

LEARNING OBJECTS: NEW POSSIBILITIES IN ESP COURSES

Zélia Cemin CARDOSO
(GEALIN – Catholic University of São Paulo, Brazil)
zeliacemin@gmail.com

Renata Mendes SIMÕES
(GEALIN – Catholic University of São Paulo, Brazil)
simoes.re@gmail.com

ABSTRACT: The use of Information and Communication Technology (ICT) in the educational context poses pedagogical challenges for schools and teachers. This article aims at discussing some concepts of *Learning Objects* (LO) and the possibilities to use them in a Teacher Education online course. The research was motivated by results from the Needs Analysis carried out with students of the course, who demonstrated the need for “new tools and new ways of interaction” in the course. The suggestion of the LO *Quizlet* was based on its possibility of re-use by teachers of any discipline, thus allowing for lower workload for teachers and reducing costs for the institution.

KEYWORDS: ICT; Learning Object; Online Courses; Teacher Education.

RESUMO: A utilização das Tecnologias de Informação e Comunicação (TIC) no contexto escolar traz consigo desafios pedagógicos para instituições de ensino e professores. Este artigo visa discutir alguns conceitos sobre Objetos de Aprendizagem (OA) e possíveis aplicações em curso online de Formação de Professores. A pesquisa foi motivada pelos resultados da Análise de Necessidades realizada com os alunos desse curso, que apontaram a necessidade da busca de “novas ferramentas e novas formas de interação” no curso. O OA *Quizlet* pode ser reutilizado por professores de qualquer disciplina o que acarreta uma diminuição de trabalho bem como uma redução de custo para a instituição.

Palavras-chave: TIC; Objeto de Aprendizagem; Cursos Online; Formação de Professores.

0. Introduction

The use of Information and Communication Technologies (ICT) in teaching and learning any subject matter cannot and should not be considered a new resource in the 21st century. The use of online technology has a great appeal for most teachers who try to use this technology to facilitate their students’ learning, not only in the classroom, but also in virtual contexts. Therefore, the use of digital

resources to broaden the result of the course and enhance the students' learning should be seen as a current instructional practice, adequate to the new generations that use these resources on a daily basis.

For Coll and Monereo (2010), the use of ICT in education is not limited to the fact that learners are familiar with the machines, but this use may be related to the importance that these technologies have in the present society. The authors, citing Castells (2001), claim that the internet should not be seen only as communication, search, transmission and processing tool of information, but it should also be considered a global space for social actions, for learning and for educational actions.

According to Recker et al (2005), the educational resources available in the internet have a great educational transformation potential. Thereby, science students nowadays have the possibility to access images of space exploration in real time. Mathematics students have the possibility to interact with tools that help them to understand more complex concepts, making them more concrete. In sum, students can have access to more personalized learning experiments, which will better meet the individual needs of students.

But which is, in fact, the relation between a digital resource and learning object with a Teacher Training Course (TTC) using the English for Specific Purpose (ESP) approach? In this paper we propose to discuss many concepts about learning objects, hereinafter called LOs, defended by different authors, and in the sequence, we will try to investigate the possibility of its application and contribution for the TCC using ESP approach, offered online by a university in the city of Sao Paulo, Brazil.

1. Definition of learning object

There seems to be no consensus in the literature regarding the definition of LO. For Wiley (2000b, p. 3), a learning object is "any digital resource that can be reused to foster learning". For the author, the fundamental idea behind a learning object is to allow instructional designers to create small instructional components (objects) which may be reused many times in different learning contexts. Furthermore, LOs are considered digital entities accessible through the internet, i.e., a large number of people accessing and using them simultaneously.

Wiley (2000b) argues that the great variety of definitions for the term "learning object" makes the communication confusing and difficult. Metaphors are used to better understand the definition and the description of LO, and the most well-known is the one associated with the LEGO building block toys, which are plastic blocks that allow children to build any type of object. However, some of LEGO characteristics, such as the ease of combining the objects with any other block, as well as the ease of the construction itself, might take people to the incorrect comprehension of LOs. Therefore, Wiley

(2000b, p. 17) prefers to compare the LOs with atoms, because, differently from the LEGOs, not all atoms are able to combine perfectly. These combinations require expertise and instructional design strategies, which can present functionality in the teaching and learning context.

