Reflective practice

Learning autonomy, digital learners and Google Education: a rhizomatic English syllabus framework

Samia Kara
German University in Cairo, Egypt
_____
samia.kara@guc.edu.eg

Abstract

Exploiting the free technology empowering services with which Google supplies the educational field, the present paper contributes a Google Education mediated syllabus framework to the field of teaching English as a second/ foreign language. Through a systems approach methodology, the framework addressed the concepts of 'learner autonomy' and 'digital learners' within the scope of its consecutive blocks: conceptualisation, planning and development. The relevance of this effort is to be seen in terms of bridging the ever-growing gap between the classroom and the digital world of web 2.0 learners; as well as enabling the teachers to contextualise the proposed tool with regard to their syllabi development, renewal and adaptation.

Keywords: English as second/foreign language, learner autonomy, digital learners, syllabus framework, Google Education.

1. Introduction

Analysing data in relation to learning reported by the Programme for International Student Assessment in 2012, the OECD (2016) explained that the introduction of digital technology did not lead to the expected efficiency as the emphasis was mainly on technology and connectivity. Indeed, what needed to be explored, according to this source, are gaps in teachers/learners' digital skills, shortage in clarity in relation to learning goals, resource and software selection, as well as unsatisfactory readiness for blended learning-based lessons and syllabi.

Within the scope of English as a second/ foreign language (ESL/ EFL) teaching, the above-mentioned challenges do apply as well; especially with the advent of web-driven learners for whom digital devices and internet have become a must. Although many teachers have already succeeded in turning their classrooms into web-based environments, a deep understanding of the nature of these learners' needs as to autonomy and digital learning is always a gain. To benefit from opportunities presented by the internet without getting lost in the midst of this information ocean, this understanding is supposed to respond to the aforementioned challenges.

The aim of the present paper is to suggest a framework that is based on 'learner autonomy' and 'digital learning' to be followed for the sake of turning classrooms into Google Education mediated environments through syllabus design, renewal and adaptation.

The methodology that was adopted is founded upon the systems approach which 'denotes a collection of procedures directed toward the engineering of specific "real world" effects' (Stowe, 1973, p. 166). More precisely, the synthesis dimension of these procedures was adopted in order to meet the problem-solving nature of the systems approach. Thus, the learning situation is not regarded as a sole outcome in terms of individuals, activities and goals, but that of the synergy of the parts of a whole. In other words, the teacher goes

beyond content delivery, aiming to recognise learners as important constituents of the classroom system.

Subsequently, the following questions guided this endeavour:

- What do teachers need to know in relation to learner autonomy and digital learners?
- What do teachers need to focus on at the planning stage of the syllabus in relation to needs, stakeholders and teaching methodology?
- What type of learning outcomes, contents and tasks, aids (Google Education platforms) and assessment do teachers need to select to develop the syllabus?

2. Learner autonomy

The European efforts that were made to meet the late 1960s social and political changes, culminated in the creation of bodies like the Council of Europe Modern Languages Project, whose main goal was to provide a lifelong learning based on the interwoven elements: education, individual liberty and social obligation (Gremmo & Riley, 1995). For its part, the University of Nancy 'Centre de Recherches et d'Applications Pédagogiques en Langues: CRAPEL' (Centre for Research and Applications in Language Teaching) facilitated the admission of the concept of autonomy to the arena of language learning in the early 1970s (Benson, 2013). This effort was thanks to its founding father Yves Châlon, who died just afterwards and was replaced by Henri Holec (Benson, 2013).

Holec, in a co-authored article that appeared in 1973, associated the concept of autonomy in learning to adults' specificities who relate their ambitions to their learning possibilities (Cembalo & Holec, 1973). Thus and at that time, the pivot around which autonomous education was revolving was the adult who, by virtue of his/her new role as a learner-teacher was supposed to fulfil a set of tasks Holec (1981, p. 3) stated in his bedrock definition of learner autonomy (LA):

> ability to take charge of one's learning... to have, and to hold, the responsibility for all the decisions concerning all aspects of this learning, i.e.:
>
> - *determining the objectives,*
> - *defining the contents and progressions;*
> - *selecting methods and techniques to be used,*
> - *monitoring the procedure of acquisition properly speaking (rhythm, time, place, etc…),*
> - *evaluating what has been acquired.*

LA is sometimes associated with independent learning although the latter has mainly to do with behaviour and active obligation (Morrison, 2011). Another association is that of self-determination, whereby LA is perceived as an authentic engagement on the part of the learners to proceed with learning and in agreement with peripheral potencies of learning contexts (Willems & Lewalter, 2012). Thus, LA is a capacity to be revealed in both learning and learning transfer (Little, 1991).

Accordingly and as a construct, LA depends heavily on the spatial/cultural/temporal contexts where it is practiced (Lamb, 2017). All in all, it emphasises external factors, which help learners endorse responsibility for the various learning process facets, and internal ones, which prepare learners to accept responsibility (Jiménez Raya and Lamb, 2008, p. 64; cited in Lamb, 2017, p.187).

In fact, while the first trend depicts a system wherein LA is enacted while learning a language takes place following CRAPEL's self-access learning perspective; the second one emphasises components of cognition and psychology (Lamb, 2017). Thus, LA is redefined according to these individual components as a capacity to detach oneself, to reflect critically, make decisions, and act independently (Little, 1991).

For Candy (1991), LA is a manifestation of self-management (mastery of the learning process) and self-determination (an individual's readiness to accomplish learning). If both perspectives of LA are met, then, self-directed learning takes place. Self-directed learning is based on the notion of personal learning projects being fuelled by the learners' determination and ability (Bouchard, 2012). Bouchard (2012) further used another nomenclature to speak of the same dichotomy in terms of dimensions. He used

'algorithmic/procedural dimension' for self-management and 'conative/psychological dimension' for self-determination. He also proposed to add two other dimensions: the 'semiotic dimension', whereby specificities of modern communication such as social networking and learners' preferences are to be taken into account, and the 'economic dimension', whereby the learner is compelled to choices as to the actual value granted by online programmes (Bouchard, 2012).

Owing to the principle of 'taking one's learning in charge', LA is very much associated with learning strategies (LSs). According to Oxford (2008, p.52), L2 LSs can be metacognitive for the sake of directing learning like planning and evaluating, affective such as motivating oneself and dealing with negative emotions, cognitive like analysing and synthesising for the sake of L2 mental handling and cognitive schemata creation, and social-interactive such as collaborating and detecting sociocultural aspects.

LA is seen in terms of seven levels in Nunan's (1997) proposed framework. The first of these levels is awareness whereby learners are made conscious of the aims and are required to match strategies with tasks and come up with their own. Then, there is involvement whereby learners choose goals and tasks from provided lists. Thirdly, there comes the intervention level whereby learners actively adapt the goals and content as well as tasks. Fourthly, there is the creation level whereby learners formulate their own goals and tasks. The last level is the one of transcendence whereby learners play the role of teachers and researchers and go outside the classroom to relate what they have learnt with the outside world. Whereas cognitive LSs should be made co-existing with the awareness, involvement, intervention and creation levels, the social-interactive LSs are to be targeted at the transcendence level. For their part, both metacognitive and affective LSs target all the levels.

3. Digital learners

Generational dissimilarities go back to studies highlighting differences among generations which are sealed in shared experience, life experiences and common standards (Torocsik et al., 2014). Consequently, the categorisation of individuals into cohorts had to be age based and linked to three criteria: individual social and economic features, an authority/stimulus/vision-based environmental impact and a cohort expertise (Torocsik et al., 2014). In addition, generational segmentation could also have been subject to more precise factors than age but which are still related to it like awareness of membership, shared beliefs and conduct, and shared coordinates in history as to meaningful tendencies and happenings (Howe and Strauss, 2000; cited in (Torocsik et al., 2014).

Figure 1 shows different generations. The first of these is the generation of the Silent/ Traditionalists/ Matures/ Veterans, whose members do not exceed the year 1946 in terms of birth. It is followed by the Boom/ Baby Boomers/ Baby Boom Generation (1943-1960). Then, there comes the third generation, namely, the 13th Generation/ Generation X/ Gen-Xers (1961-1981). The fourth generation is labelled Millennial Generation/ Echo Generation/ Baby Buster/ Gen-Y/ Digital Generation and NeXters (1981-2000).

Source	Labels				
Howe and Strauss (2000)	Silent Generation (1925–1943)	Boom Generation (1943–1960)	13th Generation (1961–1981)	Millennial Generation (1982–2000)	—
Lancaster and Stillman (2002)	Traditionalists (1900–1945)	Baby Boomers (1946–1964)	Generation Xers (1965–1980)	Millennial Generation; Echo Boomer; Generation Y; Baby Busters; Generation Next (1981–1999)	—
Martin and Tulgan (2002)	Silent Generation (1925–1942)	Baby Boomers (1946–1960)	Generation X (1965–1977)	Millennials (1978–2000)	—
Oblinger and Oblinger (2005)	Matures (<1946)	Baby Boomers (1947–1964)	Gen-Xers (1965–1980)	Gen-Y; NetGen; Millennials (1981–1995)	Post-Millennials (1995–present)
Tapscott (1998)	—	Baby Boom Generation (1946–1964)	Generation X (1965–1975)	Digital Generation (1976–2000)	—
Zemke et al. (2000)	Veterans (1922–1943)	Baby Boomers (1943–1960)	Gen-Xers (1960–1980)	Nexters (1980–1999)	—

Figure 1. Generations (Reeves & Oh, 2008, p. 296).

