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TEACHING FROM THE CLOUD[1]

Abstract: This article covers the issues pertaining to the use of free online Cloud Computing (CC) services when teaching a foreign language. It presents various tools that can be utilized by a teacher in several settings: from one-to-one tuition, teaching language for general purposes to teaching language for specific purposes. The practical ideas included in the article all stem from the author's personal experience in teaching both English and Polish as foreign languages with the use of CC tools.

The first part of the article deals with the definition of Cloud Computing and the most typical divisions of available CC resources. It also covers the theoretical possibilities that CC brings to a teacher and the challenges and drawbacks that teachers can face when using this technology in class.

The second part presents freely available online CC resources and gives examples as to how they can be used in class in a variety of settings. It covers the following tools: Google Drive, SoundCloud, Prezi and YouTube.

The conclusion attempts to anticipate the future developments of Cloud Computing for education.

Keywords: Computer-Assisted Language Learning, CALL, Cloud Computing, Distance Learning, teaching via Skype, technology in the language classroom

1. Introduction

Sustained self-development is currently one of the key responsibilities of a teacher. These days, more than ever, educators have to make a continuous effort to keep up with evolving technology. This is especially true taking into consideration that online resources and solutions cannot be perceived as a novelty anymore – they have simply become the reality of everyday teaching life.

The emergence of Cloud Computing (CC), made possible by the ever-increasing computing power of our equipment, the availability and speed of broadband Internet, and the mobile revolution we are currently experiencing, has contributed to a significant shift in how languages are taught and learned. Moreover, CC has been sometimes characterized as a separate communication channel, merging the immediacy of a phone call with the intricacy of an email and adding the new dimension of cooperative possibilities.

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[1]   The article was written in December 2012. Some features of the presented applications may have changed.

What is Cloud Computing then? It is characterized as "a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction." (Mell & Grance, 2011: 2) This definition can be interpreted as the migration of applications that were used in an offline setting – such as a Word Processor – to the online realm. There are two key ramifications of such a shift:

1. Resources are accessible and editable regardless of:
    - location,
    - hardware,
    - the software installed on the hardware,
    - the content of the hardware's hard drive.
2. Resources can be accessed and modified by a number of people simultaneously based on the permission granted by the resource owners.

All of the above factors contribute to a change in how members of the online community interact with each other and share information. According to Lawrence Lessing, a new society is emerging where reading assumes its appropriate position as a receptive skill needed mostly to initiate the productive, creative skill of writing (Stevens, 2010: 118). The above can be observed in how the world of publishing, where the author–audience interaction becomes a true dialog, has changed (Stevens, 2010: 122). As a result, almost simultaneously with the emergence of Cloud Computing solutions, many teachers have realized the potential of this technology for education and have begun exploring its possibilities.

2. Theoretical background

2.1. Types of Cloud Computing services

Cloud Computing services can be fundamentally divided into three categories:

a. Software as a Service (SaaS),
b. Platform as a Service (PaaS),
c. Infrastructure as a Service (IaaS).

In the first instance, "the consumer uses an application, but does not control the operating system, hardware, or network infrastructure on which the application is running." (He, Cernusca & Abdous, 2011: 5) All of the resources presented in this article are examples of that first category.

The second type grants the user a certain level of control over the hosting environment, but does not control the operating system itself. What this means to the user is that there is a "(...) capability provided to the consumer (…) to deploy onto the cloud infrastructure consumer-created or acquired applications." (Mell & Grance, 2011: 2)

The third type, on the other hand, focuses on the use of computing resources "such as processing power, storage, networking components, or middleware." (He, Cernusca & Abdous, 2011: 6)

2.2. Advantages of Cloud Computing

The main advantages of Cloud Computing services for education stem from the fact that they are accessible from any Internet-enabled location. This enables the storing of materials and a knowledge base on a cloud service which effectively enables the students to learn whenever it is convenient for them – for example while commuting. Also, when working in class, teachers are less reliant on the availability of physical resources such as hardware (computer, projectors etc.) as they can sometimes take advantage of the participants' own devices.

