicle to teach academic content
Same instruction for all students	Differentiating instruction to meet individual needs
Synthetic situations from textbook	Personalized real world tasks
Confining language learning to the classroom	Seeking opportunities for learners to use language beyond the classroom
Testing to find out what students don't know	Assessing to find out what students can do
Only the teacher knows criteria for grading	Students know and understand criteria on how they will be assessed by reviewing the task rubric
Students "turn in" work only for the teacher	Learners create to "share and publish" to audiences more than just the teacher.

Figure 2: The language classroom then and now (P21 & ACTFL, 2011, p. 4).

use data, since information is readily available everywhere, ignoring the need for teachers lecturing on content (Edglossary, 2016).

Consequently, the new features of 21st century education are encompassed by the umbrella term '21st century skills' or the '4 Cs' – communication, collaboration, creativity and critical thinking. These new skills should "reflect the specific demands that will be placed upon them [students] in a complex, competitive, knowledge-based, information-age, technology-driven economy and society" (Edglossary, 2016).

To begin with, critical thinking (CT) has been around for a few decades, with authors such as Lipman (1984, 1988), Ennis (1989) and Faccione (2015), writing prolifically about the topic (cf. Martins, 2016, 2017). CT comprises problem solving, managing and analysing information, reasoning, interpreting and synthesising so as to create a solution. As for creativity, it is associated with artistry, curiosity, imagination, innovation and personal expression and endorses the chance to build and innovate by providing autonomy to make choices. In terms of collaboration, it should foster respect and tolerance, offer the opportunity for group work, comprehending leadership, cooperation and use of virtual environments. Lastly, communication creates a language-rich environment and needs to occur in both oral and written format in an effective manner. (cf. National Education Association, 2010). Figure 3 synthesises the features that define 21st century skills.

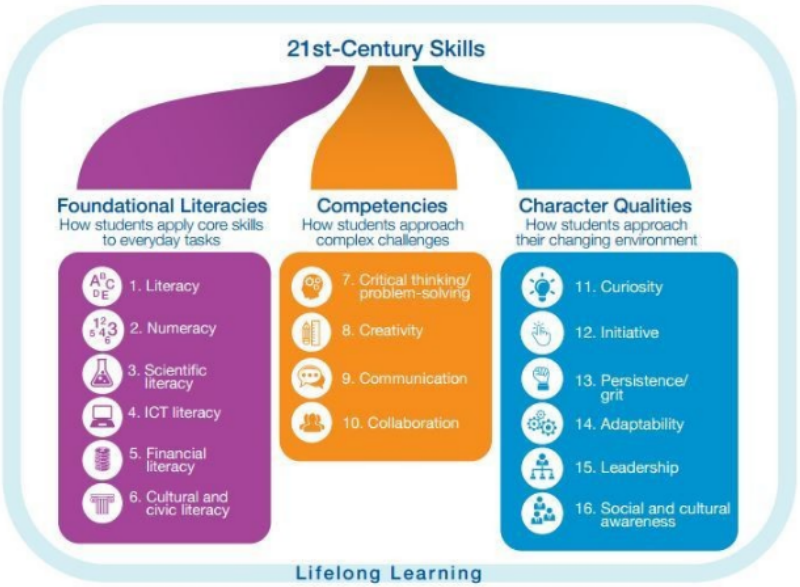

Figure 3: 21st century skills (World Economic Forum, 2015).

The aforementioned P21 (2007) presents another perspective to 21st century learning, as can be seen in Figure 4, according to which the arches of the rainbow represent the expected student outcomes, whereas the pools depict the support systems.

Reading the student outcomes clockwise (P21, 2007), they include life and career skills (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility), the 4 Cs referred to above, information, media and technology skills (and their respective literacies) and the core subjects and 21st century themes (English, reading or language arts; world languages; arts; mathematics; economics; science; geography; history; government and civics; global awareness; financial, economic, business and entrepreneurial literacy; civic literacy; health literacy; and environmental literacy).

As far as the support systems are concerned, they aim at ensuring students' mastery of skills throughout the layers represented in Figure 4. A selection of points highlighted by P21 (2007) comprises the following: enhancing deep understanding and multiple measures of mastery; providing students with a balanced assessment, interdisciplinary themes, innovative learning methods and cross-content integration; and allowing them to design portfolios and share their knowledge.

Taking the aforementioned into account, 21st century students face significant challenges: prospects are not as positive as most might think or expect. A lot more is demanded from students, especially because with greater ownership comes greater responsibility over their personal learning.

3 Technology: friend or foe?

It is generally acknowledged that education nowadays is infused with technology, but the question remains whether it is to be regarded as a friend or a foe. Regardless of the fact that technology can be seen as the overall methodological approach or one other tool or resource in the classroom (Technology Enhanced Language Learning or TELL), the truth remains hidden beyond the hype; there is still much we do not fully comprehend about the impact of technology.

I will consider the different perspectives of various authors – from the "cheerleaders" to the more cautious – in order to attempt to reach some tentative conclusions about the role of technology.

