

# High School Students' Attitudes and Experiences in EFL Classrooms Equipped with Interactive Whiteboards<sup>1</sup>

Actitudes y Experiencias de los Estudiantes de Inglés como Lengua Extranjera de Secundaria en Aulas Equipadas con Tableros Interactivos<sup>2</sup>

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## **Abstract**

The purpose of this study was to examine ninth grade EFL students' experiences and attitudes towards classrooms equipped with interactive whiteboards (IWB). The data were collected with a questionnaire about attitudes towards IWB use in EFL classes, and observations from three different classrooms in three different high schools. The study indicated that the EFL students were not fully aware of how to use IWBs in learning English although they had a background of IWB use. In addition, there was no statistically significant difference in the attitudes of the male and female students towards using IWBs. Overall, the results revealed that EFL students' attitudes towards IWBs were positive although there were some technical challenges in IWB classrooms.

*Keywords:* FATIH project, Interactive Whiteboards, English as a foreign language, English teachers, ninth grade students

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## Resumen

El propósito de este estudio fue indagar sobre las experiencias y actitudes hacia las aulas equipadas con tableros interactivos de un grupo de estudiantes de inglés como lengua extranjera de noveno grado. Los datos fueron recogidos por medio de un cuestionario para conocer las actitudes de los estudiantes hacia el uso de este tipo de herramienta tecnológica y las observaciones de tres diferentes clases entre tres diferentes colegios. El estudio indicó que los estudiantes de inglés como lengua extranjera no estaban completamente informados de cómo utilizar los tableros interactivos para el aprendizaje del inglés pese a conocer los antecedentes del uso de IWB. Además, no se observaron diferencias significativas en términos estadísticos en relación a las actividades de los estudiantes de género masculino y femenino hacia el uso de IWB. En general, los resultados revelaron que los estudiantes de inglés como lengua extranjera tenían una actitud positiva hacia el uso de IWB a pesar de presentarse algunos problemas técnicos en las aulas.

*Palabras clave:* Proyecto FATIH, tableros inteligentes, inglés como lengua extranjera, docentes de inglés, estudiantes de novena grado

## Resumo

O propósito deste estudo foi indagar sobre as experiências e atitudes em relação às salas de aula equipadas com quadros interativos de um grupo de estudantes de inglês como língua estrangeira de primeiro ano do ensino médio. Os dados foram coletados por meio de um questionário para conhecer as atitudes dos estudantes em relação ao uso deste tipo de ferramenta tecnológica e as observações de três diferentes grupos entre três diferentes colégios. O estudo indicou que os estudantes de inglês como língua estrangeira não estavam completamente informados de como utilizar os quadros interativos para a aprendizagem do inglês apesar de conhecer os antecedentes do uso de IWB. Além do mais, não se observaram diferenças significativas em termos estatísticos em relação às atividades dos estudantes de gênero masculino e feminino com relação ao uso de IWB. Em geral, os resultados revelaram que os estudantes de inglês como língua estrangeira tinham uma atitude positiva com relação ao uso de IWB apesar de ter ocorrido alguns problemas técnicos nas salas de aula.

*Palavras chave:* Projeto FATIH, quadros inteligentes, inglês como língua estrangeira, docentes de inglês, estudantes de primeiro ano do ensino médio

## Introduction

Recently, integrating technology with education has gained more and more importance as the internet has taken a place in foreign language learning (Aydın, 2007). By administering activities based on multimedia in the classroom, students are led to take part in a social and collaborative environment, which helps them support and supplement each other's knowledge, skills, and points of view (Lee, 2005). Studies in the field of language teaching and learning have indicated that technology use in EFL classes can bring many opportunities in terms of using a foreign/second language (L2) in real life (Chapelle, 1998; Cloke & Sharif, 2001; Gerard, Widener, & Greene, 1999; Schmid, 2006). Therefore, the activation of learners' auditory and visual abilities by bringing authentic materials into the classroom can be provided or supported by the use of such a tool. Korkmaz and Cakil (2013) have indicated that IWBs provide perceptibility and make a great contribution to the learning process. These motivational and engaging effects, easy access to every kind of resource, and students' positive attitudes can promote learning and help students put their knowledge into practice (Essam & Asiri, 2012). For example, in an experimental study by Han and Keskin (2016), it was found that speaking activities conducted by a mobile phone application can reduce EFL students speaking anxiety to some extent.