All of the above elements contribute to a significant cost-cutting within educational settings. The testament to the above is the fact that "the two most widely used services – Google's Apps for Education and Microsoft's Live@Edu – are free for educational institutions with no advertising and with the ability to use the institution's domain name as part of the service." (Stevenson & Hedberg, 2011: 326)

Another key area where Cloud Computing can be considered extremely beneficial for education is the field of creative and collaborative activities. Here, CC can facilitate cooperation and – ideally – enable a bigger group to work together on a complex project without the necessity to utilize costly resources and reorganize classroom workflow. A simple overview of the co-operational possibilities of CC technologies was delivered by Dan Siegle, who gave an example where "a student in New Jersey could be collaborating with a student in Hawaii on a presentation that they share with a student in Paris by using the Cloud Computing services of companies like Google and Zoho." (Siegle, 2010: 41)

CC technology has also simple benefits within the classroom environment, which help in even trivial and mundane educational tasks. These are, for example, overcoming the limitations of the institutional communication platforms between teachers and students. If the university's e-mailing infrastructure does not allow for attachments or the inclusion of a longer text in the body of an email, a teacher can take advantage of a cloud storage or cloud-based word processor to make the materials available to students. In this situation, the only thing he or she needs to include in the message is the hyperlink to the appropriate cloud-based resource.

The above suggests that Cloud Computing can be a viable tool for sharing resources with the students. For the first time, a teacher is truly independent of technological and material limitations in what he or she shares with the student. The use of CC technology makes it possible for the teacher to share documents and presentations – written materials – but also audio and video resources or specific files in formats required by a course in Language for Specific Purposes.

Another crucial application of Cloud Computing technologies is the possibility to utilize them for distance learning; both as tools for real-time instruction, such

as a one-to-one Skype lesson, and one that is more consecutive than simultaneous, such as a homework-feedback model of teaching languages.

And finally, the use of Cloud Computing technology in class also puts the students in the position where they have to become more autonomous as learners and acquire new technical skills because "(...) learning to use some of the more difficult tools may provide students with a stimulating challenge." (Siegle, 2011: 54) The above emphasizes the importance of technical literacy as a part of any curriculum, including a foreign language course and plays a part in developing.

2.3. Challenges

As every emerging technology, CC can pose a series of challenges to the teachers and students who want to utilize it in class. The issues noted below arise mostly from the author's experience in teaching with Cloud Computing technologies. The conclusion of all the aforementioned experiences is the statement that even though the technology is becoming more and more reliable, it is still advisable for a teacher to have a "plan B" when using CC in a language classroom.

One of the first issues that can be raised as a potential challenge to using CC in teaching a foreign language is the compatibility of Cloud Computing services between platforms. Even though CC offers far greater compatibility and platform-independence than hardware-based solutions, there are still some issues to be found in this area. The author has experienced some of them during distance teaching via Skype. On several occasions, when planning to use a Prezi presentation as an interactive whiteboard (section 4.3.3.) to serve as the primary teacher–student communication platform, it turned out that the student's device was not immediately compatible with that cloud solution. Because of the fact that the student was available on Skype via an Apple iPad, accessing the presentation required the installation of a dedicated application. It should be also stated that if the student was using an Android (phone or tablet) device to communicate with the teacher, the presentation would remain completely inaccessible (as of December 2012).

Another platform-related issue pertains to the use of the IT infrastructure located at the university. If a teacher wants to use the IT room at the premises, he or she needs to make sure that all the computers have updated software, especially up-to-date browsers and plug-ins. Since updating ten machines can take some time, the use of such resources requires logistical preparations.

Another possible obstacles in using CC technology in class are Internet connection issues. A teacher who often relies on CC technology should be equipped with an alternative Internet provision device, not to be limited to the on-site Internet connection.

Also sometimes, when cooperating creatively on a document or presentation, the changes made might not be immediately visible. This can interfere with the flow of a lesson and create distractions to students.