The post 1995-2000 natives and who are of interest to this paper came after the Gen-Yers. According to Marshall (2018), they are called Net Generation (Tapscott, 2009), Digital Natives (Prensky, 2001), Smart Mob (Rheingold, 2002), Screen Agers (Rushkoff, 2006) and Google Generation by Rowland et al. (2008). At the personal level, the members of this generation are characterised by being freedom, customisation and personalisation lovers; scrutiny, integrity and openness impregnated minds; amusement and speed seekers; collaboration and relationship representatives, and innovators (Tapscott, 2009). As such, they are more or less active participators in decision-making processes related to their lives. At the level of information treatment, they rely on interaction and creativity in the way they collect, take and remember information (Daley, 2001). In addition, and as maintained by Bennett et al. (2007) –relying on research by Frand (2000), Oblinger & Oblinger (2005), Prensky (2001) and Tapscott (2009)–, these learners are portrayed as multitasking, active experiential and reliant on technology for information use and communication.

Although the above descriptions tried to depict the digital natives as accurately as possible, they have been criticised by several scholars. In fact, the disapproval was mainly due to the extremist nature of the differentiation made between young and old learners regarding learning online, the heterogeneity of the present generation, the prior existence of multitasking, the existence of accurate differences as to technology usage in each generation and the fact that older generations are discarded from technology (Crook and Harrison, 2008; Vaidhyanathan, 2008; Kennedy, Judd, Dalgarnot & Waycott, 2010; cited in Wheeler & Gerver, 2015).

In an attempt to bridge the gap, White and Le Cornu (2011) proposed a continuum 'Digital Residents-Digital Visitors' whereby both young and old learners can find a suitable situation. According to these authors, a digital resident is the one who perceives the web as mainly a network of people or groups of people who produce information; whereas, a digital visitor is the one who realises that the web is a set of devices that help in delivering or manipulating content.

Because of the previous debate, Gallardo-Echenique et al. (2015) proposed to shift the denomination to 'Digital Learners' (DLs) to target a group of individuals as technology conscious learners (not persons) who are not subject to any generational limits. These individuals live in a world immersed in technology and use the latter both formally and informally to attain knowledge. To understand these learners, Siemens (2004) proposed connectivism, which is: 'the integration of principles explored by chaos, network, and complexity and self-organisation theories' (Siemens, 2004, Para. 21).

Cormier (2008) talked of a different model in reference to the concept of rhizome, which is a plant whose roots grow in an independent manner. Metaphorically, the rhizome is the present knowledge network which is available online and to which individuals in varying communities add their nodes (Cormier, 2008). Thus, the syllabus is built cooperatively by communities of learners who are implicated in the learning mechanism (Cormier, 2008). This opens the door to two other notions that are in very close association with digital learning and rhizomatic education, namely, 'Heutagogy' and 'Paragogy'. According to Wheeler and Gerver (2015), Heutagogy was introduced by Hase and Kenyon (2007) to refer to a form of learning that is (in)formal and self-determined and which targets meta-learning. Paragogy, for its part, is related to DLs as co-builders of their educational content (Cornelli & Danoff, 2011; cited in Wheeler & Gerver, 2015).

Another concept that is very important to DLs is 'Digital Skills' (DSs). DSs exceed attaining, creating and sharing information as they target the latter in terms of processing and critical evaluation for the sake of problem solving (Fau & Moreau, 2018). They must be understood within the frame of constant change and evolution that go hand in hand with technology advancement (Fau & Moreau, 2018). DSs are various and are classified by Steayaert and De Haan (2001, cited in Fau & Moreau, 2018) into instrumental –using technology tools, structural/informational– targeting online information in terms of comprehension, interpretation and evaluation, and strategic – practical transfer of knowledge for the sake of influencing personal as well as professional spheres. Another classification is that of Eshet-Alkalai (2004, cited in Fau & Moreau, 2018) who gathered DSs in the form of literacies under the umbrella of 'digital literacy' including photo-visual

(comprehending visuals), reproduction (reusing data creatively), information (evaluating data), branching (comprehending media), and socio-emotional (online behaviour).

4. LA, DLs and learning English as a second/foreign language

Because DLs have, in one way or another, an already existing familiarity with the internet and technology, they show a readiness for LA. Thus, and as stated by Boulton et al. (2008), they ought to be capable of taking responsibility for their learning regarding goals and objectives, contents and resources, methods and techniques, learning organisation as well as evolution assessment.

4.1. Bloom's digital taxonomy

Originally, Bloom (1956) with his group of educationists- and in an effort to develop a basis for educational goals designed for curriculum/course development, presented a hierarchical taxonomy of categories targeting simple to complex and concrete to abstract learning outcomes: knowledge, comprehension, application, analysis, synthesis and evaluation. A revised version was made by Anderson et al. (2001) and included the categories in the verb form: remember, understand, apply, analyse, evaluate and create which were arranged into a continuum: lower order thinking skills (LOTS) - higher order thinking skills (HOTS):

The advent of technology was behind new attempts to update the taxonomy again. One of the most notable ones was Churches' (2008) concept of digital taxonomy that builds upon Anderson et al.'s (2001) revised form of Bloom's taxonomy and takes it steps ahead by including digital objectives. For example, and as displayed in Figure 2, the category of creating, which included sub-skills such as planning and producing, includes now sub-skills like programming, filming, and blogging. The new taxonomy also includes collaboration elements such as commenting, emailing and instant messaging. An updated form of this taxonomy is available in the form of a poster on [wabisabizen.com].
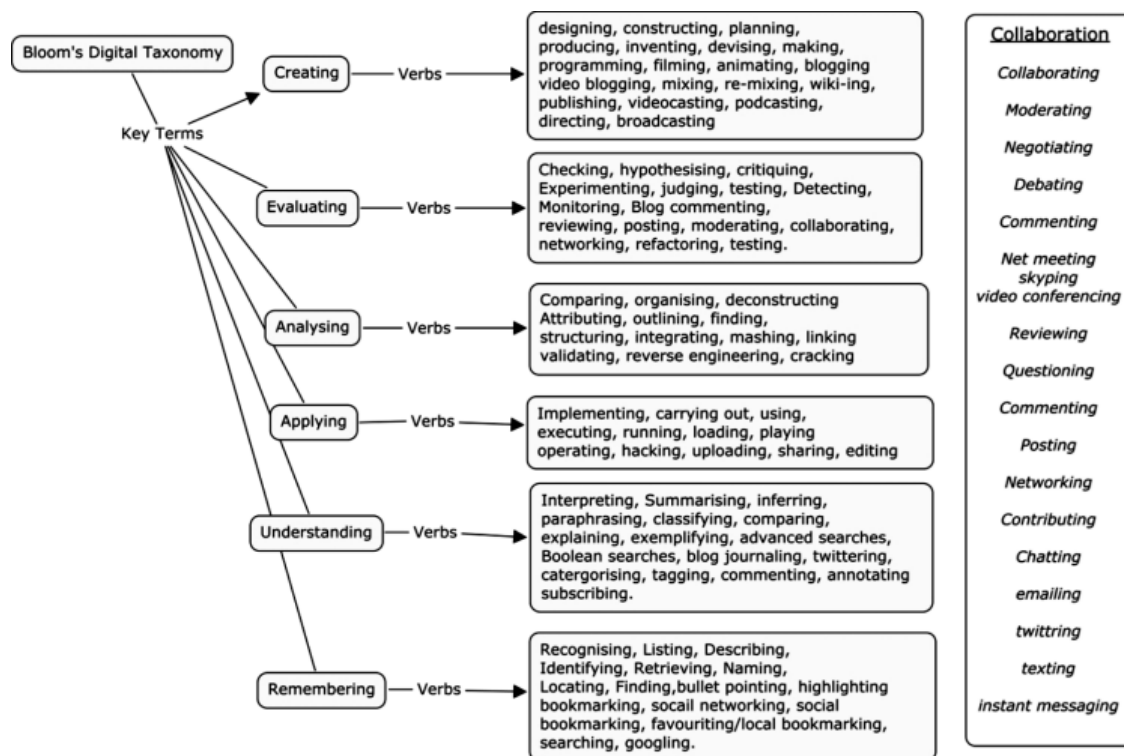

Figure 2. Bloom's digital taxonomy (Churches, 2008).