Following Computer Assisted Language Learning (CALL), Turkey launched an educational technology project named the FATİH Project (The Movement to Enhance Opportunities and Improve Technology) in 2010 (MEB, 2014). Every classroom from grade 5 to 12 has been equipped with IWBs to create an effective educational platform. With the help of the FATİH project, which aims to provide equality in education and to equip all classrooms with the technology (MEB, 2014), learners have been able to find opportunities to use IWBs in EFL classrooms.

In spite of the fact that there has been great technological development in education, some problems with regard to language teaching and learning through IWBs might occur: a) teachers' lack of competence using IWBs (Korkmaz & Çakıl, 2013), b) low motivation towards using technology (Al-Faki & Khamis, 2014), c) the fact that it may be time consuming to redesign materials and integrate materials with these technological tools (Johnson, Ramanair & Brine, 2010), d) technical problems (Gursul & Tozmaz, 2010), and e) exposing too much information and teaching very quickly (Schmid, 2008). In this sense, the main aim of this study was to investigate the attitudes and reactions of 9th grade students in EFL classes towards the use of IWBs in one of

the eastern cities of Turkey. This study might be helpful in identifying the drawbacks occurring in the use of IWB in EFL classrooms.

### Literature Review

Research has indicated that technology has played an effective role in language teaching and learning since it penetrated into the educational field, and IWB use in EFL classes has generally been regarded as an effective tool in terms of motivation, interaction, effective teaching, broadening the learning environment, and improving language skills (Aydın, 2007; Aydınlı & Elaziz, 2010; Conacher & Royall, 1998; Johnson, et al., 2010; Katwibun, 2014; Öz, 2014; Schmid, 2008; Türel & Johnson, 2012).

Johnson, et al. (2010) conducted a study on EFL students' and teachers' perceptions of IWBs. It revealed that most of the students and teachers were positive towards IWB use as it provided interaction and a variety of materials. Likewise, in a study by Schmid (2008), the pedagogical benefits of multimedia use in EFL classrooms equipped with IWBs were examined. The study revealed that multimedia use had a positive impact on motivation, attention, concentration, and vocabulary. In addition, the study proved that IWB use in classes helped learners to understand the content of the lesson better, and that it might make the lesson more active. Another study conducted by Katwibun (2014) aimed to investigate the effect of IWBs on vocabulary teaching in the eleventh grade. The result indicated that there was an increase in terms of students' in-class participation and vocabulary, and that most of the students had a positive attitude towards the IWB.

Studies conducted in the Turkish context have supported the results of studies carried out in other contexts and have proved that IWB use in EFL classes is more efficient and effective than the use of traditional whiteboards (TWBs). Öz (2014) investigated EFL teachers and students' perceptions of IWBs and revealed that although there was no significant difference in teachers and students' perceptions in terms of gender, students' proficiency levels and weekly IWB use resulted in a significant difference. This study showed that the participants were positive towards IWBs in EFL classes. Similarly, Türel and Johnson (2012) examined teachers' perceptions and the impact of IWB use in EFL classes in a large group ranging from 6th to 12th grade. The study indicated that collaboration among teachers, sufficient training on IWBs, and the frequency of use improved teachers' competency in using technology and made the classes more effective and practical. Aydınlı and Elaziz (2010) examined 458 students and 82 teachers' attitudes

towards IWBs. The study indicated that both teachers and students had positive attitudes towards IWBs and that the IWBs provided motivation and in-class participation. İpek and Sözcü (2016) carried out a descriptive study on the preferences and attitudes of students and teachers towards the use of IWBs in grades 7-12. In the study, student and teacher questionnaires were used to examine participants' attitudes, preferences, awareness, and consideration. The study revealed that both groups of the participants had positive attitudes towards IWBs. Finally, thanks to the tasks presented through IWBs, students' interaction with their peers increased and they encouraged each other to write, highlight, and correct the texts. They also found themselves in natural written and spoken activities (Johnson, et al., 2010).

