

**TPS: DEVELOPING A WEB BASED HOMEWORK MONITORING SYSTEM
(TEACHER, PARENTS, STUDENT) FOR IRAQI SCHOOLS**Sefer KURNAZ¹, Shadha Adnan Mohanad MOHANNED²¹⁻² Altınbaş University, Istanbul

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Abstract

The world wide web affects education and our live in many ways. Nowadays, web-based homework has become widespread in several countries. Web-based homework systems in developing information technologies have many advantages compared to paper-pencil homework. The use of web-based homework systems eases the work of teachers, provides comfort to students, and ensures that parents are aware of their children's situation. The aim of this study a new web-based homework system created (TPS teacher parent's student system) produce for Iraq schools. This system is divided into three sections. The first section is for teachers, teacher can create homework, upload video to illustrate lesson, receives question from students through the chat about the homework and the teacher can see a report of student performance. The second section is for students, student can answer questions through the interface and can see the result immediately. Third section is for parents, parents can follow their children by receiving reports about their children performance. Bootstrap contains JavaScript, HTML, CSS used as a framework to design web pages for TPS system. The programming process used PHP language and MySQL as a database.

Keywords: Monitoring, TPS, Web-Based Systems**IRAKTAKİ OKULLAR İÇİN, WEB TABANLI EV ÖDEVİ İZLEME SİSTEMİ GELİŞTİRME****Özet**

WWW, eğitimi ve yaşantımızı pek çok yönden etkilemektedir. Günümüzde, web tabanlı ödev birçok ülkede yaygınlaşmıştır. Gelişmekte olan bilgi teknolojilerinde web tabanlı ödev sistemlerinin el ile yapılan (kağıt –kalem kullanılarak) ödevlere kıyasla pek çok avantajı vardır. Web tabanlı ödev sistemlerinin kullanılması öğretmenlerin çalışmalarını kolaylaştırır, öğrencilere rahatlık sağlar ve ebeveynlerin çocuklarının durumunun farkına varmasını sağlar. Bu çalışmanın amacı, Irak okulları için yeni bir web tabanlı ödev sistemi (TPS öğretmen ebeveyninin öğrenci sistemi) oluşturmaktır. Bu sistem üç bölüme ayrılmıştır. İlk bölüm öğretmenler içindir, öğretmen ödev hazırlayabilir, dersi görselleştirmek için video yükleyebilir, ödevle ilgili sohbet ederek öğrencilerin sorularını anlayabilir ve öğretmen öğrenci performansı ile ilgili raporları görebilir. İkinci bölüm öğrenciler içindir, öğrenci arayüz aracıyla soruları cevaplayabilir ve sonucu hemen görebilir. Üçüncü bölüm ebeveynler içindir, ebeveynler çocuklarının performanslarıyla ilgili raporlar alarak çocuklarını takip edebilir. Önyazılım (bootstrap), TPS sistemi için web sayfaları tasarlama amacıyla framework(çerçeve) gibi kullanılan JavaScript, HTML, CSS dillerini içerir. Programlama işlemi, PHP dili ve veritabanı olarak MySQL kullanılmıştır.

Anahtar Kelimeler: İzleme, TPS, Web tabanlı sistemler

1. INTRODUCTION

The advancement of internet such as cheapest network system of the internet network, independent use of space, to be able to work over internet browsers without the need to install application, updates made in practice instantly visible to everyone, no operating system and hardware obligation and can also be used on mobile devices enabling us to develop new learning and learning techniques that cannot be in the past, for example using simulations in teaching. Obviously, the general trend to move toward the incorporation of computer in education [1]. One of the fields of interest is the Web-based homework. It makes the learning process is more important to students. In addition, reducing the workload of teachers and Web-based homework also improve student performance in exams [18].