One of the crucial concerns when using a Cloud Computing solution in the classroom is the involuntary deletion of materials. This can happen especially when many users have access to one resource. If the resource in question is a folder with course materials, one of the users with editing privileges may involuntarily delete it. This can be mitigated by the appropriate management of editing and viewing privileges that are granted to users. A more important concern, however, is connected with collaborative involvement in a given project. In a situation when all users have editing privileges, a voluntary or involuntary deletion or tampering with the content of a CC resource is a possibility. That is why it is advisable to have offline copies of all crucial materials and make online backup copies by using a functionality that is usually described as "save as copy" in the cloud service.

Another challenge that an aspiring CC teacher could face is the fact that the user interfaces of Cloud Computing services evolve constantly. The providers of Cloud Computing services, driven by the objective of streamlining and improving user experience, make frequent changes to their service. From the user's perspective, these changes are often unwelcome as they can be confusing and misleading, especially when it comes to the location of the resources, basic operations and workflow. A recent (November 2012) change in Prezi which rendered keyboard shortcuts – a crucial element of the user experience – inactive, can serve as an example.

Traditionally the biggest concern with all cloud solutions is privacy and the handling of sensitive data. There are several aspects of this issue that are given a varied amount of attention in the social and traditional media. Mostly publicized are the scandals of unwarranted access to resources by governmental agencies (Ambinder, 2012). Another frequently covered issue pertains to the fact that a service provider uses materials submitted by the users to target commercials at them. From a teacher's point of view, it is important to note that all of the free-of-charge Cloud Computing services are inherently businesses. For that reason one of the key obstacles to using CC resources is the necessity of having an account with the service provider. The author believes that a teacher should not expect students to set up such accounts because, by doing so, he or she forces and promotes a certain product. That is why, whenever possible, teachers should use a non-public option for CC solutions. Currently, privacy settings on most CC resources give the user three options: public, non-public and private (e.g. Google services). The difference between non-public and private is that a non-public resource is not searchable online, it can only be accessed through a unique, generated URL and, as such, does not require the user to sign in to an account. A private setting means that only users with explicitly granted access can reach the resource.

One other concern is connected to the security of data located on a CC server. The risk of a data loss by the provider – although small – remains a possibility. Other possible scenarios include the provider going out of business or being apprehended for copyright violations. Because of all the aforementioned factors, teachers should develop a habit of always creating backup copies of their cloud resources.

3. Presentation of free online Cloud Computing solutions

In the sections below we shall focus entirely on services that are freely available to users, which translates into their convenient implementation for educational purposes. It has to be noted however, that the term "free" is not the most suitable of words in the context of the Internet. It would be more appropriate to name those solutions "free-of-charge," as users pay not by monetary means but by granting information to the service providers (Szupelak, 2011, 2012). For example, when it comes to Google Drive, the freely available storage space and editing capabilities are granted in return for the user's advertising profile, obtained by Google on the basis of the information he or she provided. Having said that, the services that will be analyzed are available without a need for a monetary payment and all of them can be practically utilized in educational situations.

4. Examples

4.1. Google Drive

Google Drive (formerly known as Google Docs) is a service that primarily allows for the creating and editing of documents in formats traditionally associated with Microsoft Office applications. Additionally, Google Drive offers storage space for files in other formats. But its main competitive advantage is the fact that "Google Docs utilize superior technology to save changes to the wiki so frequently that one user can see the changes made by another as two or more users are writing on the wiki at the same time." (Stevens, 2010: 126) Even though the simultaneous dimension of the service can offer a number of interesting educational solutions for teachers and students, Google Drive can also be creatively utilized as a non real-time resource.

There are several uses of Google Drive in educational settings, all of them tested by the author. These are:
- creating glossaries,
- making course materials available to students,
- creating e-learning and blended-learning solutions,
- cooperating creatively,
- distance learning.

All of them are analyzed below.

4.1.1. Creating glossaries

Creating glossaries that are accessible to students is one of the most obvious uses for Google Drive. A teacher can create a document (most preferably a spreadsheet) with several categories into which the participants can submit lexical items covered in class. The spreadsheet format allows for a convenient use of cells as categories

of lexical items and facilitates organizing, reorganizing, filtering and searching. Those categories may include the following items:

- expression,
- translation,
- example use.