4.2. Transactional/ interactional English

To start with, language is said to have a transactional function when used to deliver information and an interactional one when used to maintain social relationships (Brown & Yule, 1983). Consequently, a learner does not only learn a language as a set of systems and skills or a content, but also as a means for creating, maintaining and advancing social links with its native speakers, teachers or co-learners.

The transactional function of language when accessed online may make for the impoverishment that happens in some traditional environments featured by the absence of study abroad (Blake, 2008). Thus, not only does technology help in sustaining learning that takes place inside the classroom, but it also encourages the learner to be more self-reliant in coming in contact with native language materials on his own without the direct intervention of the teacher.

Within the interactional dimension of language functions, the breach existing between the classroom and the digital world never ceases to grow. Indeed, the more advanced technology tools are, the more the language used for interaction will differ from the one encountered in the classroom in terms of nonstandard features (Veszelski, 2017). Called in the 1990s a 'written interactive register' (Ferrara et al., 1991; cited in Veszelski, 2017), it shifted to a status of a variety with Crystal (2001, 2008; cited in Veszelski, 2017) who called it 'netspeak', 'textese', 'slanguage', 'new high-tech lingo', and 'hybrid shorthand'. For his part, Veszelski (2017) coined the term 'digilect' to refer to a variety of language that is used in groups (sociolect) and mediated by technology tools (mediolect). Always according to this author, this appellation responds favourably to the rapid changes witnessed in technology and which moved people from simple mobile sms users to Facebook consumers. These same changes moved learners from static web 1.0 users who download and upload materials to highly interactive web 2.0 manipulators (Underwood, & Farrington-Flint, 2015).

As to the text types of this digilect, they include (but are not limited to) 'e-mails, posts and comments on internet forums, blog and vlog posts, tweets, online chat texts, posts and related comments on the message wall of social networking websites' (Veszelski, 2017, p.29). They are delimited by a number of dichotomous characteristics, namely, synchronous/ asynchronous, planned/ spontaneous, unrestricted / restricted length, private/ public and non-anonymous/ anonymous (Veszelski, 2017, pp. 28-29).

4.3. Google Education

Google for Education is a service Google provides almost for free and for the benefit of students, teachers and education, the final aim being to bring the power of technology to classrooms thanks to an array of devices, applications and resources (Google, 2018). For example, a teacher can create starting from his/her email a digital classroom with a code to be delivered as a password to his/her learners and wherein announcements and posts are allowed and classwork in the form of topics, questions and assignments is arranged (Figures 3 & 4).
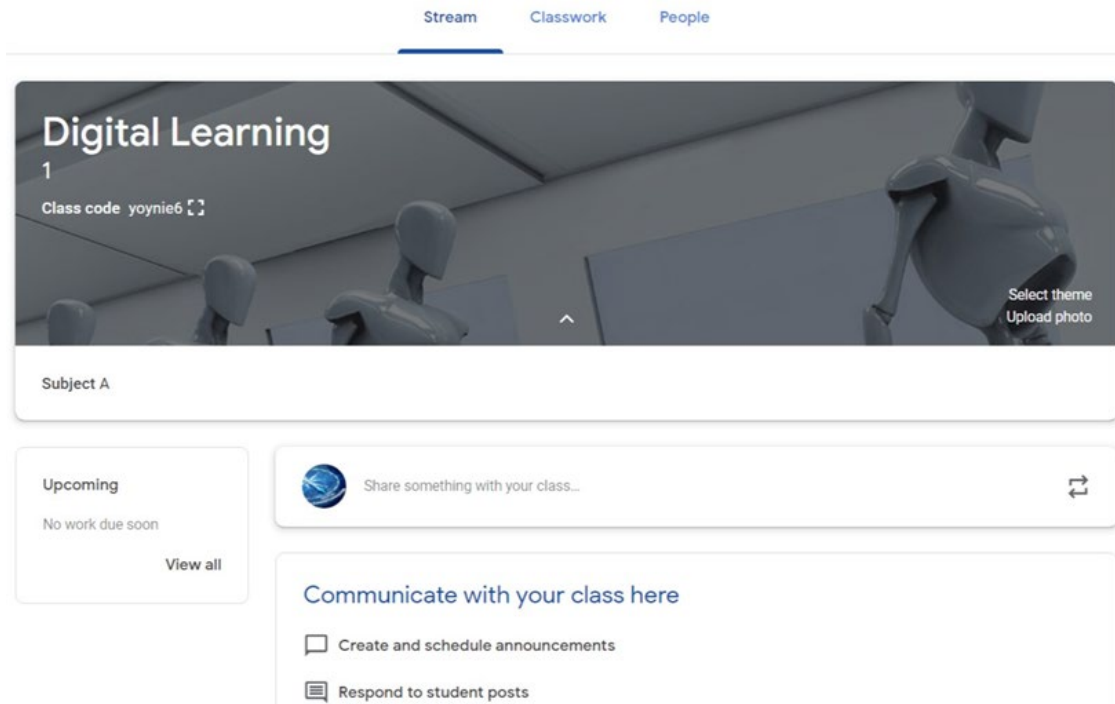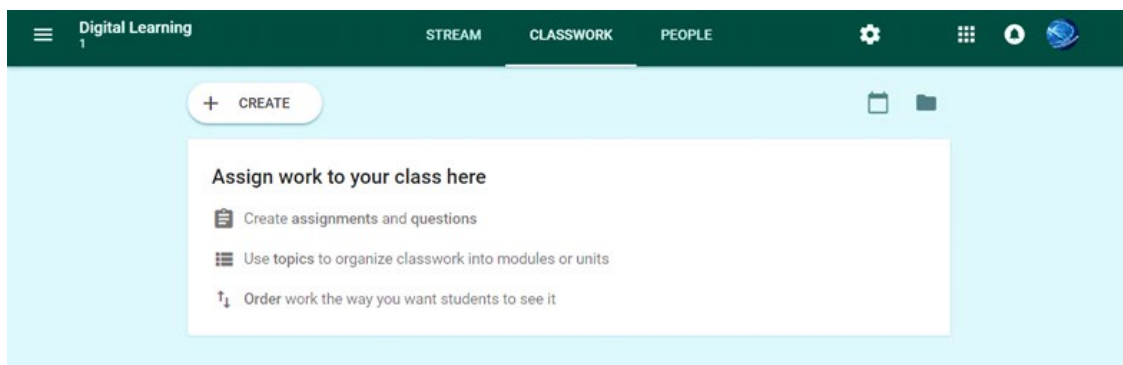
Figure 3. Google classroom.

Figure 4. Google classwork.

For its part, Google + allows for the creation of communities wherein learners and teachers can post, share and discuss ideas and pieces of writing (Figures 5, 6 & 7).
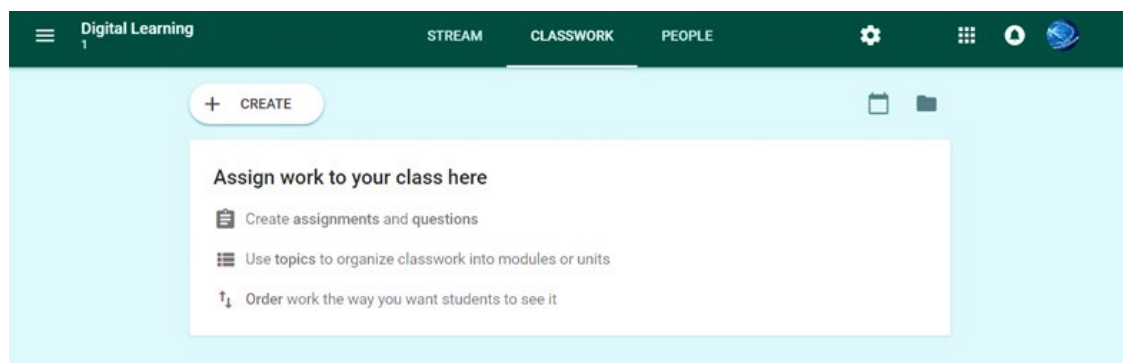