Information and communication technologies play an important role in our lives. In order to prepare the students for the future, the educational institutions should use them both for themselves and for their students [22]. (Yasir Chaudhry and Malik 2014) argue that although technology is not a solution that can overcome all the educational problems, today, technology has become a necessary tool to be used in teaching processes [23]. In the knowledge society, both teachers (teaching staff and teachers) are able to make use of information technologies while evaluating and assigning homework, and preparing students' homework, as a necessity. In the coming years, it is expected that the teachers will transfer their knowledge, test, homework, collection and evaluation tasks to information technology; it is possible to say that they will carry out the tasks of guidance and motivating the students [24].

Modern day technology and placing obstacles in the way of learning new equipment branded opportunity. These tools have been enhanced by the Internet [2] Publisher Wiley. Tennessee University Institute for the feasibility study for an online learning tool, Wiley Plus is set, which is the number of students using this equipment. [4] some studies, old traditional methods of work than student's homework,

Homework and more positive impact.

Chua-Chow, Chauncey, and McKessock testing and online business statistics for testing the use of homework (8), [19] will be the results clearly indicate that all participants in the promotion to higher class's work online, and when the final letter grade decreases percent decrease Can students. In General, use and improve the chemistry homework. Students are more likely to complete their assignments, they are worthwhile and online homework, has recommended continuing use. Other studies, Web-based assignments for students showing significant differences between the original grade can be found. [10].

Whether web-based jobs lead to higher test scores or not it is good for both students and faculty. Students receive immediate feedback; The faculty spends less time on collecting, grading, archiving and recording [11]. (Bridge and Appleyard (2008) Report, 88% students in their research thought, submitted the homework time electronically saved the time [12], [13]. (Time management) another note; is the advantage of electronic operation, has the ability to design and write homework according to the needs of individual students [14]. In order to strengthen students' behavior in school and classroom environment, behavior should be supported in non-school settings. In the 21st century, the education process supports methods of removing students from memory by taking student centers and actively participating in the learning process [XV], [16]. In this regard, homework is the most common and best extracurricular

educational activity. All teachers frequently use homework methods and try to get students to find information rather than somewhere ready. It can be said that homework is an important position in the education system, enabling students to strengthen and construct knowledge by enabling them to be active in the [17] process.

Some web-based homework system has been developed that serve only to provide homework and grade. For instance, Webwork is an open source web-based homework system that provides online homework submission and grading services. It is developed much rather for mathematical homework that the student provides the solution online. thereby, Webwork is not suitable for all type of homework [19].

On the other side, in the web-based homework submission system developed by Hsu(HWSAM) the homework sent by the student is submitted to the instructor as a file and document hierarchy [20]. Each homework document is collected in a relevant course file. Group submission feature has also been considered but the simple and inefficient interface of the system makes it fairly difficult to interact with the different system. [21].

Although web-based homework system used in many countries but currently there are no school management programs in Iraq schools. The aim of the study, Web-based homework system (TPS Teacher Parents Student) system produce for Iraq schools, teachers can give homework, control them, receive reports about performances and students and parents can monitor homework.

2. METHODOLOGY

System is developed as a web-based homework using programming language. MySQL is used as database and Bootstrap is used as a framework. In TPS system users (Teacher, Parents, Student) can register themselves to the system. Users cannot login to the system unless have approval from the administrator. Administrator gives approval to the users authorized to enter the system for security reasons.

MySQL is used as database and tables are connected to each other with relations. The database has been constructed as 13 different tables. When designing the database, the draw.io online platform is used. The tables of TPS system as shown below:

• Table parents

This table is used to keep parent's information.

Attributes of parents table:

- Id: It is an integer type and it is the primary key.
- S_id: It is an integer type and it is the secondary key reference to students table.
- Name: It keeps name of parents and it is type varchar.
- Surname: It keeps surname of parents and it is type varchar.
- Email: It keeps email address and it is type varchar.
- Password: It is a varchar type.
- Status: It is an integer type.

- **Table students**

This table used to keep student's information.