McGreal (2004) defines LOs as Educational Resources that can be used in technology-based learning. Thus, LOs allow and foster the use of online educational content. Nash (2005) corroborates McGreal when he defines a LO as a “digital object” used to reach an educational goal.

Despite the lack of consensus on the definition of LO and although there is diversity of opinion among theorists of the area, McGreal (2004) believes that four types of definition, starting from the general to the particular, can be attributed to LOs; they include “anything”, “anything digital”, and “anything designed specifically for learning”. He adds the fact that they can also be objects designed to specific learning contexts. The author helps us visualize how these terms fit together and relate to each other using a very clear illustration; see figure 1:

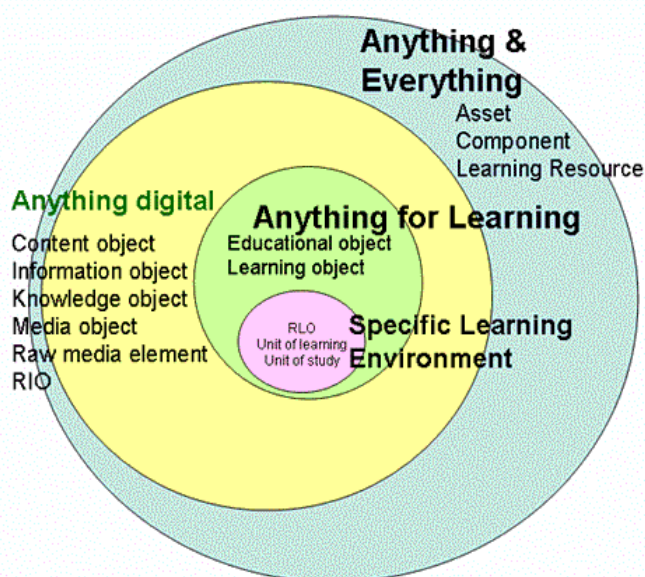


Figure 1: Terminology of learning objects (McGreal, R., 2004, <http://hdl.handle.net/2149/227>).

We can note that the smaller circles are more specific and their meanings are incorporated within the meaning of the larger circles.

McGreal (2004) states to be general consensus to say that leaning objects are digital, reusable and their main focus is to give support to learning. For something to be considered a leaning object will depend if it is used to teach or to learn, and this can only be determined by its use, not by its nature. According to the author, the best way to evaluate the usefulness of a LO is after its use within a specific learning context.

Lastly, the author points out the importance of a predominant concept for the LOs due to their increasing usage in teaching and learning. Not only in the academic world, but also in the corporate world. McGreal (2004, p.11) offers a definition for LOs:

[] digital objects that have a stated educational purpose; and digital objects that are marked for specific educational purposes. LOs can be defined as any reusable digital resource that is encapsulated in a lesson or assemblage of lessons grouped in units, modules, courses, and even programmes. A lesson can be defined as a piece of instruction, normally including a learning purpose or purposes.

According to Metros and Bennett (2002, p.2), learning objects are able to turn the promise of e-learning true in the higher education, helping to improve the quality of teaching, and at the same time, not requiring all faculty members to be an expert in media or technology. The authors highlight the difference between information objects and learning objects. For them, information objects are digital resources that do not include instructional scaffolding. On the other hand, LOs should include learning objectives and their outcomes, assessments, and any other instructional elements, as well as the information object. If these elements are not incorporated within the LOs, they are generally connected to them as a separate resource. The authors also remind us that most LOs repositories and digital libraries contain a mixture of information objects and learning objects.

Learning objects are used in teaching and learning in a variety of ways. Some examples of LOs are texts, presentations, simulations, quizzes, tutorials, video clips, animations, photography, maps and assessments. Teachers can use them as a complement in their physical classrooms through videos or films, or by the students in their multimedia presentations in class. They can even be used as part of homework or in online learning contexts.

Metros and Bennett (2002, p.5) list four necessary attributes in the learning objects so that they can contribute to the modules, the courses, and the curriculum. They are: (1) portability, as LOs can work across different platforms and course management systems; (2) accessibility, as LOs can easily be located and sent to students; (3) durability, as the core object remains stable and reusable even during some changes in operational systems and different software; and (4) interoperability, as there can be an exchange of LOs among different browsers and course management systems.

