Coaching for Students: Parents Tutoring Children as part of their Educational Process

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Abstract—**Parents are important for their children's development; they are the first order socialization agents, who, along with their teachers at school, are important for students' initial and fundamental learning affecting their personalities and lives. Therefore, we propose a joint action of both, teachers in school and parents as a coordinated and cooperated task related to educational work, so to become flattering and rewarding for students. Therefore, we propose an application that will help parents and students to combine major daily tasks. For students, it will help them in their educational process; and for parents, it will help them to efficiently control the educational process. In result, the tool is specifically designed to improve students' academic performance, and possibly affecting their future leaning paths.**

I. INTRODUCTION

EVEN though family and school are distinct, they share a common goal: to raise capable and autonomous citizens. The relationship between both is one of the most important pillars for students' educational growth helping them to reach their full potential. The family is children's first socialization agent. Inside the family, they acquire their first learning, set their first emotional bonds, and incorporate the patterns and habits of their social and cultural group. Therefore, the family plays a crucial role in children's developmental process. For the children to succeed in their educational labor, which is also shared with family and school, communication and coordination between parents and teachers is of utmost importance. Also, following the legislation, the main objective is to "*create a climate of cooperation between families, students, and school to improve the academic achievement and to increase the social adjustment in class, through the mutual teaching/learning process, respect and understanding*."

According to LOE (Ley Organica de Educación) [1], this law summarizes the need for Early Childhood Education; the schoolteachers are obliged to work closely with children's parents or guardians. There are two main reasons for the family and school connection: legislative and conceptual.

The first is based on the legislation. The Declaration of the UN Human Rights existing since 1984, states that parents have the primary responsibility for educating their children (Article 26, point 3) [2]. The Norwegian Children Act (Article 30) emphasizes parents' important role in raising their children, supporting and giving them an education commensurate for their abilities. The Education Act, (Article 1) [3], states that the school's role is to cooperate with families in the upbringing and education of their children. Therefore, families have the responsibility of raising and educating their children and thus, they should be partakers in the most important school subjects (97, 30).

The theoretical framework also emphasizes the important role of the families in children's school success [4] [5] [6] [7] [8]. In an OECD article called "Parents as partners in school" in 1997 [9], the relationship between family and school is analyzed; parents' contribution has significant impact on improvement demonstrating the importance of increasing the dialogue and cooperation at all levels, and building good relations especially in the earliest years. The Canadian project [10] shows that parents' positive attitudes towards school influence children's satisfaction and motivation. So school teachers are required to encourage parents' participation and cooperation as these are the most important factors in increasing children's educational achievements.

On the other hand, it is very important for the children to feel that the adults around them maintain and enjoy positive relationships. Research results show that children who have a positive experience in cooperative work and maintain positive relationships with adults, are less likely to develop problems inside and outside the school [11] [12]. Thus, 23% of school achievement may be related to family support [13]. This is a good correlation to consider between the quality of family-school relations, and academic achievement and school adjustment [14]. The two key factors that influence children's academic achievement are therefore the parents' educational level and the quality of cooperative work between home and school [15].

Raising children's education is a responsibility for both parents and schoolteachers, and the school's role is to

support and cultivate them. A good agency and school families will have a positive effect on student motivation and long-term achievement on the educational objectives [16] [12]. Social support from parents with academic background influence children in different ways: competence feelings, interest in school subjects, school achievement, and motivation to build relationships [12]. Children who do not feel supported by their parents triple the risk for stress-related to illness (headache, stomach, muscle, and impaired growth). There is also a strong relationship between family support and student behaviour, academic performance, and sense of self-confidence [17].

In this research, parents are considered as a key factor in their children's education. In the age of computing, such relationship between parents and schoolteachers can be supported as an easy and smooth process by several technologies and their incorporation in both school and home activities. The work presented in this paper is part of our work focusing on supporting the teachers, presented in [18]; here, we encourage parents to take part in their children's educational process, motivated by the use of technology, which can help this process to effectively work, also aid them to become aware of their importance in their children's school life.