Attributes of students table:

- S_id: It is an integer type and it is the primary key.
- Name: It is a varchar type.
- Surname: It is a varchar type.
- Email: It is a varchar type.
- Password It is a varchar type.
- Img_url: It is a varchar type.
- S_class: It is a varchar type.
- Status: It is an integer type.
- Online: It is an integer type.

- **Table teachers**

This table used to keep student's information.

Attributes of teacher's table:

- Id: It is an integer type and is the primary key.
- Name: It is a varchar type.
- Surname: It is a varchar type.
- Email: It is a varchar type.
- Password It is a varchar type.
- Img_url: It is a varchar type.
- Online: It is an integer type.
- Status: It is an integer type.

- **Table chat**

This table used to hold text messages of teachers and students

Attributes of chat table:

- Id: It is an integer type and is the primary key.
- T_id: It is an integer type and is secondary key reference to teachers table column(id).
- S_id: It is an integer type and is secondary key reference to students table column(s_id).
- Message_s: It is an integer type.
- Message_t: It is an integer type.
- Page_open_s: It is an integer type.
- Page_open_t: It is an integer type.
- Chat_no: It is an integer type.

- **Table teacher_homework**

This table used to keep information of the teacher's homework

Attributes of teacher_homework table

- Id: It is an integer type and is the primary key.
- Teacher_id: It is an integer type and is secondary key reference to teacher's table column (id).
- Lesson_id: It is an integer type and is secondary key reference to lesson table column(id)
- Video_url: It is a varchar type.
- File_url: It is a varchar type.
- End_date: It is a date type.
- Create_date: it is a date type.
- Comment: It is a varchar type.

- **Table teacher_lesson**

Attributes of teacher_lesson table

- Id: It is an integer type and is the primary key.
- T_id: It is an integer type and is secondary key reference to teachers table
- L_id: It is an integer type and is secondary key reference to lesson table

- **Table lessons**

This table used to keep information of the lesson

Attributes of lesson table:

- Id: It is an integer type and is the primary key.
- Name: It is a varchar type.

- **Exam table**

This table used to keep information of exam

Attributes of exam table:

- Id: It is an integer type and is the primary key.
- Lesson_id: It is an integer type and is secondary key reference to lesson table column (id).
- Teacher_id: It is an integer type and is secondary key reference to teacher table column (id).
- Exam_time: It is an integer type
- Create_date: It is a date type.
- End_date: It is a date type.
- Class: It is a varchar type.
- Status: It is an integer type.

- **Question table**

This table used to keep information of questions

- Id: It is an integer type and is the primary key.
- Exam_id: It is an integer type and secondary key reference to exam table column (id).
- Question: It is a varchar type.
- Question_number: it is an integer type.

- **Q_option table**

This table used to keep information of the options for questions

Attributes of q_option:

- Id: It is an integer type and it is the primary key.
- Question_id: It is an integer type and secondary key reference to question table column(id)
- Question_option: It is a varchar type.
- Answer: It is an integer type.

- **Tables relationship:**

- Student_homework: it is relationship between students and teacher_homework table

Attributes of student_homework table:

- S_id: It is an integer type and it is primary key reference to student's table column (s_id).
- H_id: It is an integer type and it is primary key reference to teacher_homework table column (id).
- Upload_date: It is date type.
- File_url: It is varchar type.
- Score: It is varchar type.
- Student_exam: It is relationship between students and exam table.
- Attributes of student_exam table:
 - S_id: It is an integer type and it is primary key reference to student's table column (s_id).
 - E_id: It is an integer type and it is primary key reference to exam table column (id).
 - Q_id: It is an integer type.

TPS a web-based homework grant teacher the opportunity to:

- Create exams, create homework, and upload video about homework.
- Access to see the exams and the homework they have created easily.
- Edit, correct, add the exam and homework they have created previously.
- See students' performance report.

- To choose their lessons at any given time and quarter of the school year within the school term or semester depending on their teaching groups.
- Create a chat room with their students which can take the lessons furthermore into a better understanding.