According to the website *eLearning Learning*¹, for learning objects to reach the four attributes mentioned above, they must be designed according to the SCORM standard, which the website defines as "Sharable Content Object Reference Model".

¹<http://www.elearninglearning.com/scorm/?open-article-id=3473896&article-title=what-is-scorm-&blog-domain=joomlалms.com&blog-title=joomlалms>

SCORM development started in the late 1990s by Advanced Distributed Learning Initiative (ADL), which is a US government program that conducts research and development on distributed learning. The main project goal was to provide common eLearning standards which would ensure content compatibility within multiple Learning Management Systems without constant content reformatting to deliver the course. Some advantages of using SCORM are:

- SCORM compliance allows the use of software tools created by different authors;
- A possibility to reuse older courses content, upload external content or transfer all the courses to a new system;
- Save time, effort, and money on content creation;
- Easy placement of SCORM files on other websites without other programs installation and allow unregistered users access to your materials.

There are many benefits offered by SCORM interoperability, among which we can mention the creation of interactive, informative and online courses with no routine work of uploading the same files into the system.

Lastly, Metros and Bennett (2002, p.8) point out that the use of learning objects is not an all or nothing proposition, nor a new concept. Teachers already feel comfortable to incorporate audiovisual resources, readings, lectures and other instructional activities in their regular classes. Learning objects can be considered a new enhanced digital version of those teaching-learning activities.

As defended by McGreal (2004), Leffa (2006) also emphasizes the lack of consensus on the definition of learning objects. The author starts from the broader concept to get to the specific concept. In its conception LO can first be considered anything, to then be considered anything digital, becoming anything with educational goal and finally be anything digital with educational goal.

Even considering LO anything, Leffa (2006) insists that it is the use that is made of an object, that makes it or not a learning object, which also validates the concept presented by McGreal (2004). To be anything digital its characteristics are not to be found outside of the virtual environment. He explains that a digital file can be edited, adapted and incorporated into other digital files more simply compared to traditional books. The author emphasizes the need for educational goals in any of the aforementioned situations. He believes that there is a preference for educational content blocks that together can compose a class, a discipline or even a course. For Leffa (2006), the prevailing concept of LO is to be any digital file (text, image or video) used to facilitate and promote learning.

2. Characteristics of LOs

Like other authors (Wiley, 2000a; McGreal, 2004; Nash, 2005), to characterize the learning objects, Leffa (2006) mentions the concept

of granularity, reusability, interoperability, and recoverability. For the author, although the LOs are not necessarily digital, it is noted that this is the mode most commonly accepted to be more productive for teaching any subject.

According to Leffa (2006, p.8), granularity refers to the idea of the LOs being small units created based on technical criteria and able to fit with each other to form larger units. That is, a module which can adjust to others in many ways. Reusability is the possibility of duplication and evolution of the same object. The digital multiplication allows the same file to be copied and used by many users or students simultaneously. The LOs can be renewed as they are easily modified, thus creating multiple versions. For the author, the evolution of the object leads to interoperability because the LOs are themselves an adapted object and also subject to further adjustments. The LOs should be easily recoverable, i.e., users must have quick and easy access to objects whenever they need them. How and where can users access the LOs? According to Nash (2005, p.218), in the mid-90s the LOs were available on the Web informally as lesson plans and learning activity. Currently, more and more Web sites provide access to LOs for different educational contexts. These locations are called repositories and are similar to libraries with descriptions of the LOs and their catalogs presenting pieces of information such as brief description, context of use, degree of difficulty, and others.

For Leffa (2006, p.15), one of the most popular repositories is MERLOT (Multimedia Educational Resource for Learning and Online Teaching²) a consortium maintained by agencies from the USA and Canada. Besides being one of the most complete and known repositories, MERLOT also publishes the electronic *Journal of Online Learning and Teaching*.

The use of learning objects is still a controversial issue, since according to Leffa (2006, p. 24), some repositories sell the use of objects, justifying the importance of the same object to be able to be reused in various courses and disciplines, thus generating higher financial returns at a lower cost.

For Nash (2005), although the use of repositories offers great access to LOs, they are not always easy to navigate and although there are many ongoing projects still no uniform system of classification of LOs, which hinders its access. Therefore, the author suggests other options for storage and use of LOs such as blogs, podcasts and wikis.

