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LEARNERS TEACH LEARNERS IN THE CLOUD: INSIDERS' PERSPECTIVE

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Abstract. *This paper discusses the learners' and teacher's perspectives on the Learners Teach Learners in the Cloud approach as initially designed by the author. The context is a course based on a textbook developed by the author together with Denitza Charkova. Both strengths and room for improvement are addressed within this active learning and active teaching endeavor. The pilot course was run with 81 first-year students at FMI, Plovdiv University "Paisii Hilendarski". Google Drive was found to be a potent e-Learning environment empowering teacher and learners alike for a personalized learning perspective.*

Keywords: Learners Teach Learners in the Cloud, Cloud computing, Google Apps, Google Drive, Lifelong learning, key competences
Mathematics Subject Classification 2010: 97U50, 97Q60, 97U20

1. INTRODUCTION

Innovation and productivity are two of the key indicators of progress in modern society. Educational institutions, being an integral part of the real world and its economy, are therefore expected "to be fast learners and introduce innovation to respond to the ever-increasing diverse body of students" [1]. The teaching professionals of IT, therefore, need to learn and experiment all the time to be efficient in the heterogeneous classrooms where some students' knowledge and skills sometimes exceed their own [2]. In addition, formal education has faced criticism by both employers and learners in terms of somewhat loose connection between the knowledge and skills acquired in academic settings and real life demands. More often than not, quite a few learners' attitudes tend to neglect the potential of formal schooling loftily assuming that "everything is available online". Hence, the greatest challenge in the classroom: the teacher must compete vs the Internet to justify his/her place and role. One avenue of success is to offer learners solve real-life problems in contexts where the Internet cannot provide ready-made solutions, but can rather serve as a tool, reference, etc. [3]. The challenges in education can be efficiently met by involvement of learners and teachers alike equipped with lifelong learning attitudes within an approach of learning autonomy and facilitated by Cloud computing. One efficient option is Ivan Shotlekov's model

for Web-based Interdisciplinary Project-Oriented Teaching of Information Technology (WIPOTIT) [ibid.]. In this paper we shall consider just one of its aspects: Learners Teach Learners in the Cloud (LTLC).

2. RATIONALE

Information and communication technologies (ICT) are ubiquitous and play a major role in education – from a learning environment to administrator [4]. In some settings, e.g. due to financial austerity restrictions, innovative teachers have not been able to rely on institutional logistical support and some have been discouraged by the technology challenge. With the advance of ICT, however, teachers have been empowered to focus more on how to enhance their methodology with technology rather than on how to actually use technology for their purposes. Cloud computing takes this to a further higher level. As this term is rather broad, we refer to it in terms of "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" [5].

To make learning more interest-provoking, students need to be immersed in handling current data, which in terms of a school environment means information that is meaningful both to students and teachers [6]. An additional challenge facing education is related to "the fact that the knowledge acquired in the process of training and use of new technologies affect all further real life skills related to the social realization of an individual" [7]. An ever growing trend in pedagogical theory and practice is the so called reflective teaching and learning whereby "models of reflexive educational practices are elaborated stemming from the development of psychological sciences and the new didactic approaches (humanistic, personality-oriented, reflexive, situational, communicative-expressive, value-oriented, and synergetic approaches) [8].

Further explorations are needed into the relationship between teacher and learner autonomy and experts remind that "autonomy refers to both participants, not just to the learner" [9] and elaborate that "in this approach, teachers and learners become analysts of their own practice and critical informers of the educational community" [ibid.]. LTLC provides learners and teachers with some opportunities for raising their awareness along those lines. As early as in antiquity, Seneca argued that when one teaches others, s/he teaches her/himself. LTLC is not just about getting a full grasp of the content knowledge, but it is mainly about the understanding the process of learning, taking into account various learning styles and preferences.

3. IMPLEMENTATION

According to the language placement procedure in place at FMI, at the beginning of the course, first-year students are re-administered to groups in which they are

placed according to their level of English determined by a diagnostic test. Those of them with levels B2-C2 are generally taught by Ivan Shotlekov's WIPOTIT method based on the English for ICT series. According to the Grading Policy for FMI language courses, at the end of the course the final grades are formed on the six-point scale based on the average of the two grades for the two trimesters of English studies as a weighted average of students' scores from:

- continuous assessment (tests or other assignments during the course which account for 30% of the final grade)
- individual work (project assignments during the course – 40% of the final grade), and
- exams (during the last week of each of the two trimesters a test is given covering all the material studied until then and it represents 30% of the final grade).' [10 Shotlekov et al.]