This system, also aims to educate and empower students through the; Web-based homework system which will help the students to enhance and achieve their goals through these following enlisted advantages:

- Allow students to gain the opportunity to enter in for the exams that have been created by their teachers through the same system.
- Allow students to gain the opportunity to see the results of the exam that have been created by their teachers through the same system.
- Allow students to gain the opportunity to upload homework that have been created by their teachers through the same system.
- Allow students to gain the opportunity to see their homework results that have been created by their teachers through the same system.
- Allow students to gain the opportunity to edit their student's profile.
- Allow students to gain the opportunity to chat with their teacher.

within the same system; Web-based homework TPS system aims to support parents with ways on how they could be an active part of the system, through these following enlisted advantages:

- Parents will be given the rare opportunity to see the exam results of the student their (children).
- Parents will be given the rare opportunity to also see the homework results of the student their (children).

3. IMPLEMENTATION

3.1 Teacher System Pages

3.1.1 Teacher home page

In this page (Figure1); icons and buttons were created so that the teacher could start a quick start, create exams, start a chat and go to the profile editing pages.

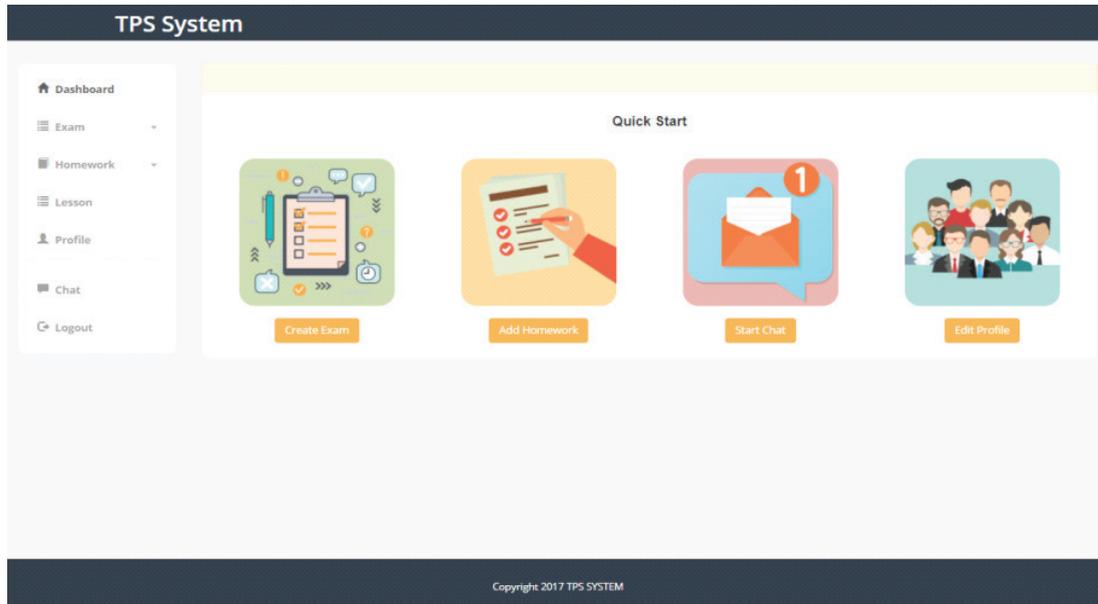


Figure 1. Teacher home page

3.1.2 Create exam

In this page (Figure2); the teacher determines in which lesson he/she will do the exam, the duration of the exam, the status of the exam, the date of the last participation in the exam and exam class to be opened.