3. Teacher education course using English for specific purposes approach

The online teacher education course offered by a private university in the city of São Paulo, Brazil, has a workload of 80 hours distributed in two modules of 40 hours each, in two semesters. Then

²<http://www.merlot.org/merlot/index.htm>

aim of this course is to introduce and develop with the teachers-students, theoretical and practical knowledge about the English for Specific Purposes approach. They learn, for example, how to choose and elaborate instruments to be used in a needs analysis, design a syllabus and evaluate materials for courses within this approach in academic and professional settings.

A questionnaire was the instrument used to make needs analysis with the students of this course and it was answered before the beginning of the classes. The results of this needs analysis pointed out that almost 50% of the students had already worked as teachers using the ESP approach focusing on the development of the four linguistic skills, that is, reading, listening, speaking and writing. Their context of work included technical schools, private ones, bilingual schools, universities, preparatory courses to enter the university and private classes. Their graduation areas included Languages, Law, Nutrition, Psych pedagogy, ICT among others. Some of them (how many?) did not even have any academic instruction, only the experience of living abroad.

The data, collected with the initial questionnaires and complemented with the analysis of the forums, included in the units of the course, showed the need to re-elaborate the course in the following two aspects:

- 1- Theoretical aspects: Principles of ESP – more attention in its teaching; Needs Analysis – how to elaborate the instruments/ apply/ understand the results; course plan – goals and objectives/ syllabus design; language theories/ learning theories.
- 2- Methodological aspects: reformulate the activities: new tools to design them; interactions: new ways to stimulate them.

The decision of adopting the LO *Quizlet* was taken based on the methodological changes that should be included in order to make the course more attractive to the students, and also taking into consideration the characteristics of the institution that offers the course. As the institution does not have its own repositories, that is, a digital library to store the LOs, the students could either be directed straight to the activities proposed, or be directed to a blog that would work as a repository for the activities of the units.

4. LO *Quizlet* characteristics

The LO *Quizlet* was created in 2005 by Andrew Sutherland in Albany, Calif. It is currently one of the most used educational tools in the world due to its versatility and the fact that it is a free platform in the internet, which can be used in 18 idioms for teaching and learning different disciplines (from languages to science, math and social studies). Today, there is the possibility of downloading *Quizlet* on mobile devices.

The teacher can create his/her own set of flashcards with terms and definitions, add images, and copy and paste from another source. He/she can choose between two modes of flashcards presentations: (1) Flip or (2) Flow. (1) One should click on the arrow buttons with the mouse to flip between the cards and click the card to see the other side. One can also use the right and left arrow keys to advance cards and the space bar to flip. (2) To flow, one should advance with one motion using the down arrow key.

The teacher can also save time by finding sets that have already been made. Once the flashcards are ready to use, the teacher can create a class and invite the students to get free accounts at *Quizlet*. The students search for the username of the teacher to find their class, or the teacher can send the students an e-mail with a link to join the class.

Quizlet platform offers the teachers the possibility of using the flashcards in different activities such as (1) Study, (2) Games and (3) Tools:

(1) Study offers three modes: a) learn - the student tracks his/her correct or incorrect answer and retest the ones he/she has missed; b) speller - the student types what he/she hears; c) test on the flashcard set - students do tests generated on the flashcards studied.

(2) Games: a) scatter - the students drag and match terms/definitions; b) space race - students type in the answer as terms/definitions scroll across the screen.

(3) Tools: a) print - the students can print the flashcards; b) export - the students can copy and paste the content learnt with the flashcards in other program in a reading format; c) copy - the student can copy all the flashcards choosing the option "copy"; d) combine - the students can join different sets of flashcards; e) embed - the students can include the activities done in other sites or blogs.

5. LO *Quizlet* designed for the online teacher's education course

The aim of the activity designed for the course is the practice of the concepts of ESP related to its definitions, divisions and needs analysis, after reading the texts available in the first unit of the course. Therefore, the previous reading of the texts included in the unit is essential to perform the activity.