II. Technology Enhanced Learning

Teachers' and also parents' training for the pedagogical use of new technologies must be conducted exclusively in terms of helping tutors to take advantage of using computer resources (both hardware and software) to manage and improve the teaching/learning process in the classroom and at home. So far, such training aims at making tutors mere users of digital machines as well as training managers in the facilitation of the educational process in the classroom and at home. Thus, almost all statistics [19] [20] show that the use of technology can have positive effects on the teaching and learning processes even on a basic level. But if, technology is introduced in both, the classroom and at home, such combination enhances the teaching and learning process, so the students can learn more, better and are motivated.

Today, computers are tools that acquire their educational potential depending on the type of activities and the tutors make methodological decisions. Therefore, what is relevant for the pedagogical innovation on the teaching practice is the theoretical approach and the associated teaching method related to the learning process to support all teachers, parents and students in their active engagement via the use of technology [21]. Neither experts nor teachers must naively believe that the mere use of technology will generate a higher quality education. Therefore, tutors' training must include subjects designed and developed to provide pedagogical knowledge, culture and experience in adding educational data using these technologies and their application in their teaching practice for both school and homework. Such system could suggest an incremental innovation for a particular teaching area and a substantive

alteration of the entire pedagogical model, as well as the cultural forms that a tutor should consider in his classroom.

There are currently many tools the teachers can utilize in their classrooms. However, the mechanisms for defining the quality parameters and teachers'/parents' real pedagogical needs existing in, both, the classroom and at home, vary for different contexts. Thus, the tools supporting the teachers are intended to assist teachers in their roles, as for example a reporter or a coach; therefore, specific criteria must be in place as sets of indicators to provide the design framework for well-defined contexts.

Our research focus related to technology enhanced learning is on the Personal Learning Environments (PLE) [22]; we aim to create educational settings in which scholars who work in educational centers, and also parents at home, can access specific educational services. This is related to 'personalized learning', a term that has come to mean more than differentiated learning, but also assisting and enhancing learning with ICT [23]. Building upon this, and taking a direction towards a more enriched and personalized learning experience, we take "personal learning environments' to mean accessing and sharing a range of different teaching methodologies and services in support of personalized learning activities and objectives for single learners and groups of learners. This study was initially prepared after analyzing the state of the art on the subject [18] [24] [25] [26]. Thus, we present the main extracted guidelines for creating a customized tool that reflects the current relation among the school users (educational department, teachers, students and tutors) to enrich the educational process and humanize the technology used by the teachers in the educational process. The paper introduces the platform as a permanent part of a new system for contextualized education. To this end, we present the models, methods and data collection processes that aim to facilitate institutions in a process to properly support contextualized student-centered teaching.

We initially present a number of options currently available for real life possibilities considered in our instructional design and development.

III. Real Life Possibilities

Normally, the major efforts for improving the teaching/learning process are focused on students and teachers, as they are the most important actors. However, similarly to other studies, parents must take a principle role in this process.

In the work done in [27], it is clear that there are applications like Edmodo [28]; this is an educational social network, which also implements functionalities to allow parents to participate in their children's educational process. Although parents' presence in online social networks can bring counterproductive effects in some occasions, not all parents have good relationships with their children; some may even be ashamed about some of their attitudes. Even so, parents are important in educating their children. Nowadays,

it is not easy for parents to balance work and family life; in addition, many parents have many responsibilities and things in mind, and therefore, they might be forgetting a test date; this gets even harder if they have more than one child since the number of dates grows in their mind, especially if they are older.

In the following sub-sections, we present the different options that parents and students find throughout the teaching/learning process, and the ways they can influence their improvement. But we have not analyzed the possible causes deteriorating the process, since the objective here is to see the real potential for improving this relation and create an information system to support such improvement.