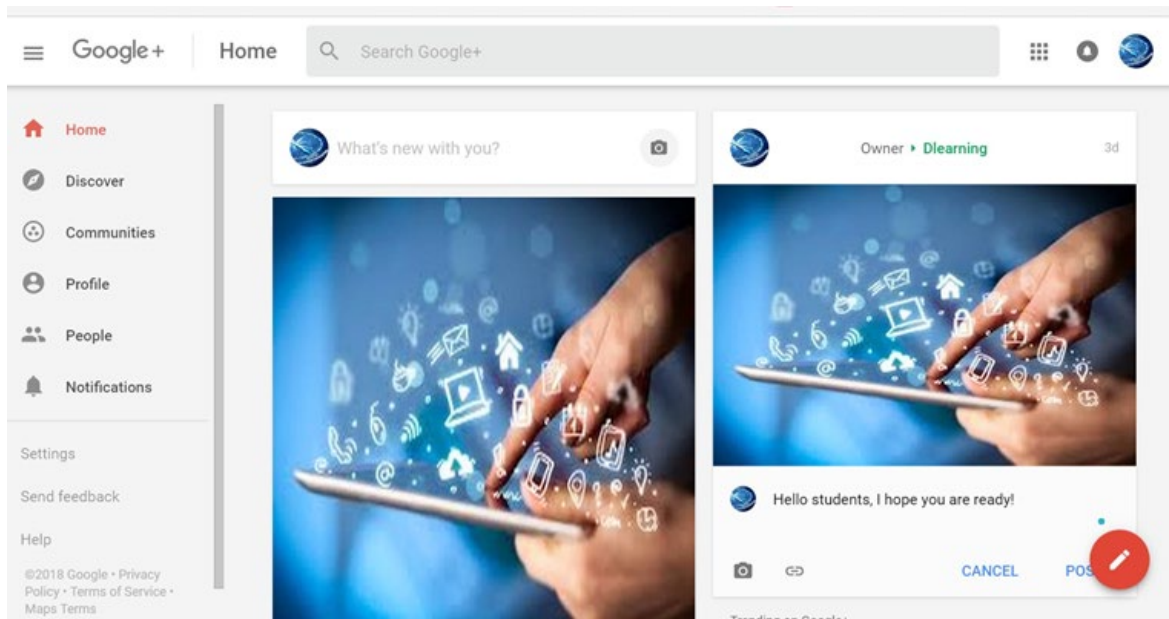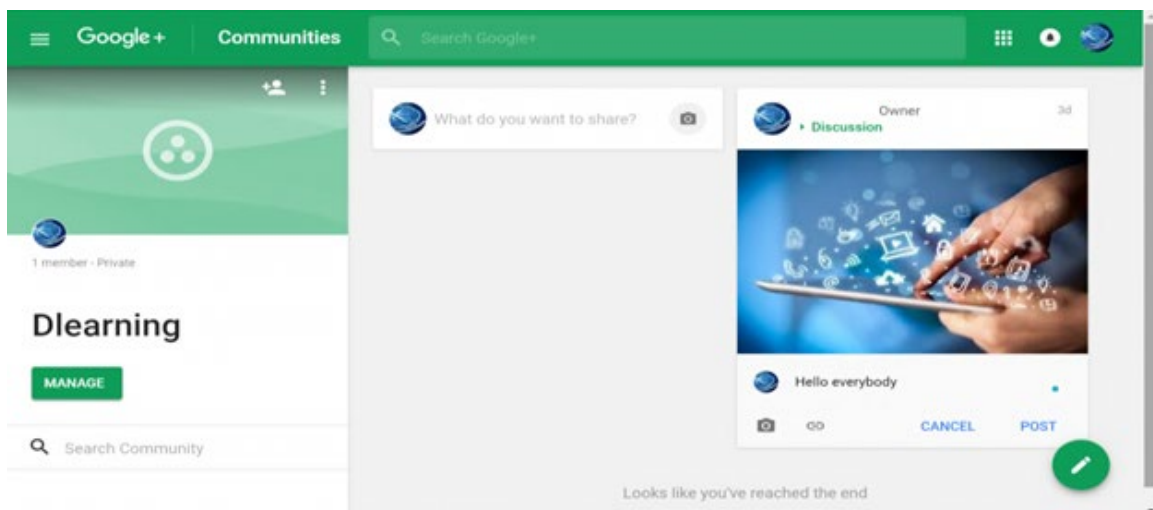Figure 5. Google+ communities.

Figure 6. Google+ chat.

Figure 7. Google+ post sharing.

Additionally, learners can use applications such as Ginger, Define and Cite for editing any text (Figures 8 & 9).
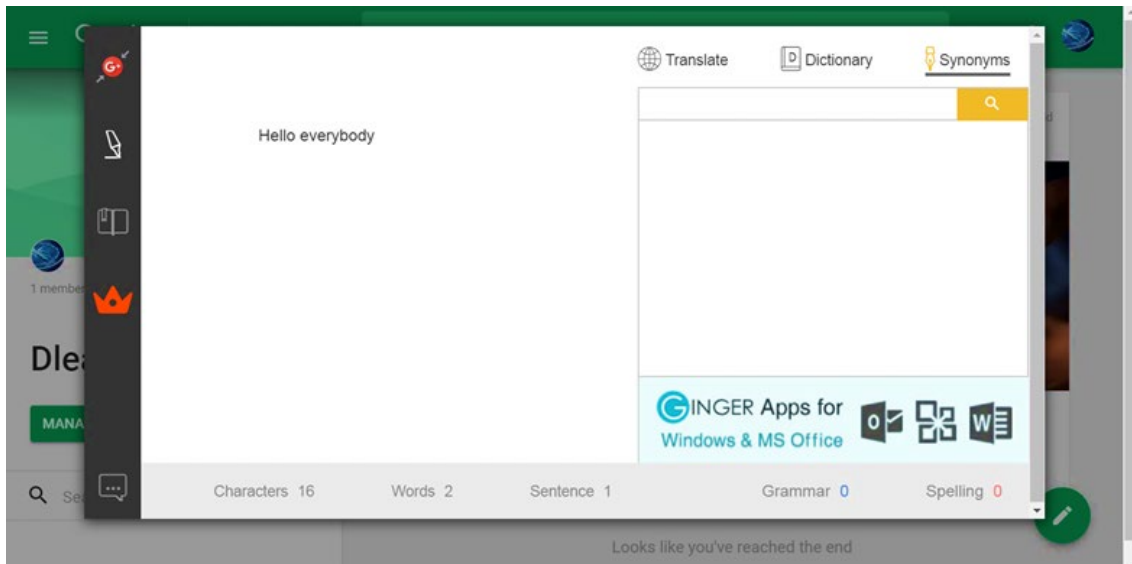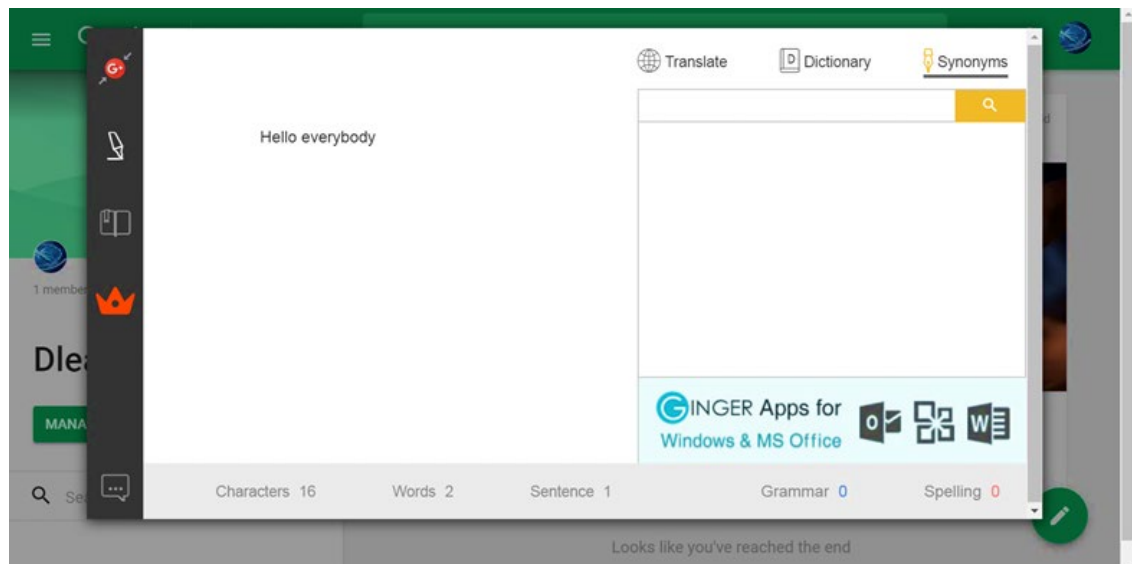
Figure 8. Google Ginger application.

Figure 9. Google Define and Cite applications.