The first step is the design of a set of flashcards with concepts and definitions of the approach. Chart 1 presents the nine flashcards used to practice the concepts of the approach introduced in the first unit of the course:

Chart 1 - Flashcards: concepts and definitions of ESP approach

Concepts	Definitions
ESP characteristic feature	For many theorists such as Hutchinson & Waters (1987), Dudley-Evans e St. John (1998), Robinson (1991) e Strevens (1988), the reasons the student has to learn a foreign language are the basis for ESP, that is, its characteristic feature.
Two key criteria for the definition of ESP according to Robinson (1991)	ESP courses are always "goal directed". ESP courses develop from a needs analysis, which aims to specify what the student needs to do with the medium of English.
Needs analysis	Needs analysis is essential in the process of specifying the goals and objectives of a course, evaluation of the resources available and predictable constraints, which determines the definition of the syllabus and methodology in an ESP course (Hamp-Lyons, 2001:127).
One key concept of the approach according to Hutchinson & Waters (1987)	Specific purposes: all language courses in this approach are based on at least one learning purpose (Why does the learner need to learn a foreign language?, Hutchinson & Waters, 1987), occupational or academic.
Differences between General English and ESP	An ESP course is in contrast with a General English course because of the following characteristics: 1-well defined specific purposes; 2- needs analysis; 3- learner centered, and 4-centered on the language appropriate for a particular discipline, occupation, activity.
Features of the approach according to Strevens (1988)	Variable characteristic: restricted to the language skills that need to be learned according to the needs of the target public. Absolute characteristic: defined to meet the learners' needs after the results of a needs analysis.
Two main types of ESP	<ul style="list-style-type: none"> • English for Occupational Purposes (EOP) • English for Academic Purposes (EAP)
English for Occupational Purposes (EOP)	Occupational Purposes: English courses that aim at teaching the language used in professional settings, for instance, English for waiters, airports check in clerks, manual reading for hardware technician, etc.
English for Academic Purposes (EAP)	Academic Purposes: English courses that aim teaching the language used in academic settings, for instance, writing abstracts for academic texts, oral presentations in congress, etc.

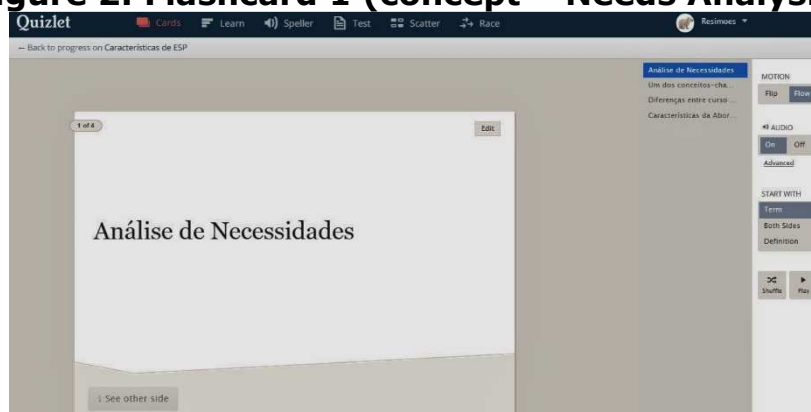
Source: The authors.

After designing the flashcards, the second step is to choose among the options of the platform, the ones that would be used with

the course. It was decided to use the flashcards in (1) study and (2) games.

As it was already mentioned in “Quizlet characteristics”, the teacher can choose between two modes of presentation of the flashcards, flip or flow. In this activity it is used the first mode, that is, one side shows the concept, and the other side shows the definition. Figure 2 shows one side with the concept and figure 3 shows the definition. The language used was Portuguese, as the course is for Brazilian teachers.

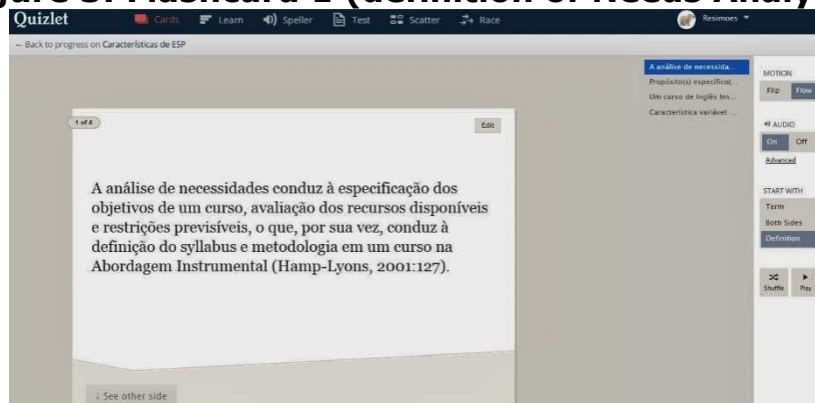
Figure 2: Flashcard 1 (concept – Needs Analysis)



Source: The authors – <http://quizlet.com/23363990/flashcards>

The students hear the concept and then click to flip to see the definition on the other side, which can also be heard by the students.