A. Offline Tutoring Process

For the main educational actors, for face to face or offline work, there are a number of options or tools to improve the learning process. Figure 1 presents some of the possible improvement triggers, such as: talking to peers, parents, teachers or others; positive reinforcement, prizes & punishment systems, a mix of some causes and more.

All these possibilities exist in students' daily lives. Thus, when we speak of "talks", it is necessary to clarify that these can be from motivating to scold the students for not completing their work.
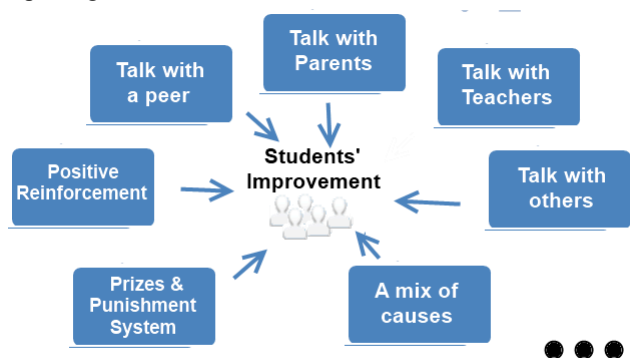

Fig. 1 Offline Process

B. Internet & New Technologies

Usually, when we talk about improving the learning process through the use of Internet or new technologies, this is usually done individually. Many experts recommend the combined support for both parents and children in the simultaneous use of a tool, especially when they want to work or find information. Thus this helps parents to enhance children's school progress. There are large amounts of information on the Internet that parents can use: specialized websites, forums, and online social networks, etc. In turn, there is also a lot of information for students: study skills, summaries of their subjects, and extra exercises or refreshers, etc.

In Figure 2 we can observe the different options for using new technologies for both parents and students.
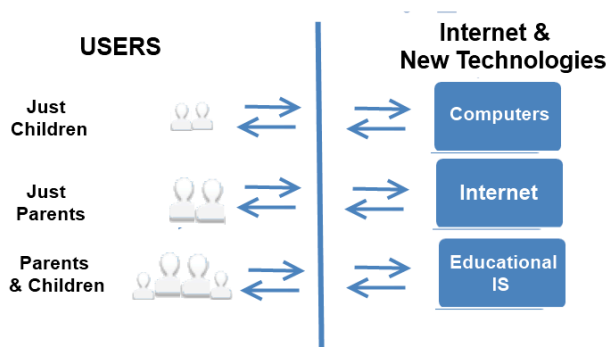

Fig. 2 Online Process

It is very common for the children in the Spanish society to sue their parents [29] for several reasons such as family finances, buying a computer, etc. The argument for Spanish adolescents to purchase a computer, and in many cases the need to hire an Internet line, is homework on different subjects, information acquisition or sending/receiving homework via email [30].

In this case, the computer, even though it can be a very important factor in the educational process, it can also be a double edged sword, thus the parents consider it as a tool for leisure and entertainment.

C. Role Models

As teachers and education professionals can be seen during and beyond school hours, students look into certain icons or reference persons in their lives to whome they often join, trace or go after. Some even show an almost morbid fanaticism for some of their idols [31]. In the case of Spanish adolescents, and in relation to sports, the most admired are: Cristiano Ronaldo (footballer), Leo Messi (footballer), Iker Casillas (footballer), Pau Gasol (Basketball) Rafael Nadal (tennis), and more.

In addition to these media idols that can be taken as social or behavioral models for students, there are many more role models, as many people they are around them. These models are both role models to imitate or avoid in both positive and negative ways, and are necessary for students' personal growth. In this case, learning occurs by observation and imitation and then by the application of what is learned in students' own lives. It is important that teachers and parents help each other to distinguish the good from the bad examples, especially the ones related to famous people.

A negative example can be the case of students having a famous footballer as a role model applying his actions in their interactions with teachers, peers and family; for example: using a derogatory gesture, raising their hand and giving their back to the person they are speaking with, etc. These are actions typically used by these players when they disagree with the decisions made by referees.