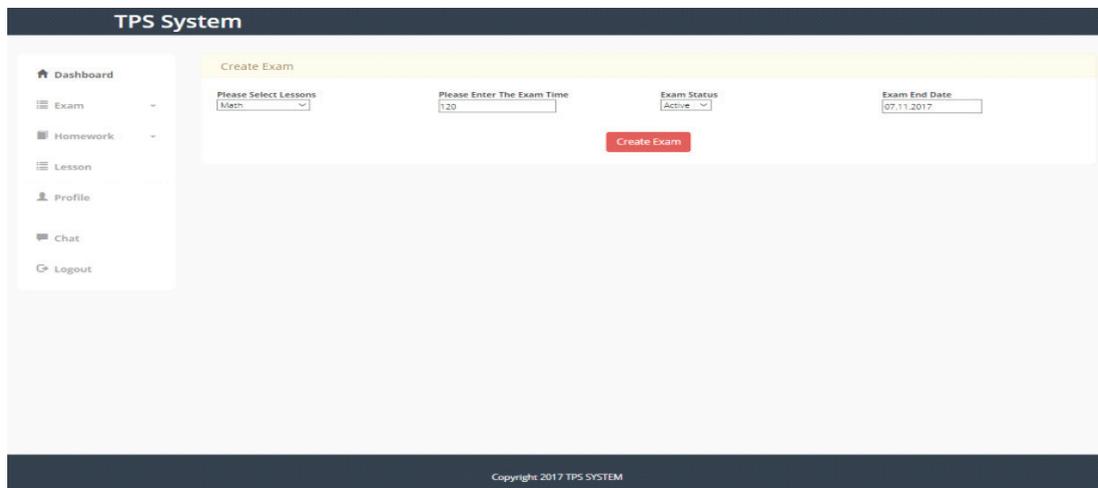


Figure 2. Create exam

In this page (Figure 3); the teacher enters the first exam question, the teacher creates the first option of the problem. The created choice of the problem is shown on the right side of the screen. When the teacher creates the option, he or she chooses the status to be right or wrong.

The screenshot shows the 'TPS System' interface for adding a question. On the left is a navigation menu with options: Dashboard, Exam, Homework, Lesson, Profile, Chat, and Logout. The main area is titled 'Add Question' and contains a 'Question' input field with the text '2+2 = 3'. Below the input field are two buttons: 'Create Question' (red) and 'End Exam' (orange). To the right of the input field is a 'Questions' section, which is currently empty. At the bottom of the page, there is a copyright notice: 'Copyright 2017 TPS SYSTEM'.

Figure 3. Enter questions exam

3.1.3 Create homework

In this page (Figure4); the teacher can choose the lesson of the homework, upload videos and files about the homework, determine the final upload date of the homework and write about the homework.

The screenshot shows the 'TPS System' interface for editing homework. On the left is the same navigation menu as in Figure 3. The main area is titled 'Edit Homework' and contains a 'Homework Lesson' dropdown menu with 'Math' selected. Below the dropdown is a video player with a play button and a progress bar. To the right of the video player is a 'Comment' input field with the text 'New homework'. Below the comment field is a file upload area with a yellow folder icon and the text 'homework/file/notes.docx'. To the right of the file upload area is an 'End Date' input field with the date '11/12/2017'. At the bottom of the page, there are three buttons: 'Upload New Video' (red), 'Upload New file' (red), and 'Save All Changes' (blue).

Figure 4. Create homework

3.1.4 Teacher _profile

In this page (Figure5); the teacher views his / her profile. The teacher can change the profile picture and update the password on this page. When the "Change Picture" button is clicked, a field is opened to select a new picture and the teacher can upload the new profile picture. When the "Change Password" button is clicked, the teacher is required to enter the old password and the new password. If the old password does not match the password in the database, the password is not updated.