### **Challenges of Using IWB**

The reasons why most teachers do not use this technology in their own classes include lack of competency, low motivation, lack of time required for material design, and technical problems (Korkmaz & Çakıl, 2013). In a study, Korkmaz and Cakıl (2013) investigated the difficulties that teachers faced while using IWBs. Interviews with 17 teachers revealed that although teachers had a positive attitude towards this technology and believed that IWB use in classes was beneficial, they did not know how to use it effectively. The study revealed that teachers did not have sufficient competency in using this technology. Similarly, Al-Faki and Khamis (2014) examined the challenges in using IWBs in the Saudi EFL classroom context. The study revealed that the challenges were four-fold: a) lack of a pedagogical framework and competency for teachers, b) lack of administration support, c) a lack of technical support, and d) low motivation of students. The study carried out on students and teachers' perceptions of IWBs revealed that although most of the students and teachers were positive towards IWBs, they believed that redesigning materials took a lot of time (Johnson, et al., 2010). Further, a study carried out by Gursul and Tozmaz (2010) revealed that using IWBs involved some technical problems, such as technical errors in calibration settings. They added that these kinds of problems wasted time as calibration is time consuming. In order to cope with such problems, necessary support was identified as a factor that could improve teachers' integration with technology (Kim, et al., 2013).

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Finally, another problem is that in IWB based lessons, learners might be exposed to information and stimuli overload as teachers can access materials quickly and may do the activities very fast (Schmid, 2008). Therefore, learners might have difficulty in matching the teacher's speed and be unable to engage in the learning process.

Briefly, numerous studies have been conducted with a view to investigating the aforementioned drawbacks and advantages of IWBs. However, in the Turkish research context, such studies have been conducted in the western part of the country or metropolitan regions, but in the eastern part of the country, there has been a lack of interest in this field. Therefore, there might be some problems in generalizing IWB use and its benefits in teaching and learning an L2. The pursuit of the relationships between such technology literacy and educational factors in countries like Turkey could be rewarding (Dogan & Abd-El-Khalick, 2008). While all public schools receive a similar amount of funding, support, and staffing, communities in well-off cities generally contribute to their local schools with additional resources, which, in turn, leads the overall educational milieu in these schools to become rather different from that in schools in cities that have fewer accessible communal resources (Dogan & Abd-El-Khalick, 2008). Further, a lack of educational infrastructure leads to inequalities and “polarization in educational opportunities,” and the biggest inequalities are “related to the urban–rural division and regional differences between the West and East” (Smits & Hoşgör, 2006, p. 547). This study might be of help in generalizing the previous research results and shed a light to overcome the problems mentioned above. The following research questions guided this study:

1. What are the 9th grade students’ attitudes towards using IWBs in EFL classes?
2. Do the students’ attitudes towards IWBs significantly differ by gender?
3. What is the teaching and learning atmosphere like in IWB classrooms?

## **Methodology**

### **Research Design**

A mixed-research design was followed in this study. Specifically, the explanatory design was used to provide “additional information to flesh out the results” (Fraenkel, Wallen, & Hyun, 2015, p. 559). First, quantitative and then qualitative data were collected “to follow up and refine the quantitative findings” (Fraenkel, Wallen, & Hyun, 2015, p. 559).

An attitude questionnaire and field notes (e.g. observations) were used to collect the data. One of the researchers took field notes

while observing the classrooms of three different high schools. The field notes were “complete and descriptive, and include everything the researcher/observer feels in addition to what is actually observed, field notes often contain the observer’s feelings and reactions toward the events observed,” and observation is also frequently “referred to as fieldwork” (Best & Kahn, 2006, p. 265). Therefore, this study used the terms “observations” and “field notes” interchangeably. In this study, the participant observation was covert in which the participants do not know that they are being observed (Fraenkel, Wallen, & Hyun, 2015).

