

# Cloud Computing Platform to Structure Students Educative Time after Schools Time

Habib M. Fardoun<sup>1</sup>, Daniyal M. Alghazzawi<sup>1</sup>, Antonio Paules Cipres<sup>2</sup>

<sup>1</sup> King Abdulaziz University, Faculty of Computing and Information Technology,  
Information Systems Department, Jeddah, Saudi Arabia

<sup>2</sup> University of Castilla-La Mancha, Polytechnic School, Information Systems Department  
02071 Albacete, Spain

**Abstract.** Nowadays, new information technologies near to Cloud Systems are being applied on Educative techniques for primary and secondary students. These have been following established attributes to facilitate and support interaction with other Clouds where the needed services are hosted, providing the system flexibility and capacity to add more and new services. In this paper we present a study related to the minimum platform necessities aiding at supporting teachers and parents to help students structuring and organizing their time after the school classes. Other than managing students' free time, the platform is also designed and developed so to study techniques for scholar centers according to departments' orientation and to aid everyday students' homework feedback.

## 1 Introduction

Nowadays, primary and secondary education students are focused on the learning process as such [1]; therefore, Classroom Assistant Techniques (CATs) forefront new study habits consecutions used along their lives outside school activities. This is of great importance as in the current Spanish society; we may find an elevated rate of academic failure in the Obligatory Secondary Education [2]. Since the use of ICTs in schools, we find a striking improvement in the students' ways to pass their courses [3]. This suggests that the creation of educational platforms that make use of such ICTs are appropriate and necessary; most importantly, exactly those that young people utilize in their schools so to facilitate CATs within Obligatory Secondary and Primary Education. Current teachers are qualified in the ICTs utilization in their classrooms, The goal of our educative platform is to create a system for the teachers to implement and control CATs with their students; thus, students can obtain better academic results. We also include foreign languages platform translations because they currently exist as pendent subjects within the Spanish educational curriculum. On the other hand, one of the most commonly used ICTs is the inclusion of Cloud systems in the current educational systems so to provide flexibility to its users. The architecture within the Cloud where the included needed features by the students are:

Distribution of time slots, Parents' tracking, Teachers' tracking, and foreign language specialists.

CATs are carried out through a distribution of student's time and specific exercises implementation towards the improvement of their personal work as well as associated methodology, additionally taking into account the English language improvement inside the platform. Consequently, we propose a platform that facilitates and supports the educative content reinforcement as well as the curriculum support as such. In this development we took into account the hardware devices appearing in the market and increasingly becoming part of students' daily life. Thus, the students improve their scholar performance using specific CATs to provide a solid ground also for foreign language subjects. In this paper we conducted a study over the minimum necessities for an educative platform design and development aiming at providing teachers and parents the tools to help students to structure and organize their time after school. This platform does not only manage students free time, but it also provides orientation through CATs so that scholar centres, and specifically orientation departments, based on an initial associated to each student curriculum analysis, can help to establish the reinforcement of learning activities and homework that the teacher assigns each student. These CATs have the potential to improve students' academic results, as they in turn reinforce the curriculum content through each student's deficiencies related to the curriculum.

## 2 State of Art

Classroom Assessment Technique (CAT) is both a teaching approach and a set of techniques. The approach is that the more you know about what and how students are learning; the better you can plan learning activities to structure your teaching. The techniques are mostly simple, non-graded, anonymous, in-class activities that give both you and your students' useful feedback on the teaching-learning process. Classroom assessment differs from tests and other forms of student assessment in that it is aimed at course improvement, rather than at assigning grades. The primary goal is to better understand your students' learning and so to improve your teaching [4]. The current CATs emphasize that in order for the students to success in studies a good educative process plan and a good study method has to be in place [5]. In this study planning, teachers and students must take into account:

- The material to take over in the exams or in the practices to evaluate.
- The performed effort to achieve this knowledge level.
- The available preparation time.