During the first trimester, students use the first course book: *English for ICT: Lifelong Writing in the Cloud*. This serves as a bridge to both using Cloud technology – Google Drive, and also building capacity to work on projects and readiness to work on teams. The learning content and skills developed have been prudently selected in view of students' current and future academic and professional needs and prospects. They are involved in designing and implementing a variety of activities and projects, e.g. applying for a job or a degree program, design and development of presentations, web content, technical support, terms of reference, technical reports, etc. The textbook promotes reflection and critical thinking through a wide range of personalized learning experience: from ethical issues such as plagiarism, to practical outputs such as press release suitable for strongly heterogeneous groups [11 Charkova]. Thus, students are ready to proceed with the second module: *English for ICT: Learner Autonomy in the Cloud* [12 Shotlekov].

Within LTLIC, students are involved in project work on teams of 3 to 5 students. Topics based on current information are negotiated in advance with the teacher's facilitation. The number of topics will vary according to class size and number of hours allocated to this course. Figure 1 illustrates the setup for a team made up of four members.

Figure 1. Project work design

This design gives each student the opportunity to play the role of team leader during the two stages: 1. Developing a training module on a topic and 2. Deliver the training to the rest of the class. In case of larger classes where it would be impossible to conduct the training involving all students and topics, some of the training sets, i.e. some topics, are left for self-study. Within the overall duration of the course, the process does not involve more than four rounds of development & delivery sessions. The last week is dedicated mainly to course evaluation, final test, and grading.

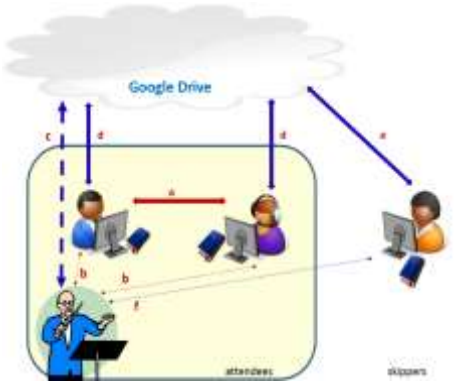

Figure 2. Cloud-mediated communication in the learning process. a – Students-Students face-to-face; b – Teacher-Students face-to-face; c – Teacher-Students Cloud mediation; d – Students-Students & Students-Teacher Cloud mediation; e – Skippers-Attendees & Skippers-Teacher Cloud mediation; f – Teacher–Skippers Cloud mediation

Cloud computing allows for great flexibility of the learning process. Students who are unable to attend classes are not excluded or put at a disadvantage, but are rather given the opportunity to perform and deliver because the Cloud is open 24/7/7. Even if a team member has to be physically far away from the classroom during a particular class, s/he can still be fully involved, both during the preparation stage and during the delivery stage.

The teaching/learning modules are developed in Google Drive in a team-shared folder following a common Training Materials organizer and a Training organizer formats. The first one helps students prepare materials of adequate pedagogical quality consisting of the core components. Each topic is divided into 3 to 5 subtopics, depending on the number of team members, and each subtopic is developed through a dedicated website (implemented using GoogleSites) featuring: Article; Reference(s); Glossary of terms; In-class-activities; Language highlights (based on the article, In-class-activities, and Presentation); Presentation (Google Presentation); Further reading; Out-of-class activities and QUIZ (Google Sheets and Google Forms + the Flubaroo script for Individual & group average scores).

Once the teams have developed their modules with facilitation from the teacher, each team prepares, team-teaching when possible, of their module. Their rehearsals are based on the Training Organizer which features a lesson plan and is designed to make sure students are aware of the pedagogical basics. Learner-trainees have

access to each of the topic's dedicated websites developed by the relevant team of learner-trainers. One possible unfolding of the teaching/learning process is illustrated in Figure 3.

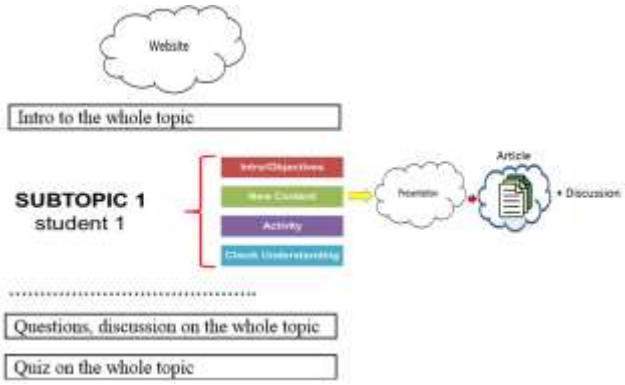

Figure 3. Learners teach learners: delivery stage

After a training session on a training module, both training team and trainee students spend some time reflecting on the learning experience using the Training module Self-Evaluation / Peer Evaluation Forms.. This feedback will help the teaching team do an even better job next time and will help trainees to this topic generate ideas for the class when they will be trainers on another topic.