Another interesting application is the Read & Write one, which allows the learners, for instance, to practice shadow reading and record their voices for the sake of listening to themselves or sharing their recordings with their teachers and peers (Figure 10).
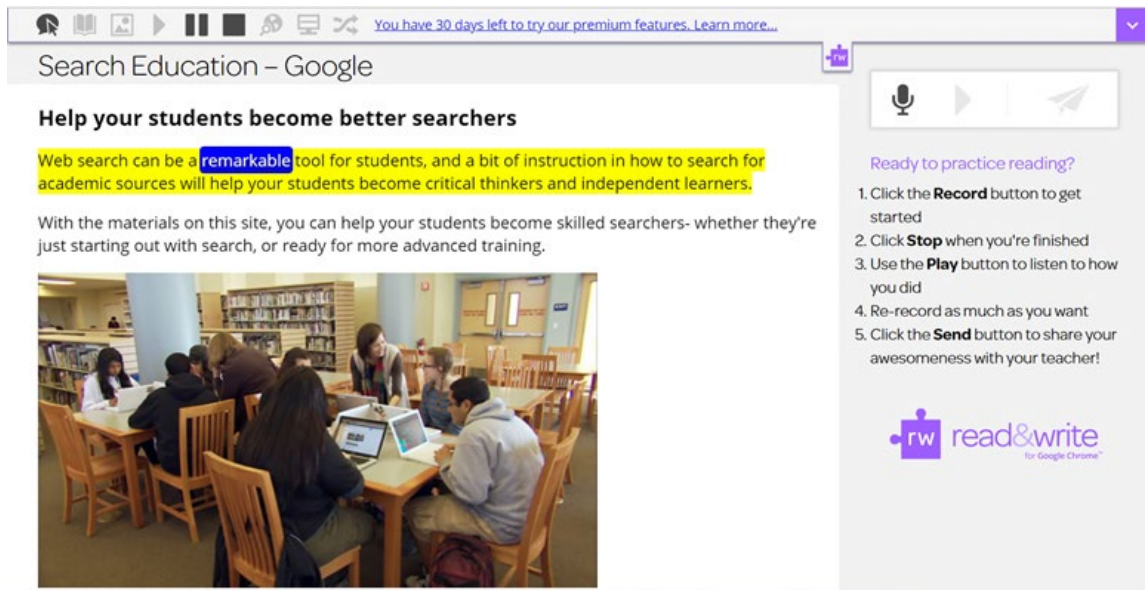
Figure 10. Google Read & Write application.

Google+ also allows for the creation of blogs and sites (Figures 11 & 12) wherein both teachers and learners can take part.
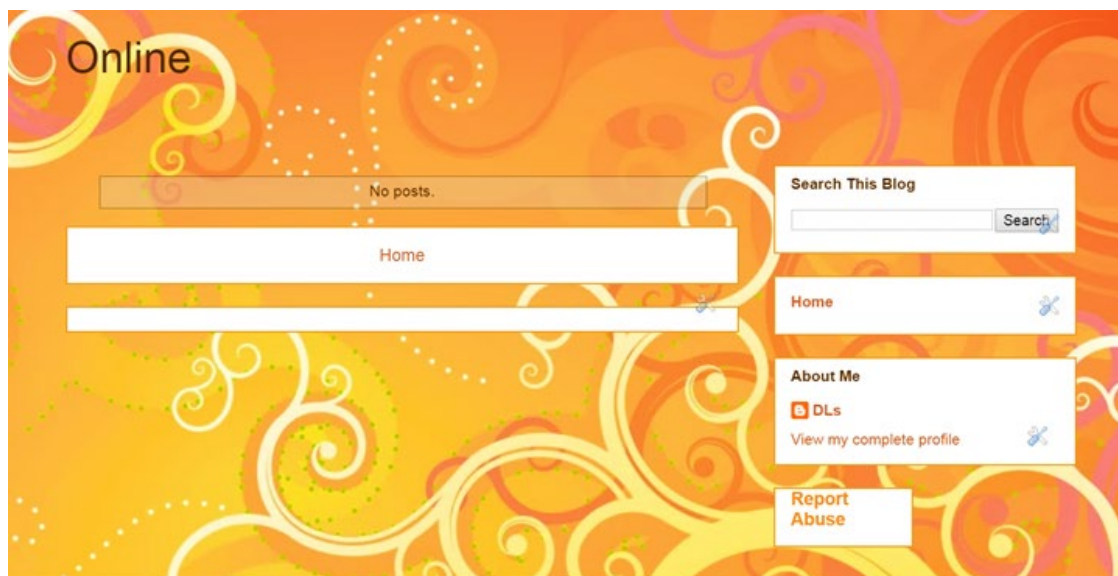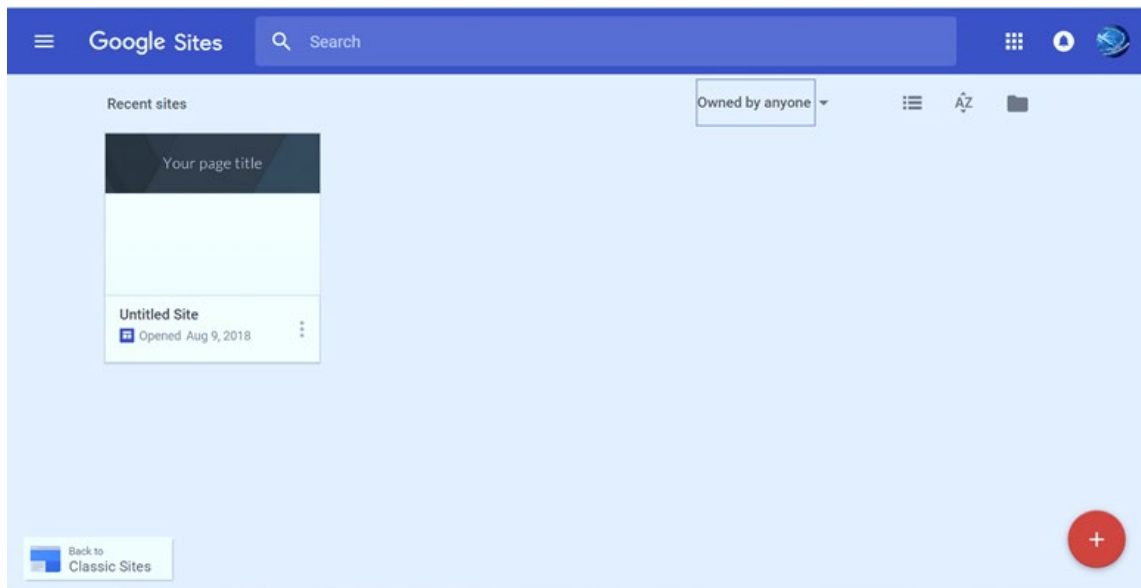

Figure 11. Google Blog.

Figure 12**.** Google Sites.

As to Google drive, it allows for the creation of documents representing different types of writing (Figure 13) and where learners can be invited to take part via editing, commenting and sharing (Figure 14). It has also the option of allowing the creation of slides, forms and sheets (Figures 15, 16 & 17).
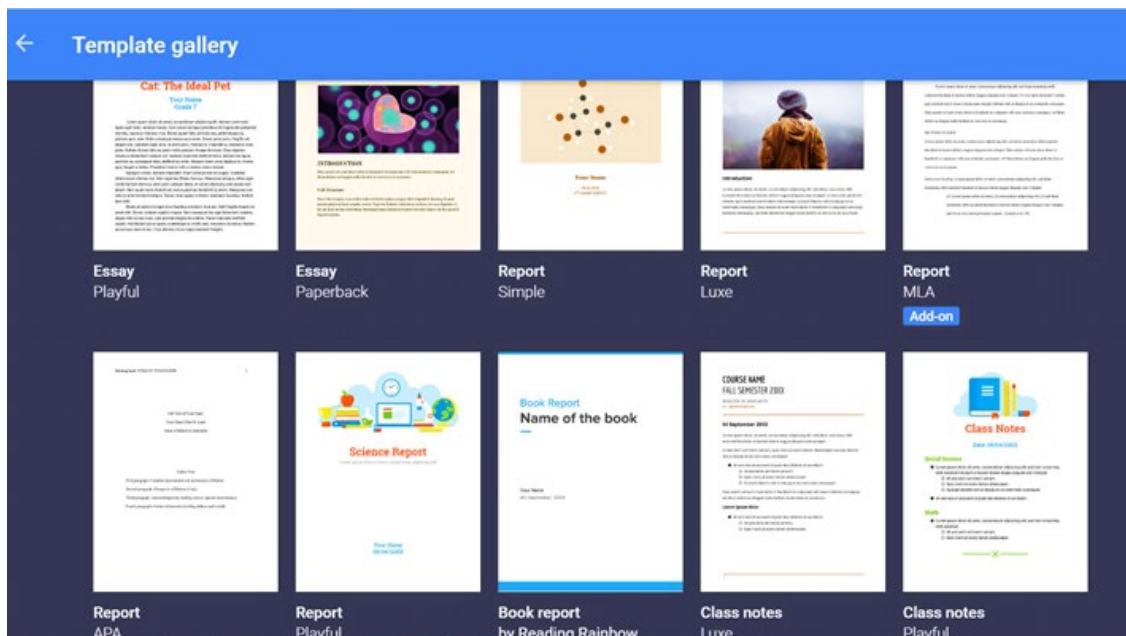