With it we determine students' daily study rhythm that the teachers have to establish from the beginning of the course, as for example the lessons content, organization and structure as with the Personal Learning Environments (PLEs). Adell and Castañeda (2010) define PLEs as "*the set of tools, information source, connections and activities that each person usually use to learn*" which "*it is configured with the tools and services that permit us the access and the relation with the information and other people*" [6]. However, in our search we couldn't find any platforms directly

linked to CATs and students' organization for their daily learning activities and homework linked to the associated reinforcing activities. We found Web pages or applications oriented to conventional resources or English resources. Results from our own previous studies [7], revealed that Cloud systems provide a place to store such PLEs so it is easy to be adapted to the everyday educational and organizational necessities [8]. We have also taken into account the scholar organization and the planning structure to improve the student's curriculum [9], work at home and interactivity with the teacher in the class [10].

Also, we couldn't find any type of specific software in the market to aid tutors work improvement by using CATs for a conventional academic course. As a discrepancy was identified, we decided to create a new educative platform designed to include day-by-day related CATs. In this platform, we take into account the new currently hardware devices such as devices for the time control (clocks) and interactive glasses (Google) [11].

These hardware devices include students' daily interaction with each other via the platform. So, students can perform their learning activities in any moment and at any place. For this paper, we suggest the following research question: *Do Google Glasses facilitate students to realize learning activities in a guided excursion or in an organized skill-based environment following the clues in CATs?*

### 3 System Architecture

To finalize the platform architecture, we added more attributes to those presented in [12][13][14], plus those the Spanish legislation indicates:

- **Curricular Elements:** listening, speaking, writing, reading and oral interaction.
- **Distribution of Times:** such functionality facilitates the teachers to realize the learning activities distribution times. It conveys the planning form a teacher activates and submits to determine the time to do each activity.

We have designed and developed associated and appropriate system architecture in the Cloud covering platform's technical needs so the users (parents, teachers, students...) acquire a place to first, meet each other and thus, realize CATs work on any determined environments (school, home, etc.).

Usually the educational platforms, like Cschool [7], provide official curricula supporting the students in their learning activities; these are formed by their knowledge, abilities and skills, the level of consecution of the goals and the basic associated competences, see Figure 1. To include the necessary data to CATs, we designed an interoperability layer between the educational platforms. This is only a set of Web services connected with each other so to support interoperability by providing each educational platform an access and communication point. The next layer supports system actors (teachers, parents and students) and their access through the applications in order to work on the recommended tasks. In a dark green colour CATs are the Study Techniques where the students are anchored for working on their homework (i.e. learning of a foreign language such as "English"). We also add to the system reinforced activities so that teachers can select activities according to the

needs of a specific student. These personalized activities have a linear time structure to organize the homework.