4. RESULTS AND DISCUSSION

Upon completion of the course, all students took part in the course evaluation using an anonymous online form and an open discussion. Their insights are meant to help teachers offer a better course the following year and at the same time are an opportunity for a reflection of the overall experience. A 5-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly agree) was used for the first section of twenty questions. The data presented below will cover the 53 subjects taught by the author, as the other 28 were taught by another colleague. They involved 36 males, 16 females, and 1 "Other". For the 20 items, the mean is 71.6, SD 11.6, alpha 0.90, SEM 3.6.

For the respondents in the course evaluation questionnaire, there was a correlation between their satisfaction with the course on the one side, and being motivated participants, improved way of learning ensuing from the course, improved management skills as a result of the course, teacher-simulated interest in the course, recommendation to use LTLIC on other courses, acquired knowledge useful for the subjects' prospective careers, and acquired skills useful for the students' future careers. For all of these pairs, Pearson's r was greater than 0.5 ($p<0.05$), which can be considered a large effect.

Students' responses (N=53) to the two open questions: Q23 What did you like about this course? And Q24 What did you dislike about this course? are summarized in Figure 4.

Likes	n	Dislikes	n
Team work	17	Nothing	16
Cloud computing	7	Teamwork	11
Everything	7	Too much work	6
Topics ICT - content knowledge	4	ICT topics	4
Learners-Teach-Learners-in-the-Cloud aproach	3	n/a	3
Presenting information	3	Not enough teacher input	2
Training preparation	2	Early start at 9.15	2
Flexitime	2		
Meeting deadlines	2		

Figure 4. Students' likes and dislikes about the LTLIC course

It is interesting to note that team work was at the top of the two lists. Several explanations can be suggested. There were students who found it difficult to work on teams and comply with deadlines, sacrifice ideas they felt strongly about, etc. Nevertheless, others were disappointed with one or more of their teammates who failed to perform and thus impaired the quality of the whole module at development stage, at delivery stage, or at both. However, there were also some students who had no previous experience with team work and found it hard to adapt to this mode.

Another point that got the same number of positive and negative reports were the ICT topics. The negative votes can be explained by the fact that there were a couple of topics that appealed to more than one team, but for technical reasons had to be assigned to only one of the teams. Of course, some of these first-year students had very little ICT background and found the learning curve too steep.

The Cloud computing component and the LTLIC approach were also reported as good practice on this course. Some students reported they liked everything.

There was a question (No 21) asking students if there is a better alternative to Google Drive as an environment for this course and if so, if they could put forward another option, but 51 out of 53 subjects did not make a suggestion (answered "No"), while only two mentioned SkyDrive and added they were not sure it would be more appropriate for our purposes. That confirmed the suitable choice we had made prior to the course.

Some of the dislikes were about too much work and not enough teacher input. These first-year students possibly expressed their anticipation to carry over high school practices at university level. They apparently were not prepared for an active role in the learning process. There were even two respondents who admitted 9:15am was an early start of the day for them.

Most of the responses to the question about what students disliked were "Nothing" which is indicative of students' satisfaction with the course expressed during discussions in class.

The Cloud offers a solution to one of the most notorious problem impeding project-based learning. A team member's physical absence from class is no more a valid excuse for failing to deliver. Now a student who is not able to physically come to class, is able to do their part of the team work at another time and place. Within LTLIC, each team member has clearly defined and comprehensively laid out duties, related to a subsection of the training module, thus being unable to fail

the whole team's efforts. Assessment is personalized and scrutinized, while self-evaluation and peer evaluation are meant to promote students' critical reflection and learning. Building learner autonomy while practicing the target language in meaningful career-oriented context is at the heart of this approach.

5. CONCLUSION

During the pilot course discussed in this paper, it was found that Ivan Shotlekov's Learners Teach Learners in the Cloud approach provided learners with the opportunity to further develop all of the eight key competences for lifelong learning: communication in the mother tongue; communication in foreign languages; mathematical competence and basic competences in science and technology; digital competence; learning to learn; social and civic competences; sense of initiative and entrepreneurship; cultural awareness and expression. [13] The Cloud in terms of Google Drive empowered the methodology by offering accessibility and flexibility in addition to functionality needed by both educationalists and learners.

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О4 – ОБУЧАЕМИ ОБУЧАВАТ ОБУЧАЕМИ В ОБЛАКА: ПОГЛЕД ОТВЪТРЕ

Иван Шотлеков

Резюме. *В тази статия ние представяме гледната точка на обучаемите и обучителите върху подхода О4: Обучаеми обучават обучаеми в Облака по проект на автора на настоящата публикация. Контекстът е курс на обучение въз основа на учебник, разработен от автора съвместно с Деница Шаркова. Обсъждат се както силните страни, така и възможностите за усъвършенстване при това усилие за активно учене и обучение. Подходът беше апробиран с 81 студенти от първи курс на ФМИ, Пловдивски университет „Паисий Хилендарски“. Google Drive беше единодушно определен като мощна среда за електронно обучение, която овластява както преподавателя, така и обучаемите в аспекта на персонализирано обучение.*