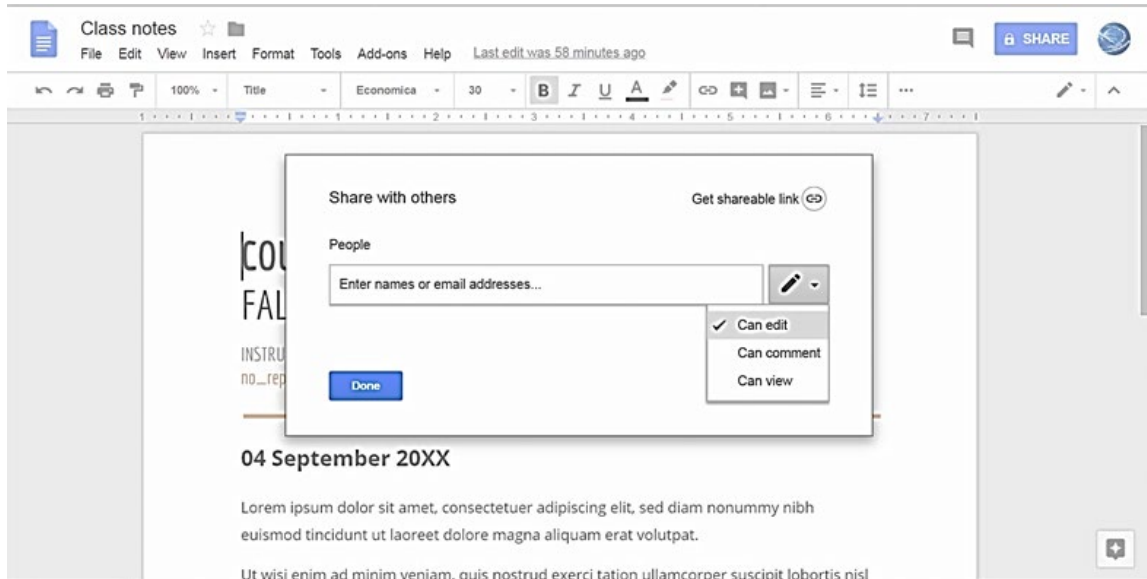Figure 13**.** Google Drive documents.

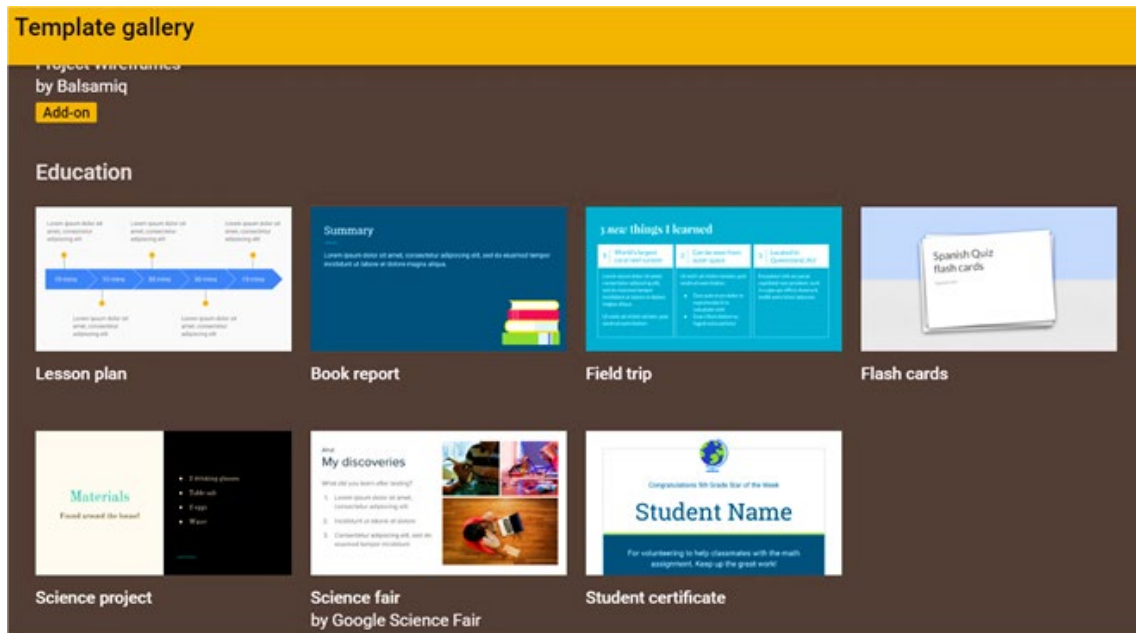Figure 14. Google Drive document sharing.
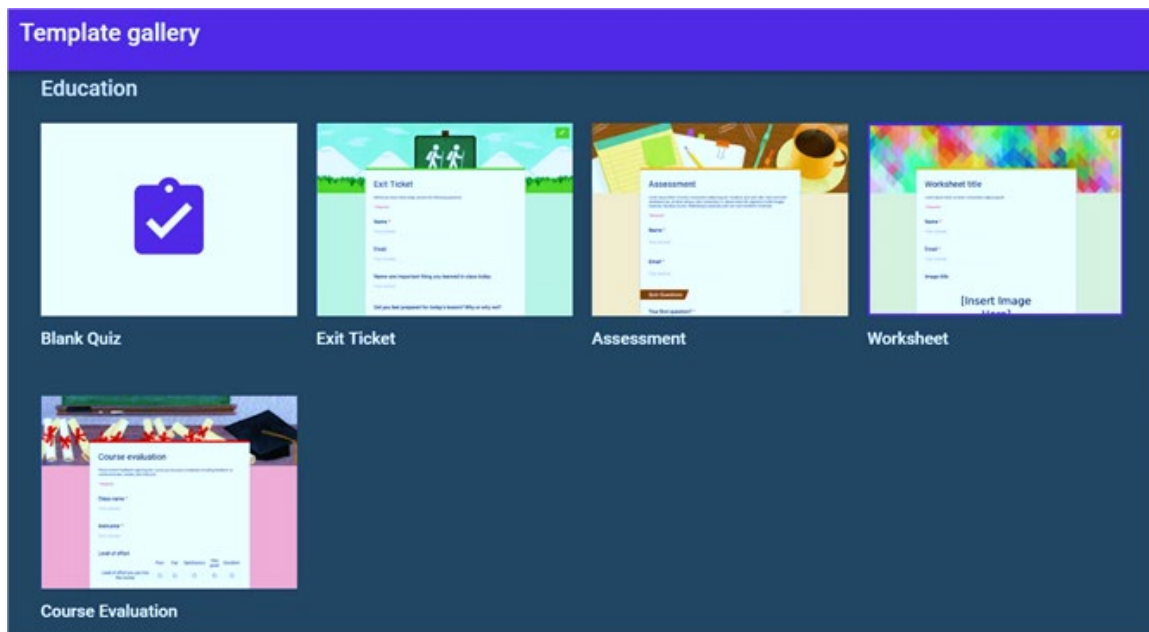

Figure 15. Google slides.
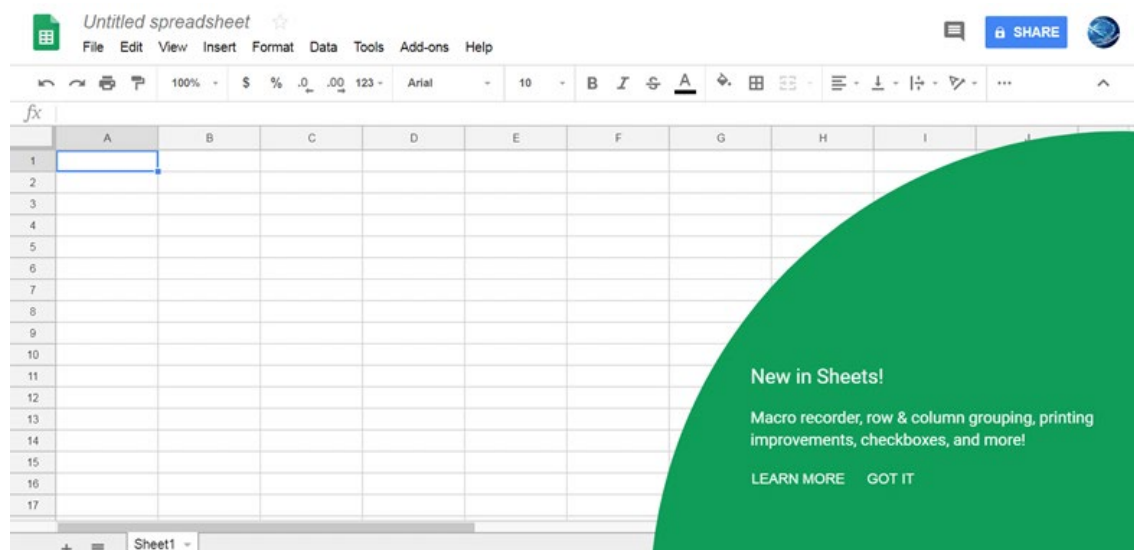
Figure 16. Google Forms.

Figure 17. Google Sheets.

5. A Google Education mediated rhizomatic English syllabus framework

5.1. Background

A framework is by definition a form of roadmap that sets 'parameters, directions, standards for curriculum policy and practice' (International Bureau of Education, 2017, p. 6). The present framework is developed for the benefit of ESL/EFL teachers, and in the interest of turning their classes into digital and autonomous environments. It, in particular, targets features of LA and DLs in terms of intertwining in order to ensure a rhizomatic pathway that uses Google Education services.

Relying on the systems approach, the framework addresses the following research questions:

- What do teachers need to know in relation to learner autonomy and digital learners?