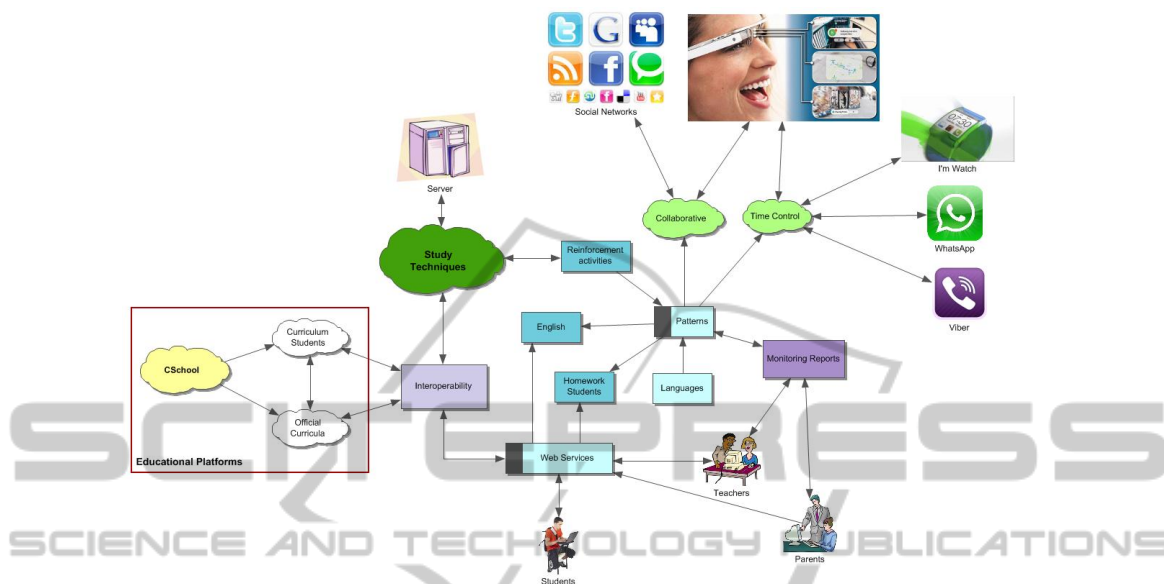


Fig. 1. System architecture.

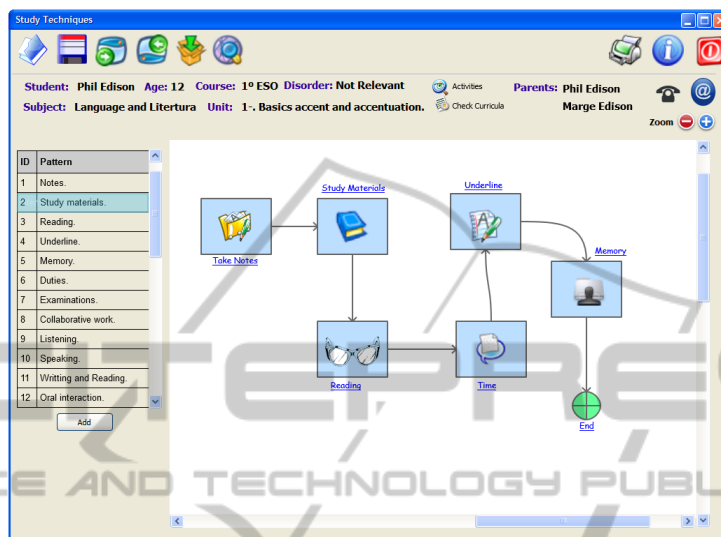
The collaborative work is feasible through social networks (almost all spanish students in schools has an account in at least 1 social network [1]) near to current interactive devices to facilitate us so to work collaboratively. This form of interaction supports the teachers to prepare interactive sessions with the students. The cloud “Time Control” is a system that provides the alerts for students, teachers and parents. It works as a scheduler and as a reminder. Thus, students can organize their times, and teachers and parents will be able to observe the time use for their children inside the system. This system activates an alarm when receiving alerts from the CATs activities.

#### 4 How to use the Platform

Next we present a study case on creating CATs for students using interactive devices through a graphic generator that we developed for this purpose. This editor is based on the “drag and drop” events functionality and aids the teacher to compose the steps necessary for the students to make at home; the teacher controls the application, as in Figure 2.

Figure 2 shows an example of a teacher proposing CAT to a student in the first course of ESO; lesson 1 “language and literature area”. As we observe in the middle of the interface, the teacher creates activities and steps the student has to perform. In this case, the student’s work starts at class taking notes; then studies the given educational

material. Afterwards, the student has to perform compressive reading about the studied contents. At this point the teacher inserts a break time as “Time” within which the student has a break; after he comes back, he continues his work and finishes his learning activity. The teacher will be notified once the student leaves the work and



**Fig. 2.** Classroom Assistant Techniques generator using interactive devices and time distribution.

the time he returns back. Parents can also have control of the system when using Google+ and other interactive devices like an Android clock, which is connected to the application through the Cloud, so to display their children’s study hours.