Britland (2013) belongs to the over-optimist group, propounding that, in the future, learning will be social, certainly different from traditional social interaction. Schools might have "traditional cohort[s] of students" (Britland, 2013, p. 5) along with others online from all over the world, a trend that started with the Massive Open Online Courses (MOOCs). For Britland, the cloud will be the future,

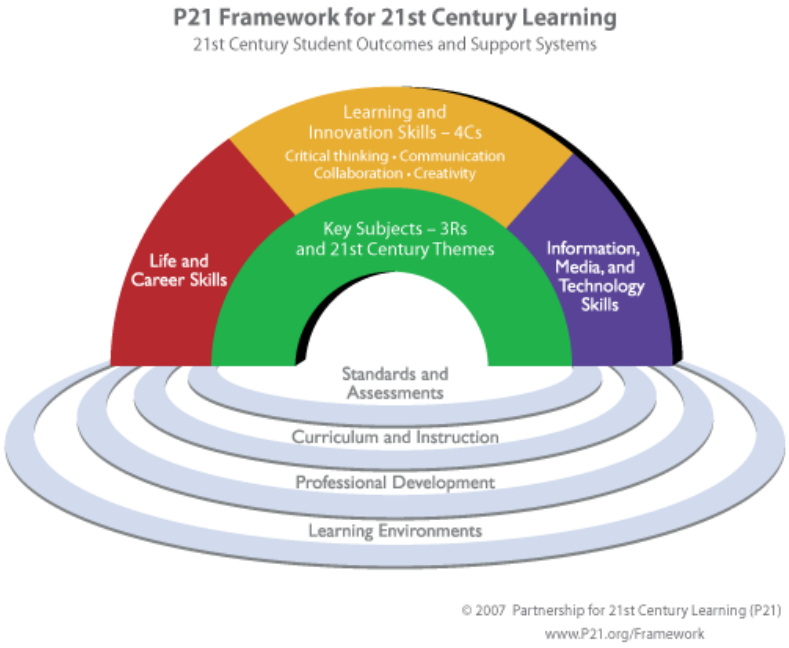

Figure 4: P21 Framework for 21st Century Learning (2007).

a platform facilitating teachers to set, collect and grade work and students to access and comment. Students' sense of ownership over their own learning will be enhanced also by the massive amount of resources available, without teachers' intervention, hence their role must change.

In addition, Vickers (2017) states that technology is moving fast and society must follow suit, and goes on to list the technologies that have already been established in the educational context: tablets and smartphones; wi-fi and connectivity; gamification; and virtual reality along with immersive learning experience. In line with this tendency, Wadhwa (2018) advocates that the future of education is virtual and reports on the experiment of Clifford, the digital tutor, and Rachael, the human coach. This experiment reveals of most of the human contact in the education setting will be removed, since learning will occur when students place their virtual helmets and engage with a virtual tutor.

Less radical though equally optimistic, Bernard (2017) reports on studies conducted by Greenberg (CEO of Silicon Schools), stating that technology allows for the accommodation of "unique learning styles" (p. 4). By replacing coursebooks, technology offers adaptive learning software, but in no way does it replace the teacher's role; rather it gives them "greater freedom and license" (p. 12), because it consists of a means to an end. However, for Greenberg (Bernard, 2017), technology is not the "silver bullet solution": despite the current optimism, no convincing evidence about its undeniable effectiveness has been given. This is also the reason why the Rachel experiment presented above may entail a rather dystopian morrow.

As for Coughlan (2015), this author outlines the results put forth by OECD, according to which technology in education "has raised too many hopes" and we must not throw caution to the wind. According to OECD's report:

> Students who use computers very frequently at school get worse results
> Students who use computers moderately at school, such as once or twice a week, have "somewhat better learning outcomes" than students who use computers rarely
> The results show "no appreciable improvements" in reading, mathematics or science in the countries that had invested heavily in information technology
> High achieving school systems such as South Korea and Shanghai in China have lower levels of computer use in school
> Singapore, with only a moderate use of technology in school, is top for digital skills (Coughlan 2015, p. 3)

These outcomes are undoubtedly food for thought. If, on the one hand, there are significant numbers of educators who seek to rely on technology as the way forward, on the other hand, these conclusions are baffling and apparently unpredictable. Andreas Schleicher (Coughlan, 2015, para. 18), OECD's education director, cautions us that this technological frenzy has amplified the socio-economic divide between students, rather than narrow it as expected. He adds that "making sure [that] all children have a good grasp of reading and maths is a more effective way to close the gap than 'access to hi-tech devices'" (Coughlan, 2015, para. 19) and, as a result, technology in the classroom "can be a distraction and result in pupils cutting and pasting "prefabricated" homework answers from the internet" (Coughlan, 2015, para. 20). "[D]eclines in reading performance" were even identified in Australia, New Zealand and Sweden. However, Schleicher (Coughlan, 2015) does not propose that technology be forsaken, but rather that a more effective approach be found.

All in all, and in spite of the high expectations placed on technology as the next, and probably the last, methodological approach, we still know very little about the impact it can have on people, particularly in educational contexts.

4 Conclusions

Teachers, throughout history, have borne much of the responsibility for applying the 'best' teaching approach, without a consensus on this issue having ever really being reached. Method after method, this constant search showcases an evolution that ranges from the traditional grammar and translation method to TELL. Our aim was to try to grasp what lies ahead as far as education is concerned. Are teachers to disappear? Is technology going to take over? Is Clifford to be the teacher of the future and are teachers to be mere Rachels?

In spite of the ubiquitous optimistic perspectives towards technology, regarding it as the desideratum for the survival of education, studies conducted by OECD (Coughlan, 2015) demonstrated that caution must be taken by decision-makers and no thorough perspective on the impact of technology has been gained. Presently, technology can still turn into a distraction for students and enhance social divides, thus much more needs to be invested in the implementation process of such resources in schools. Notwithstanding, were technology to maintain its current course, teachers would very likely disappear and education would certainly become virtual, in line with ed-tech cheerleaders' beliefs.

Regardless, one thing is certain: the responsibility for learning today relies more in students than ever before. In the words of Brengard (2017, p. 9), "21st century learning is a right, not a privilege" and this is the step we have not yet seemed to take.

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