D. Antecedent Cases

After intensive consultation with teachers, who can actually observe different social behaviors in classes and

groups throughout their years of experience, we concluded that normally, students' both academic and behavioral improvement is associated to a coaching partner process. In this sub-section, we will explain how to work these processes in a particular school. Taking as a reference a teacher-student coaching process within a secondary school in Castilla-La Mancha, a success use case is explained next.

The process of tutoring students with problems begins the first day of every academic year; thus, after one and a half months the school administrative group along with the educational guidance group team, meets the tutors and they decide about the students participating in the program during the academic year. After this decision is made, the tutoring process starts; the first part is for the teacher to get information about students' academic and personal situation; then, the teacher works on weekly objectives with the student to achieve. During the tutoring process, the teacher contacts the student's parents and sometimes he meets them to work together on certain goals, also based on the student's home situation. At the end of the course, he submits a report to the guidance department about the worked process and the achieved objectives. The milestones of this process can be seen in Figure 3.
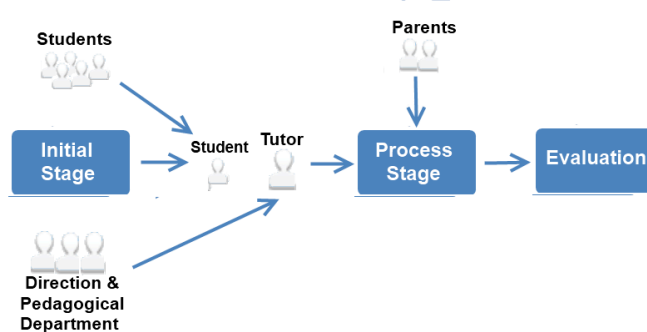

Fig. 3 Tutoring process in Education Centers

Next we describe this personalized process between a teacher and several students. This stage and results were obtained during the academic year 2010/2011.

"John" was studying ESO Level 3 during the 2010/2011 academic year. This student was assigned to a tutor called "Peter"; he became John's personal tutor aiming at improving his behavior and academic achievement. "John" is an active student; he is into sports, and at times he has excess energy channeled via disruptive behavior during his classes. His notes for the first two quarters of the year were not enough for him to pass; however, he persuaded his goals and improved his academic performance, and he finally passed. The main objectives that led "John" to pass, were to continue being with his classmates, and the trip at the end of year, this is ESO Level 4.

In addition to his teacher, "Peter" was allocated two more students as partners for this course. One of these students left the school (three months before the end of the academic year) because his parents' residence changed. For this reason, he was unable to assess the success or failure of the

process. As for the second student, he was not able to improve his academic performance, but he was able to improve his behavior and attitude in the classroom. Thus, we may conclude that the time spent with his personal coach is allocated to the 33% of the final results. So what about the other 67%? Including the time spent on it, if it were the same for all students, it would be 67% of the time without obvious or positive results. However, we pursue that this time is allocated to parents themselves who can actively participate in improving students' academic process.

Here, we have discussed several possibilities, tools and/or processes for improving a student's school performance; these possible causes come from different viewpoints such as "offline" and online life, school teachers, mates or persons who can serve as role models. The reason for this analysis is to describe the different options so to provide us with an image of the real world, resulting in the design and implementation of an associated support system. This design and implementation and the features necessary for the system to support the learning process are presented next.

IV. COACHING FOR STUDENTS

Before discussing the "Coaching for Students" platform as such, we highlight results found in [18] with respect to educational software design and implementation.