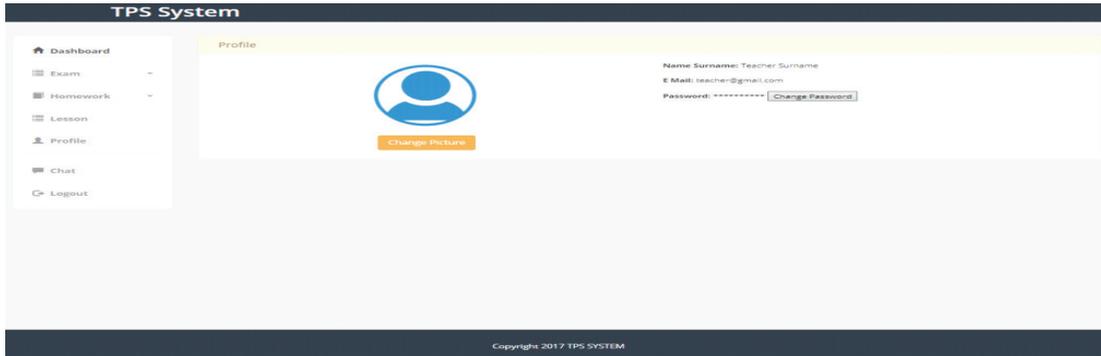


Figure 5. Teacher profile

3.2 Student System Pages

In this page (Figure6); the student can see the exam questions he/she has chosen and answer the questions. At the beginning of the page there is a counter, which counts down during the exam period when the teacher has set the exam, and when the time is over, the exam ends. When the student finishes the exam, and clicks on the "Finish Exam" button, the page is redirected to the result page.

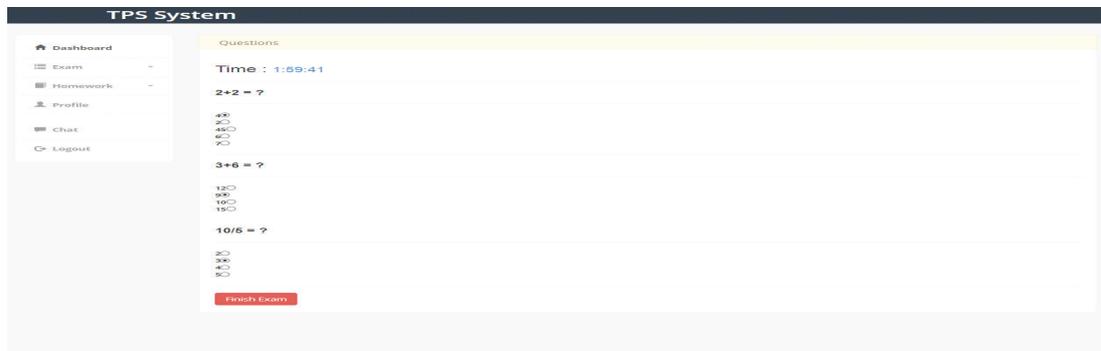


Figure 6. questions

3.2.1 Exam result

In this page (Figure7); the student can see the exam result immediately. On the left side of the page the student sees the exam questions and the correct answers, and on the right side he / she sees the answers

he / she gave. At the bottom of the page, the student’s total correct answers, total wrong answers and points from the exam are included

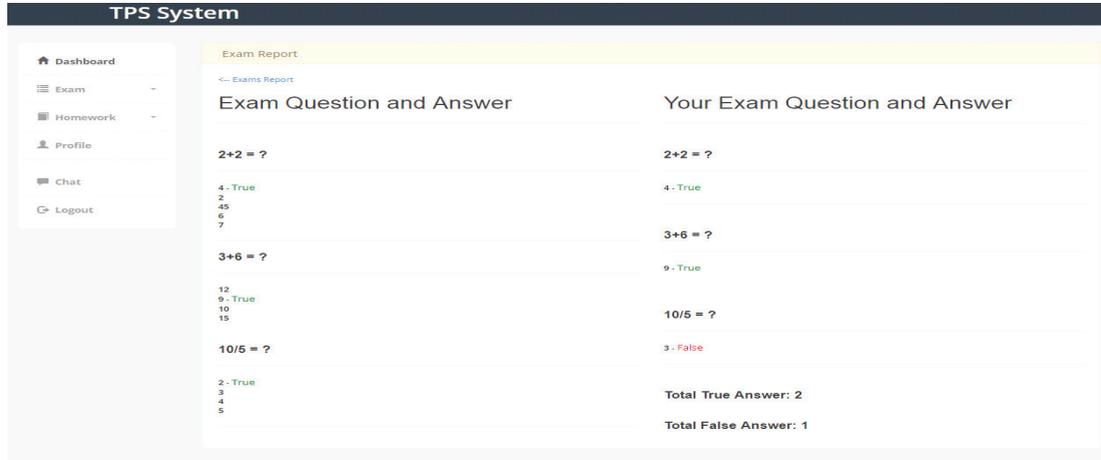


Figure 7. Exam result

3.2.2 Chat start

student sees teachers online and offline. The student can start the conversation by clicking on the “Start Chat” button with a teacher of his choice (Figure 8).