One of the researchers obtained permissions from three ninth-grade English teachers in high schools for observation. The data were collected in four steps. In the first step, the application for permission from the Ministry of National Education was completed. In the second step, the questionnaire was administered to the participants. Later, classroom observations were conducted in three different classrooms at three different schools. In the third step, the collected data were compiled according to the schools. In the fourth step, the quantitative data were computed and analyzed using a statistical computer program and the qualitative data were analyzed according to recurring themes (Ryan & Bernard, 2003) and classified according to key words.

### **Participants**

Participants included 483 EFL students (191 male and 292 female) in 9th grade of seven high schools that participated in the study. All the participants were selected by convenience non-random sampling. The students were regarded as having the same English level, A1 or A2 according to the small-scale proficiency exam done by the schools at the beginning of the educational year. Although a great number of the students (455) had not taken a computer course before, nearly all of them claimed that they knew how to use a computer. Most of the students (377) used the internet for social networking and doing research. It might be concluded that the students use technology intensively and that this might affect their IWB use in EFL classes.

### **Data Collection Instruments**

Questionnaire. In order to obtain the quantitative data, a student questionnaire including background information and Likert-scale items was administered to the participants. The questionnaire used in this study was developed by Aydınli and Elaziz (2010). They did the Cronbach alpha reliability check (.79) for their adapted version.

The Cronbach alpha reliability check was .92 for this study. The questionnaire included the following sub-sections: a) general attitudes, b) attitudes towards technical issues, c) general positive attitudes, d) attitudes towards motivation, e) attitudes towards time management and organizational issues, f) attitudes towards traditional boards vs. IWB. The questions in the background section were modified by the researcher according to the features of the participants.

Classroom observation. To determine students' attitudes and reactions after a lesson taught with IWB, a researcher in this study carried out observations. The observation was performed in three different classrooms from three different high schools for one lesson period. The observation list including open-ended and multiple choice questions, and field notes were organized so as to examine students' attitudes in the classrooms. The aim of the observation list was to obtain enough data to determine the challenges and the problems that students encountered during the lessons in which IWB was used. The participants were not informed that they were being observed, so the observer was a complete participant (Gold, 1958). This was a covert follow-up observation. The observation was also recorded.

### **Data Analysis and Interpretation**

Descriptive and inferential data analyses were conducted to examine students' attitudes towards IWBs by gender. the qualitative data were analyzed based on recurring themes (Ryan & Bernard, 2003), using coding and classifying approach (Creswell & Miller, 2000; Creswell, 2012; Gay, Mills, & Airasian, 2009).

### **Results**

Both quantitative and qualitative data showed that a high percentage of students had a positive attitude towards learning and teaching EFL through IWBs. However, the t-test results ( $p > .05$ ) indicated that there was no statistically significant difference in the attitudes of the male and female participants towards IWBs, indicating that gender was not a determining factor in the use of IWBs. Finally, IWB users could face some challenges and technical problems while using IWB. The results of this study are discussed in terms of the research questions.



## Quantitative Data Results

Students' attitudes towards IWB use. In this section, the tables were designed according to the levels in the questionnaire and the research questions.

*Table 1.* Summary of Descriptive Results

Research Questions	Data	Analysis	Levels	Mean	Sd.	Result
What are the ninth grade students' attitudes towards using Interactive Whiteboards	EFL students' questionnaires (n=483)	Descriptive	General attitudes	4,00	1,28	A high percentage of the students have positive attitudes towards IWB use in EFL classes
			Attitudes towards technical issues	3,37	1,49	
			General positive attitudes	2,71	1,41	
			Attitudes towards motivation	3,77	1,37	
			Attitudes towards time management and organizational issues	3,35	1,44	
			Attitudes towards traditional boards vs. IWB.	2,48	1,51	