In [18] comparison of the educational and technical aspects of the main electronic learning platforms are presented: Blackboard Academic Suite 8.0, Claroline 1.8.1, Ecollege, WebStudy Course Management System, Atutor 1.5.4, Moodle 1.9, and JoomlaLMS. Comparison of various aspects includes: productivity, communication, students' active participation, administration, content development, licensing, and the required hardware and software. Also, communication and motivation are considered as key factors for the student's learning process, therefore the student should not be or feel isolated. Finally, the authors distinguish two types of platforms; those that are not attractive for most users, however, they are fully developed and have most functionalities needed by teachers and students; and those that are highly attractive, but do not provide a variety of services.

Therefore, we decided to develop a system as simple as possible, and to make it more attractive for the users. Bearing in mind that, one of the most important actors in the system are the parents, and as their time precious, the simplicity of the system can be a key factor for them to accept and actually use it. The previous section shows that it is, normally, the teacher, who chooses the type of technology and the ways this can be used in the classroom. However, here we present a tool that allows students and their parents to control the learning process. The basic idea is to provide, to both students and parents, a tool to support their communication on education issues, as efficiently as possible, so they can both take into account important aspects. Figure 4 shows the system function and general structure.
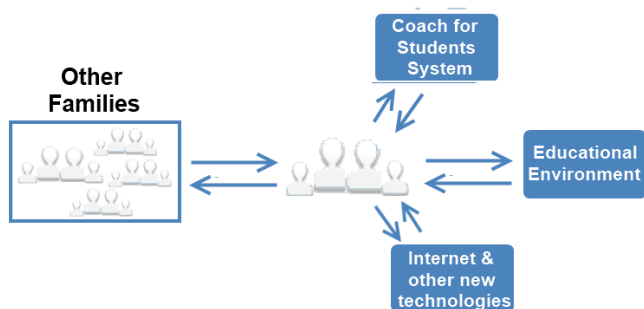
Fig. 4 System's structure

"Coaching for Students" is clearly differentiated for each of the involved parties, parents and students (as their children). The basic steps presented in Figure 5, are the same for parents and children; these steps are the events, activities and progress related to the student's academic life. These events, include all elements that indicate dates and also and easy registration into the system, contains tests, works presentations, etc. The activities are less important than the events and they may be established to strengthen the weaknesses of the learning process. This group also includes exercises or homework that teachers can allocate and send using the system.

In terms of progress, it does not depend purely on the student's notes, thus his parents evaluate the student.

Fig. 5 Base Concepts of Coaching Process

A. For Students

Use case: Jane comes home tired from the long school day, her parents are not home yet, and she has to talk about everything that happened to her; its Friday and she has a very important math test. Jane sits and studies a while; when she finishes, she goes outside to play with her neighbor Maria. When her parents arrive home, and see her playing in the garden with her friend, they begin to ask her about her classes. But she is in her free time, and does not want rethinking her studies. At the same time, her parents are worried about her educational activities. In the end, she loses about 20 minutes of her free time to talk to her parents.

The system would allow Jane to enter data about her math test when she is working on it. In this way, her parents will only have to ask her if she had any problems preparing it.

Thus, the system objective is to facilitate and improve the communication process and control for the parents over their children's studies. Figure 6 presents the initial interface for a student, Jane, to first enter "Coaching for Students". She has three basic options:

1. Log in to activities, where she can view what is outstanding and mark them as completed once she finishes. Moreover, she can also add new pending activities. Her parents may also add certain activities to improve her abilities, or test their own skills.
2. Enter to events, where she can view and add the most important dates, such as the date for the math test and the associated homework, if existed.
3. Check progress during the course, where this progress is neither more nor less than the weekly or daily evaluation (as configured with the parents) related to her attitude towards her studies.
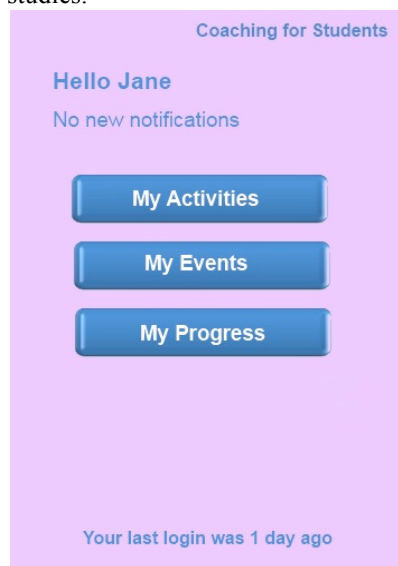