- What do teachers need to focus on at the planning stage of the syllabus in relation to needs, stakeholders and teaching methodology?
- What type of learning outcomes, contents and tasks, aids (Google Education platforms) and assessment do teachers need to select to develop the syllabus?

5.2. Structure

As shown in Figure 18, the framework is structured around three consecutive blocks, namely, conceptualisation, planning and processing. Of course, these stages should be preceded by data gathering and followed by evaluation.

5.2.1. Conceptualisation

In the conceptualisation phase, the teachers are, on one hand, directed towards understanding the nature of the present generation of learners in relation to LA as a concept in terms of dimensions, stages and LSs. On the other hand, they are as well familiarised with the notion of DLs in terms of learning features, DSs and language functions. In fact, what is needed at this stage is that teachers get aware that their students need to be/become autonomous; and that the virtual world they know must serve both their autonomy and learning.

As far as LA is concerned, the teacher must approach his/her learners in terms of four dimensions: Their capacity to manage their own learning (algorithmic/ procedural/ self-management dimension), their readiness to accomplish their learning tasks (conative/psychological/ self-determination dimension), their preferences in relation to modern communication and networking (semiotic dimension), and their perception of the economic value of the course or syllabus (economic dimension). In addition, teachers are made acquainted with the stages of LA they will encounter in their learners. In fact, they may need to start from scratch and instil cognizance in their learners and/or encourage involvement. With those who have a more developed LA, teachers may need to build on these already existing stages and move their learners towards intervention, creation and transcendence. For their part, LSs constitute a third pathway for teachers as they are to be taught if necessary for the sake of metacognitive, affective, cognitive and social-interactive enhancement purposes.

As to DLs, teachers must approach them bearing in mind the fact that their learning is mainly heutagogical (in the sense that it is a meta-learning which is self-determined and taking place in formal and informal contexts), paragogical (that is to say, it is co-constructed by learners) and connectivist (i.e., technology related). They must also take note that they have their DSs specific to them and that they make use of language in both transactional and interactional contextual situations online.

5.2.2. Planning

At the planning level, an analysis of individual and group needs is performed and negotiated by teachers and learners as stakeholders (making use of the aforementioned information explained in the previous conceptualisation stage). For example, they construct their knowledge digitally and in collaboration with their peers, the methodology to be used by teachers is mainly rhizomatic (that is peer driven and community based), facilitative and task/ strategy based.

5.2.3. Development

In this phase, learning outcomes are defined in relation to Bloom's digital taxonomy (Churches, 2008), which allows learners to choose from digital skills. The teacher's role should be essentially within the mentoring scope. Contents and tasks are also chosen on a negotiated basis and integrated in the whole scheme of Google Education in an effort to use its platforms be they synchronous or asynchronous (explained and exemplified in the literature review). As to assessment and because of the rhizomatic nature of digital learning, it has to be formative and mainly online. Of course, this does not really exclude summative and offline evaluation. Blending both modes might be needed at certain phases; however, the lion's share should go to the first option to suit DLs more.

5.3. Usability

The framework is at the teacher's service and is meant to be highly flexible. In other words, it should be viewed as a roadmap that guides the steps for the design/ renewal

and adaptation of the syllabus following the context of situation a particular course would take place in. Teachers are advised to make the utmost use of it to develop new courses, update traditional courses, or evaluate already existing courses. Although the framework encourages the use of Google Education platforms and tools, it might use other tools.

Prior to the framework implementation, it is preferable that teachers attend workshops in relation to autonomy as a practice for LA works better with autonomous teachers or teachers who are ready for autonomy. The same principle applies to knowledge about DLs. Besides, it is highly advisable that teachers work in teams (may be under the direction of experts) as this will enhance a good brainstorming of ideas through knowledge and experience sharing. This teamwork enterprise might be embodied in the form of 'communities of practice', that is to say, groups of persons gathered around shared interests and competencies (Wenger, et al., 2002). The teachers would benefit a lot if they belong to one of these communities of practice. Indeed and at the very least, their sense of belonging would fuel the longevity and meaningfulness of the experience.
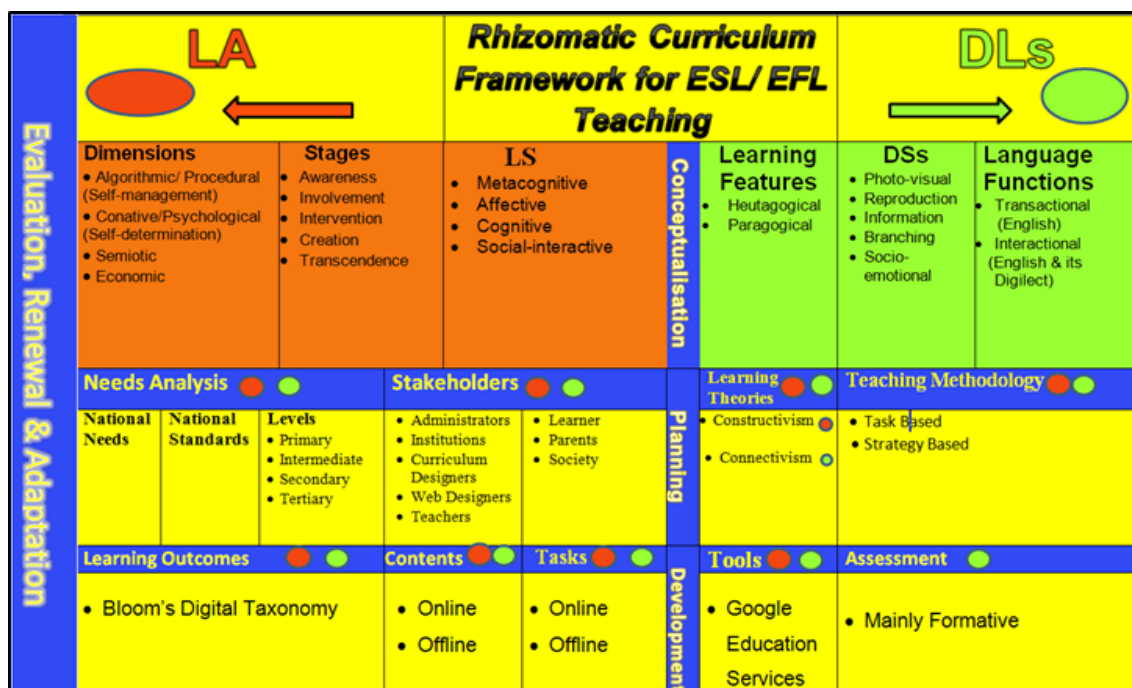

Figure 18. A Google Education mediated rhizomatic English syllabus framework.

6. Conclusion

At the heart of this paper, there lies a concern about the challenges met by teachers (ESL/EFL teachers, in particular) as to the nature and needs of their present learners. Two concepts, LA and DLs, were theoretically explored and practically exploited – within the scope of the systems approach- in view of designing a rhizomatic framework for the benefit of a Google Mediated English syllabus.

Consequently, three questions guided this attempt. They came in connection with what is needed to be known by teachers at the theorisation stage, what is to be planned, and what is to be selected? The answers involved suggestions in relation to:

- Dimensions, stages and LS (LA), as well as learning features, DSs and language functions (DLs) at the conceptualisation stage;
- Needs, analysis and stakeholders(LA), as well as learning theories and teaching methodologies(DLs) at the planning stage; and
- Learning outcomes, content and task (LA), as well as tools –basically Google Education– and assessment (DLs) at the development stage.

Of course, all these stages are backed by evaluation, renewal and adaptation.

Two major limitations of this framework are: firstly, it has not been implemented yet in reality; and secondly, it lacks some features in relation to logistics such as costs. The second limitation becomes of great significance if the framework is to be used in some poor countries where access to internet is a luxury.

Thus and in terms of future research, it is recommended that the feasibility of the framework is experimented and evaluated via cross-sectional and longitudinal studies. In addition, it is also recommended that solutions for poor countries be investigated. For instance, building communities of practice for both teachers and students might reduce the costs.

Despite its limitations, the framework might be used with other languages, and perhaps, other subjects. In fact, its flexibility allows enough room for its applications. In addition, Google Education was suggested as an online stand for the realisation of this web-based classroom; however, it is by no means an exclusive choice. Indeed, other applications are available and many of them are free platforms. Furthermore, the participation of learners in the selection of learning outcomes, contents and tasks is highly valued; and targets the wholeness of the framework as per the systems approach.

References

Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.

Benson, P. (2013). *Teaching and Researching Autonomy in Language Learning*. London: Routledge.

Bennett, S. Maton, K. & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology, 39(5),* 775-786. doi: 10.1111/j.1467-8535.2007.00793.x.

Blake, R. J. (2008). *Brave New Digital Classroom: Technology and Foreign Language Learning*. Georgetown University Press.

Bloom, B.S. (Ed.), Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive Domain*. New York: David McKay.