The spreadsheet format has additional benefits, such as the fact that a single document may contain several sub-sheets that can be divided either thematically (e.g. into business terminology and general vocabulary) or into parts of speech. The latter solution is useful in raising students' linguistic awareness, which in turn contributes to the development of their global understanding skills. Additionally, most of the cloud solutions are now accessible on mobile devices, which enables the students to review the aforementioned glossary at any time.

4.1.2. Making course materials available to students

A teacher can make course materials available to students by using the file sharing function of Google Drive. This is mostly applicable, when a course book is not the main vehicle of language teaching, for example during tailored courses or when teaching a language for specific purposes. In those situations, a teacher can share materials to achieve a variety of goals. One of the key uses that sharing course materials might have in a language teaching environment is working with a mixed-ability group. The participants can have permanent access to a master folder with all the course materials and the teacher can make selected materials available before the lesson. The students who find lessons slightly more challenging are aware that the materials are being regularly posted and are encouraged to look at them prior to the class. Here, Cloud Computing offers a substantial assistance, as it is easier to systematically upload relevant files to a CC server than it is to consistently send emails to selected participants. An additional value of such a solution is that the students are encouraged to take greater responsibility for their instruction which is crucial in developing learner autonomy.

4.1.3. Creating e-learning and blended-learning solutions

Google Drive can serve as a free-of-charge alternative to expensive e-learning platforms. The ease of both text, html, and hyperlink editing makes it possible to develop e-learning tasks that way. Using Google Forms, a teacher can create reading comprehension tasks which consists of a text, an exercise and an answer key available by page-to-page hyperlinking. The task can be accessed using a single link or simply by being put in the relevant folder, but the following pages are only accessible via a hyperlink in the first document. Obviously, there are certain drawbacks of using Google Drive as an e-learning tool, one of which is the lack of student accountability, as a Google account is needed to check whether the student completed the task. Since the author of this text believes that teachers should

not use lessons to promote products, they cannot expect the students to set up their own Google accounts just for the monitoring purposes. Another drawback of Google Drive as an e-learning solution is the impossibility to limit how many times a student listens to an audio material in a listening comprehension task. All of the above drawbacks can be ameliorated by employing blended learning techniques: delivering the task in real time, through technology-mediated interaction.

4.1.4. Creative cooperation

The first-time participation in a cooperative creation of a Google document is truly a mesmerizing experience – extremely inspiring and, at the same time, slightly intimidating. Vance Stevens noted that collaborative editing "(...) can yield interesting affordances in online classes as well as in face-to-face learning situations where students and teachers interact together in the wiki, with the output visible to the whole class via projection to a whiteboard. This feature makes Google Docs the wiki of choice when multiple writers need to work on the same wiki simultaneously or when students or teachers want to give immediate feedback on each other's writing." (Stevens, 2010: 126) Additionally, gaining experience in creative collaboration can motivate students to develop team-working skills and make them fully realize the power of cooperation. This can be mostly realized because in collaborative writing "the synergy of the group can produce a new text that no one could have produced alone." (Kittle & Hicks, 2009: 527)

4.1.5. Distance learning

Thanks to all of the aforementioned capabilities, Google Drive can be effectively utilized as a distance learning tool. Additionally, the cooperative aspect of the service makes it possible to use a Google document as an interactive whiteboard on which both the teacher and the student write.

4.2. SoundCloud

SoundCloud is a service that enables users to upload, listen and comment on audio files – both on computers and mobile devices. But, the functionality that makes SoundCloud really appropriate for teaching languages is its "timed comment" functionality. Users are capable of writing comments that appear on screen as pop-ups once the playback reaches the point where the comment was originally posted. This feature makes it possible to use SoundCloud as a feedback platform.