Table 1 reveals the EFL students' attitudes towards learning through IWBs. The mean scores are near four, which means that the majority of EFL students think that there is a relationship between IWB use and the teaching and learning process. As IWBs provide many opportunities for learners, such as making the learning process easy, exciting and understandable, they have positive attitudes. Second, the table reveals students' attitudes towards technical issues such as sunlight or recalibration that might impede visibility of the board. Third, the table shows that all students have a positive attitude towards IWB use in their own lessons. In addition, the students show no hesitation while using IWBs, nor do they have negative attitudes towards IWB equipped lessons. Next, the table gives EFL students' attitudes towards attention, motivation, and interaction. The mean scores are above three and somewhat near to a score of four, indicating that EFL students think that they are easily motivated with the help of IWBs and that IWB equipped lessons have a positive impact on their concentration and in-class participation. Finally, regarding the results for students' attitudes towards time management and organizational issues, a high percentage of the students think that IWB use in lessons saves time, lessons are well organized, and the time for the lessons and activities in the classroom can be organized easily with IWBs.

Briefly, a high percentage of students had a positive attitude towards learning and teaching EFL through IWBs. IWB use in classes affects not only the participants' attitudes but also the learning elements, which make the learning process easier and more understandable, as in the study carried out by Schmid (2008). In this sense, it is possible to mention that there is a one-to-one relationship between participants' positive attitudes and the effective use of IWB in EFL classes because there is an interaction between the user and IWB (Chapelle, 1998). Further, these results revealed that IWBs provided some positive factors such as saving, source diversity, and increased attention, motivation and interaction. With the help of IWBs in EFL classes, learners have a high level of motivation as it makes audio-visual materials available and attracts their attention. Compared to TWBs, IWBs are believed to be more effective because they provide extra supplementary materials and interaction. The interaction is not one-way in IWB-equipped classes. They enable the direction of interaction from teacher to student, from student to students, or from the IWB to learners. This kind of interaction can be based on the Multi-Dimensional Interactive Teaching Model (Zeng, Lu, & Zuo, 2010), as well as the Interactionist Model (Chapelle, 1998). Learning through IWBs could become more permanent and effective than learning through TWBs. Such a learning style can be based on multimedia learning supported by Mayer's Cognitive Theory (Mayer, 2003). This theory can be related to learning through IWBs as it claims that combining pictures with words can produce deeper learning in students (Mayer, 2003). From the teachers' perspectives, they generally believe that IWBs may provide better learning because the visual materials presented to the learners might stimulate more than one of the learners' sensory organs (Korkmaz & Çakıl, 2013).

In terms of gender, there was no difference in attitudes towards the use of IWBs. Tables 2 and 3 show the students' attitudes towards IWBs by gender.

*Table 2.* T-test results about male and female students' attitudes towards IWB use.

Gender	N	Mean	Sd	t	df	p
Male	190	3.67	.76	.476	479	.634
female	291	3.33	.74			

Table 2 indicates that there is no statistically significant difference in the attitudes of the male and female students ( $p > .05$ ) in terms of their attitudes towards IWB use.

*Table 3.* T-test results of item (I prefer lessons that are taught with IWB)

Gender	N	Mean	Sd	t	df	p
Male	158	3.78	1.44	.722	386	.471
female	230	3.67	1.47			

Table 3 clearly shows that there is no statistically significant difference between male and female students' preferences regarding IWB use.

The mean scores of the groups are near to four, indicating that males and females have a positive attitude towards IWB use. When the male and female groups are compared in terms of positive attitude, the male students have a slightly more positive attitude than the female participants.

In sum, gender is not a determining component in using IWBs in language learning (Öz, 2014). However, a study carried out by Aydın (2007) on internet use in EFL classes revealed that gender and age were correlated with internet use because younger and female participants were more eager about internet use than other participants.

### Qualitative Data Results

**Students' reactions to the use of the IWB.** The students showed a positive reaction in the lesson in which the exercises or tasks were done through IWBs. A lesson taught in this way increased the students' in-class participation and fired their desire to take an active role in the learning process. Sometimes it was difficult for the teachers to control the classroom as the students made noise. When authentic materials or colorful activities were presented, most students took an active role by making comments. This interaction was not one way but included interaction from teacher to students, from students to students, or the interaction transformed itself into a new form and occurred from students to IWB when the students touched the screen, listened to a track or watched a video.