Fig. 6 Students Mobile Interface

Interfaces and functions are different for parents and children, but there are some actions that are commonly implemented for both. Upon entering the application (after login or previous selection of the login reminder), the system greets the person who comes in, and presents newer notifications, if any. These notifications include all changes in the coaching process, from a new activity to a new progress note. In addition, the interface contains a timer serving as a reminder, with a message at the bottom of the page to actively engage the users; this includes the time passed since his last connection to the system.

B. For Parents

First, we need to stress the fact that we took into account that some students do not have parents; in this case, the monitoring could be done by the department's professors or selected tutors, or by the school director.

The process of creating users is as follows: parents need to download the application or access the system via a web site and register; once they have registered, they are given a password they may change and then register their children; finally, the tutor has to provide his mail address.

In Figure 7, the parent's user interface is presented; if they have more than one child, a new section appears as "interchange son"; so the tutor can exchange interface between his children associated with his account. As seen in Figure 7, there are some differences between the student/child interface, (Figure 6), and the tutor's one. The main differences regarding the functionalities are the following:

1. Parents have access to view their children's activities, events and progress. All new activities added for their children appear as new notifications.

2. Events and activities may be added by parents as well as by their children. But parents can only edit their children's progress.

3. Parents rate progress, as: "Good", "Normal" and "Bad" expressed by three emoticons (smiling face, neutral face, and sad face). Parents can also configure whether this score is performed weekly or daily according to their free time.

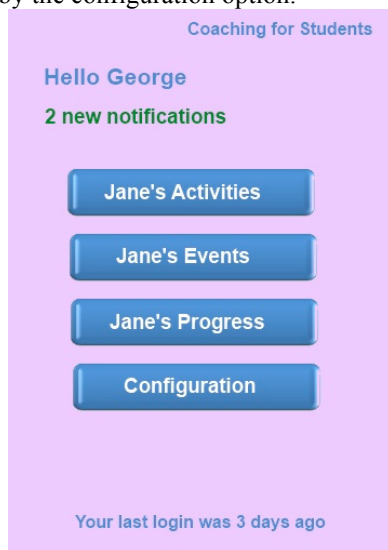4. Adding new children to the program can be done by the configuration option.

Fig. 7 Parents' Mobile Interface

C. Technical Issues

One of the most important features of the system is the design by applying Model-Based User Interface Development Environment [32]. This allows the system to support and have desktop interfaces, web and mobile applications (as shown in the previous figures).

To access and register, a user needs a contact email; personal data is safely stored in the central database system within a web server. Users must have Internet connection to

work with the system because each time a user access one of "Coaching for Students" interfaces, the system recovers all information related to the user. Information is shared between parents and children, but the information in a parent-child pair in the same family is not shared with other families who are using the system.

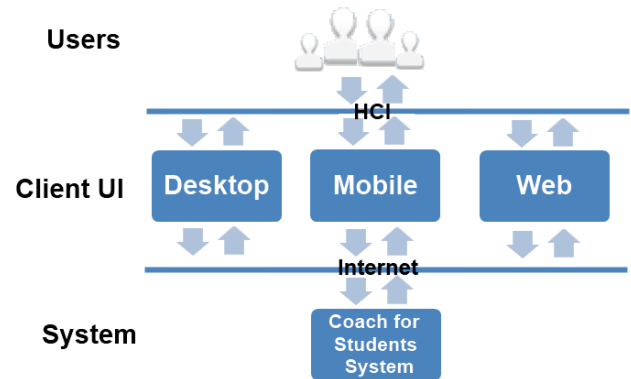In figure 8 we can observe the associated system architecture.