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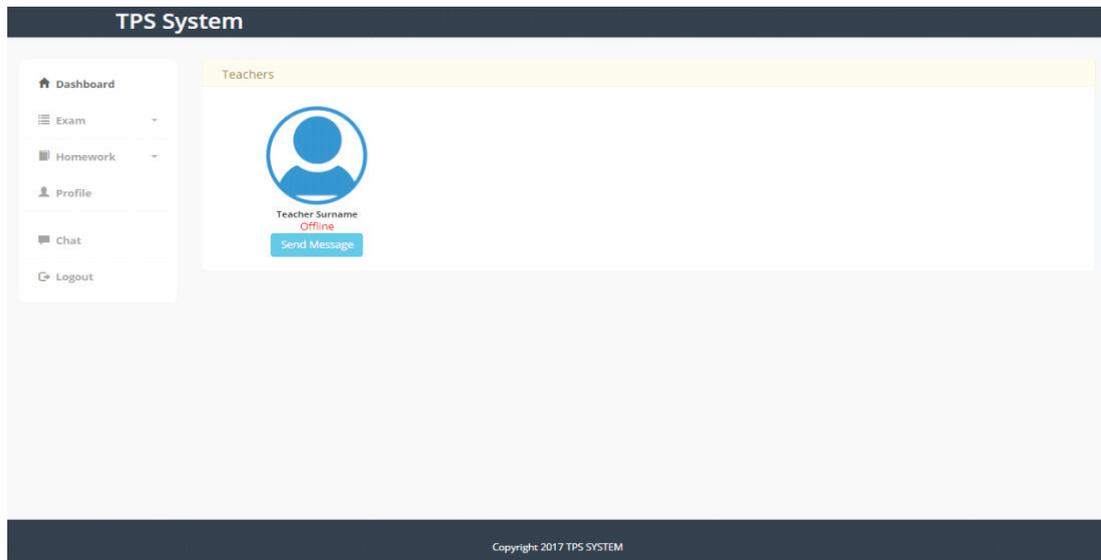


Figure 8. Chat

4. CONCLUSION

In this study, a web-based homework (TPS teacher, student, parents) monitoring and evaluation system developed for Iraq schools. This system was coded in php programming language, MySQL was used as database. In order to design this system, first of all database was designed by using the draw.io online platform, and the tables was created in the database according to the relationship between the users of the system. By this system, teachers' workload is reduced and students' performance in exams and in doing homework is improved. Moreover, TPS system support parents, parents are aware of their children's situation.

The TPS system developed by the study has many advantages, not another web-based operating system. For example, the TC test was developed in Malaysia in 2014 by using the Web-based operating system which was developed by "the free open source software (FOSS). But the system only applies to the physics-based secondary level operating system. The (TPS) system is suitable for all kinds of homework and can be adapted to any type of school.

Also, a web-based homework system(HPCS) (a web-based homework and project control) was developed in 2013. In this system C# programming language was used and MySQL was used as a database. HPCS system developed where students submit their homework and teachers grade the homework and announces the result of the homework was tested in Sakarya University successfully. But in this system, there is no follow-up by parents through the system. TPS includes parent as a user, where they can enter to the system and view report about their children performance also in TPS system, not only homework, but exams can be created, correct the exam answer by the system directly. As a result, TPS system is more complicated than other systems. TPS system has more good futures and it will help all participants in education system.

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