4.2.1. One-to-one teaching (feedback tool)

Especially in a one-to-one setting, SoundCloud is a powerful tool for mitigating errors and addressing fossilized issues in spoken language. The teacher can record

the spoken production of a student or ask him or her to record their speech directly to the service (this will require an account). Once this is achieved, the teacher provides written feedback on the recording. The feedback can concentrate on a variety of aspects, such as grammar, pronunciation or presentation skills. The main challenge for the teacher is to come up with a coherent and comprehensible method of providing feedback in writing. Of course, it is possible for the teachers to record their own version of the students production and upload it to SoundCloud to achieve more direct results. Due to the fact that typing feedback is time-consuming, SoundCloud is mainly used for one-to-one tuition. However, a situation in which a class negotiation or a role-play is recorded and uploaded to SoundCloud for feedback is not impossible.

4.2.2. Distance learning

SoundCloud can also be utilized when teaching remotely, as a convenient way to share non-course book audio resources for listening comprehension tasks. Also, elements of Skype conversations can be recorded to serve as feedback material used to mitigate speaking errors in the manner described in the previous section.

4.3. Prezi

Prezi is an online tool for developing presentations. In its concept, Prezi steers away from the slide architecture known from Power Point-type presentation software, offering in return a "canvas" ideology, where the user can freely zoom in and out of and link elements by paths.

4.3.1. Collaborative projects

Being a potent presentation tool in and of itself, Prezi also offers a capability called "Prezi Meeting," which enables users to create presentations together. This gives the teacher the option of assigning a collaborative homework which will not require the students to be physically present when creating a project and will allow them to work on a project in different times. When using a computer room, it is also possible to utilize Prezi for a real time project creation, although many of the challenges mentioned in section 2.3. may present themselves in such a context.

4.3.2. Communication tool

Since the canvas of a Prezi presentation is almost unlimited, a teacher can make it a primary tool for contacting the students. It is possible to include all visual materials for a semester-long course on one "canvas" and, by granting the participants access to it, facilitate the learning and recycling of the covered topics. An issue that should be taken into consideration, however, is the security risk (section 2.4.)

connected with centering communication with the students around a cloud-based presentation. Hosting server issues, although uncommon, are still a possibility that can result in the loss of the course materials. Also, when editing a Prezi presentation, there is the risk of error and data loss. The fact that in its free format Prezi presentations are publicly available may discourage some teachers from using this technology as a primary communication tool.

4.3.3. Distance learning

Prezi can also be used for distance learning in a similar way to how Google Drive is (section 4.1.5.): as an interactive whiteboard. There are, however, several benefits to using Prezi over Google Drive, the first one being the superior flexibility of the platform. Prezi allows a teacher to add a picture to the "whiteboard" to reinforce comprehension almost in real-time. Additionally a teacher can import a PDF document, or even a scanned page from a course book, and seamlessly type over it. The virtually unlimited zooming capabilities enable the teacher to include translations or comprehension hints over any scanned document. Additionally, the instant availability of basic visual symbols such as arrows, shapes, highlighting and lines facilitates real-time communication with the student. This renders a "describe a picture" activity easier in a distance learning environment than it is in class, as the teacher can easily direct the student's attention to certain details by simply drawing a shape over the actual picture.

4.4. YouTube

YouTube is a, now ubiquitous, video sharing service. Its use as a source of authentic and prepared lesson materials is well-documented as it has become an absolutely indispensable tool for many teachers who prefer using authentic materials in class. It is classified as a CC service because it grants access to resources from any Internet-enabled machine.

4.4.1. Resource central

The primary Cloud Computing use for YouTube is storing and sharing video materials. It gives the students the opportunity to access and view videos covered in class. This is especially important as, unfortunately, sometimes the quality of both the audio equipment and the room acoustics remains questionable. The teacher can either upload a film he or she wants the students to watch or can select a resource for the students to interact with from the pool of uploaded videos. An important concern when using YouTube pertains to its strict copyright policy. That is why teachers need to be careful not to share materials that are protected by copyrights. Luckily, a teacher can challenge a copyright infringement claim, as fair use for educational purposes allows for an inclusion of small chunks of copyright-protected material.