Fig. 8 System Architecture

Although this is an information system, usability success or failure depends on users' active involvement and their face-to-face communication.

V. CASE STUDY

During the first quarter of the 2011/2012 academic year, twelve students from different Spanish schools participated in the "Coaching for Students" prototype testing. In addition, 16 parents have participated of these 12 students, with some students having both 2 parents on the system and others only one parent pending on their academic progress. The children age group was between 12 and 15 years old with all students being on the Secondary Education Level (E.S.O). The case study lasted three months so to acquire a complete students' progress cycle during their education. The Prototype testing and evaluation were online, with the convenience and possibility that these participants did not have to be in the same geographical area so to avoid displacements.

A. Prototype Testing Phases

The volunteers first registered into the system and almost all downloaded the mobile application, which we took into account for future implementation and use. As for the parents, all of them accessed the system regularly during the first month, and they controlled their children activities, events and developments. Meanwhile the children added events and activities, and were also checking their progress according to their parents' progress evaluation. Finally, the evaluation was the last step and is discussed in more detail next.

B. Evaluation phase

The participants took a satisfaction test with a set of twelve questions, same for parents and children. The

following positive results are highlighted: 76.9% considered "Coaching for students" positive to improve academic performance; 80.8% of respondents believe that the system favors simplicity of the parent-child communication about school issues; 69.2% of participants considered the scoring system as adequate to report progress whereas 7.7% disagree and 23.1% would make certain changes in the progress scoring system; and 88.5% described their experience using the system as positive.

Also a student and his parents stopped using the system after one month so they did not participate in the evaluation sessions. The participants did not provide the reasons; since this study was conducted completely online, we collected the data they entered in the system and we observed that they did not see any advantages for its use. We concluded that initial training is required to improve users' learnability.

In result, we could propose that such systems would provide positive results as a coach for family's education, especially related to users' motivation and involvement indicating successful use.

VI. System general implementation

These types of systems that involve parents in the children education are positive for improving the learning process. However, parents are not usually prepared to serve as coaches for their children, because only professional teachers need to be informed and able to apply key pedagogical concepts to ensure the success of educational tasks. To date, parents are not usually active participants in their children's academic process in the Spanish educational system; however, introducing them as key actors into the curriculum would be highly desirable.

The question is: Should we implement some type of parents' training? Many centers and parents' associations in conjunction with local councils and organizations stress the importance of the "School for Parents." In these sessions, parents discuss important issues related to their children's educational environment (e.g. harassment problems or school failure and motivations) and contemporary issues such as online social networks.

To conclude, we stress the need to standardize collaborating with parents and actively involve them as much as possible in their own children's educational progress so to enable them as major players.

VII. Conclusions and Future Work

In conclusion, we suggest that adding players in a monitoring system can be an option for students themselves. Thus, sometimes the negative results can be analyzed so to draw positive conclusions and make corrections. Even though researchers, teachers and other professionals are actively involved in the educational processes, by innovating and trying to develop the best ways and tools for them to support the educational process, total success is not guaranteed. Thus, this success in its greater percentage falls on the responsibility of the students and their environment.

Therefore, it is important to find and understand why such types of systems are not accepted or being used regularly by some type of users such as the parents. Based on successes and failures, our future research is focused on understanding and improving contributions within the educational settings.

As indicated in [15], it is highlighted the scarce participation of Spanish parents in their children's online life with alarming data on the question: Are parents interested in what the students do in online social networks? Only the 55% of the students responded positively to this question whereas 52% of the parents were really worried. This leads us to ask an important question regarding the outlined work in this paper: would most parents use new technologies to improve their children's academic performance, and therefore, their future?

One of the major improvements that we plan to make in the next step regarding the system implementation is its expansion and improvement by supporting the teachers to add information and interact in some way with their students and parents, trying to involve them as key actors in the educational process.

Acknowledgment

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