Bouchard, P. (2012). Self-directed learning and learner autonomy. Seel, N. M. (Ed.). *Encyclopedia of Sciences of Learning*. Springer, 2997-3000.

Boulton, A. Chateau, A. Pereiro, M. & Azzam-Hannachi, R. (2008). Learning to learn languages with ICT - but how? *CALL-EJ Online, 9*(2). Retrieved 19 June 2018 from http://callej.org/journal/9-2/boulton.html.

Brown, G. and Yule, G. (1983). *Teaching the Spoken Language*. Cambridge: Cambridge University Press.

Candy, P. (1991). *Self-Direction in Learning: A Comprehensive Guide to Theory and Practice.* San Francisco: Jossey Bass.

Cembalo, M. & Holec, H. (1973). Les langues aux adultes: Pour une pedagogie de l'autonomie. *Melanges Pedagogiques. CRAPEL*. Retrieved 19 June 2018 from http://www.atilf.fr/IMG/pdf/5cembalo-holec.pdf.

Churches, A. (2008). *Bloom's Digital Taxonomy.* Retrieved 13 August 2018 from http://burtonslifelearning.pbworks.com/f/BloomDigitalTaxonomy2001.pdf.

Cormier, D. (2008). Rhizomatic education: Community as curriculum. *Innovate 4*(5). Retrieved 10 July 2018 from http://davecormier.com/edblog/2008/06/03/rhizomatic-education-community-as-curriculum/.

Corneli, J. & Danoff, C. J. (2011). Paragogy. In *Proceedings of the 6th Open Knowledge Conference,* OKCon 2011, Berlin, Germany. Retrieved August 20 2018 from http://ceur-ws.org/Vol-739/paper_5.pdf.

Crook, C. & Harrison, C. (2008). *Web 2.0 Technologies for Learning at Key Stages 3 and 4.* Coventry: Becta Publications.

Crystal, D. (2001). *Language and the Internet.* Cambridge: Cambridge University Press.

Crystal, D. (2008). *Txtng: The GR8 DB8.* Oxford: Oxford University Press.

Daley, J. P. (2011). Deconstructing formal and informal learning spaces with social networking sites. Thomas, M. (Ed.). *Digital Education.* London: Palgrave.

Eshet-Alkalai, Y. (2004). Digital literacy: a conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93-106.

Fau, S. & Moreau, Y. (2018). *Managing Tomorrow's Digital Skills - What Conclusions can we Draw from International Comparative Indicators?* Paris: UNESCO.

Ferrara, K. Brunner, H. & Whittemore, G. (1991). Interactive written discourse as an emergent register. *Written Communication*, *8*(1), 8-34. Sage Publications.

Gallardo-Echnique, E. E., Marques-Molias, L., Bullen, M., & Strijbos, J. W. (2015). Let's Talk about Digital Learners in the Digital Era. *International Review of Research in Open and Distance Learning, 16*(3). Retrieved 6 May 2014 from http://www.irrodl.org/index.php/irrodl/issue/view/69.

Google (2018). Solutions built for teachers and students*. Google for Education*. Retrieved 14 August 2018 from https://edu.google.com/?modal_active=none.

Google drive https://drive.google.com.

Gremmo, M.-J., & Riley, P. (1995). Autonomy, self-direction and self-access in language teaching and learning: The history of an idea. *System, 23*(2), 151-164.

Hase, S. and Kenyon, C. (2007). Heutagogy: A child of complexity theory. *Complicity: An International Journal of Complexity and Education, 4*(1), 111-118.

Holec, H. (1981). *Autonomy and Foreign Language Learning*. Oxford/New York: Pergamon Press.

Howe, N. Strauss, W. (2000). *Millennials Rising: The Next Great Generation*. New York: Vintage Books.

International Bureau of Education. (2017). *Training Tools for Curriculum Development: Developing and Implementing Curriculum Frameworks*. Paris: UNESCO.

Jiménez Raya, M. & Lamb, T.E. (2008). Manifestations of Autonomy in the School Curriculum. In M. Jiménez Raya & T.E. Lamb (Eds.), *Pedagogy for Autonomy in Modern Languages Education: Theory, Practice, and Teacher Education* (pp. 58-76). Dublin: Authentik.

Kennedy, G., Judd, T., Dalgarnot, B. and Waycott, J. (2010). Beyond digital natives and immigrants: Exploring types of net generation students, *Journal of Computer Assisted Learning, 26*(5), 332-343.

Lamb, T.E. (2017). 'Knowledge about language and learner autonomy', in Cenoz, J. & Gorter, D. (Eds.) *Language Awareness and Multilingualism.* In: *Encyclopedia of Language and Education.* Cham, Switzerland: Springer International Publishing Switzerland: 173-186. Retrieved 8 July 2018 from http://westminsterresearch.wmin.ac.uk/20414/1/Lamb%20KALLA%20complete%20final%20rev.pdf.

Little, D. (1991). *Learner Autonomy 1: Definitions, Issues and Problems.* Dublin: Authentik.

Morrison, B. (2011). Building on experience, seeking new perspectives. In Morrison, B. (Ed.), *Independent Language Learning: Building on Experience, Seeking New Perspectives.* Hong Kong University Press, pp. 3-10.

OECD (2016). *Innovating Education and Educating for Innovation: The Power of Digital Technologies and Skills,* OECD Publishing, Paris. doi: 10.1787/9789264265097-en. Retrieved 10 July 2018 from http://www.oecd.org/education/ceri/GEIS2016-Background-document.pdf.

Oxford, R. L. (2008). Chapter 3: Hero with a Thousand Faces: Learner Autonomy, Learning Strategies and Learning Tactics in Independent Language Learning. In Stella Hurd & Tim Lewis (Eds.), *Language Learning Strategies in Independent Settings* (pp. 41–64). Bristol, Blue Ridge Summit: Multilingual Matters. doi: 10.21832/9781847690999-005.

Nunan, D. (1997). Designing and adapting materials to encourage learner autonomy. In Benson, P. & Voller, P. (Eds.), *Autonomy and Independence in Language Learning* (pp. 192-203). London: Longman.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon, 9*(5), 1-6. MCB University Press. Retrieved 10 July 2018 from https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf.

Reeves, T. C. & Oh, E. (2008). Generational Differences. Spector, J.M. Merrill, M.D. Merrienboer, J. V. & Driscoll, M. P. (Eds.). *Handbook of Research on Educational Communications and Technology* (pp. 295-303). Springer.

Siemens, G. (2004). Connectivism: A Learning Theory for the Digital Age. Retrieved 10 July 2018 from https://www.learningnetwork.ac.nz/shared/professionalReading/TRCONN2011.pdf.

Rheingold, H. (2002). *Smart Mobs: The Next Social Revolution.* Cambridge, Mass.: Perseus.

Rushkoff, D. (2006). *Screenagers: Lessons in Chaos from Digital Kids.* New York: Hampton Press.

Rowlands, I. Nicholas, D. Williams, P. Huntington, P. Fieldhouse, M. Gunter, B. Withey, R. Jamali, H. R. T. Dobrowolski, T. & Tenopir, C. (2008). The Google Generation: the Information Behaviour of the Researcher of the Future, *Aslib Proceedings, 60*(4), 290-310. Retrieved 10 July 2018 from https://doi.org/10.1108/00012530810887953.

Steyaert, J. and J. de Haan (2001). *Geleidelijk Digitaal: Een Nuchtere Kijk op de Gevolgen van ICT* [Gradually Digital: A Sober Look at the Consequences of ICT]. The Hague: Social and Cultural Planning Office of the Netherlands.

Stowe, R. A. (1973). Research and systems approach as methodologies for education. *AV Communication Review, 21*(2), 165-175. Springer. Retrieved 13 September 2016 from https://jstor.org/stable/30218523.

Tapscott, D. (2009). *Grown Up Digital: How the Net Generation is Changing your World*. New York: McGraw-Hill.

Torocsik, M. Szucs, K. & Kehl, D. (2014). How Generations Think: Research on Generation Z. *Acta Universitatis Sapientiae, Communicatio*, 1, 13-45.

Underwood, J. D. & Farrington-Flint, L. (2015). *Learning and the E-Generation*. Oxford: John Wiley & Sons, Ltd.

Vaidhyanathan, S. (2008). Generational myth: Not all young people are tech-savvy, *The Chronicle of Higher Education, 55*(4). Retrieved 10 July 2018 from https://www.chronicle.com/article/Generational-Myth/32491.

Veszelszki, Á. (2017). *Digilect: the Impact of Infocommunication Technology on Language.* Berlin: De Gruyter Mouton.

Wenger, E. McDermott, R. & Snyder, W. (2002). *Cultivating Communities of Practice.* Harvard Business Review Press.

Wheeler, S. & Gerver, R. (2015). *Learning with 'e's: Educational Theory and Practice in the Digital Age.* Carmarthen: Crown House Publishing.

Willems, A. S. & Lewalter, D. (2012). Self-determination and learning. In Seel, N. M. (Ed.). *Encyclopedia of Sciences of Learning*. Springer, 2993-2997.