## 5 Conclusions

Nowadays educational systems are capable of supporting students’ personal needs on their everyday learning activities. The presented research shows the importance of implementing Classroom Assistant Techniques initiating at the beginning of the course, and to integrate them within the new ICTs and interactive devices currently available in the market, like Google glasses and Android clock, supported by interoperable technologies, and Cloud Computing.

This tool is being used by a set of professionals, teachers and students, to study its application and improve the uncompleted sections. After talking to the students’ parents they are in favor to make use of such tool that helps them to control their children time dedicated to their studies.

## References

1. Fardoun, H. M., Alghazzawi, D., López, S., Penichet, V., & Gallud, J. (2012). Online Social Networks Impact in Secondary Education. In International Workshop on Evidence-Based Technology Enhanced Learning (pp. 37-45). Springer Berlin/Heidelberg.
2. Julio Carabaña. Las diferencias entre países y regiones en las pruebas PISA. Facultad de Educación-CFP. Universidad Complutense de Madrid.
3. Sergio A. Berumen. Universidad Rey Juan Carlos. Karen Arriaza Ibarra. Universidad Complutense de Madrid. Medición de la intensidad en el uso de las tecnologías de la información y la comunicación en Escandinavia. Vol 58, No 1 Contaduría y Administración 58 (1), enero-marzo 2013: 289-306. ISSN: 0186-104.
4. Angelo, T. A., & Cross, K. P. (1993). Classroom Assessment Techniques: A Handbook for College Teachers, 2nd Edition. San Francisco: Jossey-Bass: Paperback.
5. Caballero Gómez, Rocío. Las Técnicas De Estudio Como Herramientas En El Proceso De Aprendizaje. Revista Digital Enfoque Educativo N° 59 1/04/2010. Págs 21-32 Issn 1988-5830. Editorial Enfoques Educativos, S.L.
6. <http://es.scribd.com/doc/80221642/Uso-de-las-TIC-y-tecnicas-de-estudio>
7. Fardoun, H. M., Antonio Paules Ciprés, Daniyal M. Alghazzawi. CSchool-DUI for Educational System using Clouds. 2nd Workshop on Distributed User Interfaces: Collaboration and Usability CHI 2012 Workshop. May 05th – 10th 2012. Place: AUSTIN, TEXAS, USA. Proceedings of the 2<sup>nd</sup> Workshop on Distributed User Interfaces: Collaboration and Usability. In conjunction with CHI 2012 Conference Austin, Texas, USA
8. Fardoun H. M., 2011. PhD Thesis, ElearnXML: towards a model based approach for the development of e-learning systems. University of Castilla-La Mancha.
9. Habib M. Fardoun, Sebastian Romero Lopez, Daniyal M. Alghazzawi, Jaime Ramirez Castillo, Education System in the Cloud to Improve Student Communication in the Institutes of: C-LearnXML++, Procedia - Social and Behavioral Sciences, Volume 47, 2012, Pages 1762-1769, ISSN 1877-0428, 10.1016/j.sbspro.2012.06.897.
10. Fardoun, H., Montero, F., & López Jaquero, V. (2009). eLearnXML: Towards a model-based approach for the development of e-Learning systems considering quality. Advances in Engineering Software, 40(12), 1297-1305
11. Bilton, Nick. "Behind the Google Goggles, Virtual Reality." The New York Times, Feb. 22, 2012, p. B1, [www.nytimes.com](http://www.nytimes.com) (2012).
12. Miguel Salas Parrilla. Técnicas de estudio para enseñanzas medias y universidad. Ed. Alianza Editorial, 1992, ISBN:84-206-0479-8
13. Bernabé Tierno Jiménez. Las mejores técnicas de estudio, saber leer, tomar apuntes y preparar exámenes. Ed. Temas de hoy, 1994, ISBN: 84-7880-352-1.
14. José Bernardo Carrasco. Estrategias de aprendizaje: Para aprender más y mejor. Ed. Rial, 2004, ISBN: 84-3213-489-0