4.4.2. Skills feedback tool

The ability to upload and post comments on videos makes YouTube a useful tool for developing certain professional and interpersonal skills. A teacher can record a video of a student delivering a presentation and then provide both general and written feedback. He or she also has an option of recording a video response with suggestions regarding, for example, body language as a crucial presentation skill. Additionally, screencasting[2] technology enables the teacher to deliver feedback on a presentation file, such as a PowerPoint presentation, and later share it via YouTube to be accessed and viewed by the students.

5. Conclusion

Cloud Computing technologies provide teachers with new opportunities and new perspectives on teaching. They also challenge the teachers' creativity by encouraging them to find educational uses for platforms and technologies that were conceived without having teaching and learning in mind. But probably the biggest challenge that CC technologies pose to a language teacher is the necessity to continuously familiarize themselves with emerging solutions. Due to the fact that it takes significantly more time and effort to acquire technological literacy than to simply maintain and develop it, teachers should constantly invest in their own technical skills. Here, an ability and inclination to make technological predictions can prove beneficial.

There are currently two major directions that I believe technological development is going to take in the coming years, both of which will have an impact on teachers and students. The first development will be the continuous migration of IT technologies and resources to mobile devices. The Internet is now more commonly perceived as an inherently mobile phenomenon, which is in strong opposition to the traditional perception of it as a localized service available on desktop computers. This development will contribute to the growth of Cloud Computing services and will initiate certain educational expectations, on the part of the students, to be able to access course materials anywhere and anytime to facilitate learning and manage time devoted to education.

The second phenomenon is the increasingly seamless interfacing between humans and technologies. The advent of touchscreen devices, developments in voice recognition and voice commands are all signs of the evolution of how people and machines communicate. This will also bring new experiences to education. But as those interfacing methods are equally distributed between natural human reflexes and acquired skills, the teachers must at all cost stay in touch with those developments.

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2   S c r e e n c a s t i n g refers to recording the display of your computer or laptop while narrating what is displayed.

Cloud Computing is just one of the recent technological developments with a profound impact on the world of education. The opportunities it offers, although sometimes unintentional, bring the promise for the future of giving even more possibilities for educators. And since ongoing personal and professional development is one of the obligations of all teachers, mastering Cloud Computing technologies can be an inspiring way to fulfill this requirement.

References

Ambinder, M. (2012). What the Heck, FBI? *The Week*, 13 Nov. 2012. Web. 21 Dec. 2012.

He, W., Cernusca, D. & Abdous, M. (2011). Exploring cloud computing for distance learning. *Online Journal of Distance Learning Administration*, 14(3).

Kittle, P. & Hicks, T. (2009). Transforming the group paper with collaborative online writing. *Pedagogy*, 9(3), 14.

Mell, P. & Grance, T. (2011). The NIST Definition of Cloud Computing, Recommendations of the National Institute of Standards and Technology, US Department of Commerce.

Siegle, D. (2010). Cloud computing: A free technology option to promote collaborative learning. *Gifted Child Today*, 33(4), 41–45.

Siegle, D. (2011). Technology: Presentations in the cloud with a twist. *Gifted Child Today*, 34(4), 54–58.

Stevens, V. (2010). Writing in a multiliterate flat world, part I: Multiliterate approaches to writing and collaboration through social networking. *Writing & Pedagogy*, 2(1), 117–131.

Stevenson, M. & Hedberg, J.G. (2011). Head in the clouds: A review of current and future potential for cloud-enabled pedagogies. *Educational Media International*, 48(4), 321–333.

Szupelak, W. (2011). *Interakcje internetowe*, nieopublikowane materiały szkoleniowe ze szkolenia dla nauczycieli szkoły Accent School of Polish, dotyczące korzystania z technologii Cloud Computing na zajęciach języka polskiego jako obcego.

Szupelak, W. (2012). *Interakcje internetowe 2*, nieopublikowane materiały szkoleniowe ze szkolenia dla nauczycieli Jagiellońskiego Centrum Językowego, dotyczące korzystania z technologii Cloud Computing na zajęciach języka obcego.