Figure 3: Flashcard 1 (definition of Needs Analysis)



Source: The authors – <http://quizlet.com/23363990/flashcards>

Needs analysis is essential in the process of specifying the goals and objectives of a course, evaluation of the resources available and predictable constraints, which comes before the definition of the syllabus and methodology in an ESP course (Hamp-Lyons, 2001:127). The Figure 4, below, presents an activity of multiple choice offered in (1) study.

Figure 4: Example of multiple choice activity offered in (1) study (learn)



Source: The authors

(http://quizlet.com/56897931/test?mult_choice=on&prompt-with=0&limit=3&cstoken=NafZ7UVcW.umhijkHHP4sIB3wkUZPB5Ktoy.Jwx4nEg)

The games “scatter” and “space race”, already described, were also used in the activity. Figure 5 shows an example of the game “scatter” using the concepts of needs analysis.

Figure 5: Example of activity using “scatter”



Source: The authors (<http://quizlet.com/56897931/scatter>)

The activity proposed ends with (2) games; however it could be extended to the resource “discuss” offered by the platform. There students and teacher can discuss about the concepts learnt, which we consider a more motivating resource than the option “chat”, offered by Moodle platform nowadays.

6. Conclusion

Going back to the beginning of this paper, it can be said that the suggestion given for use in an online Teacher Training Course (TCC) in English for Specific Purposes (ESP) approach represents an adequate Learning Object (LO) for its goal, since it is "any digital resource that can be reused to support learning" (Wiley, 2000b:7) accessible to all,

free of charge on the internet, available for computers, mobile phones and tablets, which undoubtedly democratizes its use enabling simultaneous access by a large number of users.

Both McGreal (2004) and Nash (2005) corroborate Willey (2000b:8), when they define the LO as a "digital object" with educational goals. Our proposal meets this definition since our goal is to provide an activity that can be used with the purpose of practicing key concepts in an online Teacher Training Course (TCC) in English for Specific Purposes (ESP) approach, with the possibility of being reused for the study of other important concepts for our target audience, which does not prevent it from being reused in other courses.

The four attributes of LO, listed by Metros and Bennett (2002), are present in the suggestion submitted in this paper. They are: (1) portability, allowing its transit in different educational platforms, (2) accessibility, or the ease of location and access, (3) durability, namely, stability and reusability even during changes in operating systems and software, and (4) interoperability, which allows its use in multiple browsers and course management systems.

Other characteristics, such as the concepts of granularity and reusability mentioned by Wiley (2000a), McGreal (2004), Nash (2005) and Leffa (2006), in addition to interoperability and recoverability, can be identified in the activity proposed. (1) The activity is short and interesting for the students (granularity) and (2) it can be reused with the possibility of changes and adaptations, thus allowing the creation of several versions (reusability).

As mentioned earlier, the research for the development of this work was motivated by the test results and needs analysis collected from the forums of the units that made up the syllabus of the online TCC in ESP approach, specifically with regard to the search for the latest tools to design activities so as to provide new forms of interaction.

The activity can be stored in a blog, as suggested by Nash (2005), or on the website³itself, with the option presented by the tool, i.e., it invites students to perform the activity.

The objectives of our proposal of an activity using a learning object are also mentioned by Wiley (2002, p.1), when the author states that the two main objectives that support the research and development of LOs are: (1) improve the economy of online teaching, and (2) provide educational innovation.

We believe that the presentation of this work can be useful for other General English or ESP teachers, or even teachers of other subjects, because, as Wiley (2006) emphasizes, the central value of learning objects is to enable the reuse by all pedagogical contexts, and above all, without implying "the need for faculty to become an expert in media or technology (METROS and BENNETT, 2002, p. 2)".

³www.quizlet.com

Finally, we make Wiley's words (2006) our own: "We need people in education. People and learning objects are a powerful mix. And call them what you will, digital reusable educational materials *will* eventually revolutionize education."

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