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**Attracting students' attention.** During the lesson, the teacher asked some questions related to the topic and wanted students to answer the questions by constructing a bridge between the related topic and their own experiences. When the topic in the lesson was presented together with audio-visual materials, it was very easy for the students to envisage the events experienced before. Communication attracted the

students' attention most because the dialogues presented by the teachers consisted of colorful figures. Reading and grammar also attracted the students' attention as teachers easily could reach supplementary materials for these two skills on the internet. Writing activities were of less importance than these three skills. The information in the course books and a sheet of paper were directly used for nearly all writing activities.

**Student performance in IWB lessons.** Most of the students were able to improve in skills. The students could easily show a reaction to the stimulus presented through IWB. The reaction to the stimulus ensured that students used the language effectively and they took part in learning as a user of the target language by trying to speak, make comments, or ask questions.

**Challenges.** Most of the students were competent enough in using IWBs. Nearly all of the students who came to the board to do activities could use the IWB easily. The others whom the researcher could not observe were shy students who did not want to use the IWBs. Some of these students had difficulty in keeping up with the teaching process. In addition, there were other difficulties such as those caused by sunlight, and technical problems with the screen. Another technical problem was poor sound quality.

**Teaching and learning atmosphere in IWB classrooms.** This research question attempted to determine the learning and teaching atmosphere in IWB classrooms. Although the analysis indicated that the general tone was positive, some challenges could occur during the teaching and learning process. Given IWB use in EFL classes, it is undeniable that there are some technical challenges that IWB users encounter during the lessons. These challenges include electricity cuts and the recalibration of the IWB. When the electricity is cut off, the recalibration of IWB takes a long time and this reduces the time that may be allotted to the activities. Therefore, such a problem is a waste of time. These findings were supported by the study carried out by Gursul and Tozmaz (2010).

Overall, the study revealed that IWB provided source diversity, motivation and time-saving. As well as these positive factors, some specific components have come to the fore in the light of quantitative and qualitative data results such as challenges and technical problems while using IWB.

## Conclusions

Overall, the study suggests that the use of IWB could create learner-centered learning. In addition to teachers' roles, the role of the learners is also important in terms of using IWBs. Effective IWB use in language teaching and learning depends on an understanding of how it can be used in a classroom. To the extent that IWB users remain focused on learner-centered activities and learning objectives, IWB use in EFL classrooms remains effective and beneficial. This is because IWBs contribute to students' productive communication and thinking so that their knowledge can be built up by the active engagement that IWB provides and by teachers' strategies (Kershner, Mercer, Warwick, & Kleine Staarman, 2010). Second, a high percentage of the students have positive attitudes towards this technological tool. IWB use in the lessons was observed to be helpful in developing their skills because IWB supports teaching and learning interaction factors (Liang, Huang, & Tsai, 2012).

Further, a high percentage of the students found it easier to concentrate and remain motivated, which affected their in-class participation. Therefore, the students have positive attitudes towards time management and organization as IWB use in the classes saves time, and lessons could be better organized. Third, technology use in EFL classes can provide students with several opportunities to use an L2 in real life (Chapelle, 1998; Cloke, & Sharif, 2001; Gerard, Widener, & Greene, 1999; Schmid, 2006). Nevertheless, if English teachers are to use IWBs well in EFL classrooms, they should acquire IWB technical knowledge and skills, and learn teaching methods for IWBs so as to be able to integrate current materials with the content of the topic (Türel & Johnson, 2012). To overcome technical and methodological barriers, teachers should be educated with effective professional help so as to build up efficacy, on the basis of long-term collaboration and with positive supervision that provides for self-reflection and facilitates student engagement with digital media (DeSantis, 2012). Fourth, suitable materials and an appropriate approach to their use in classes equipped with IWB are necessary in order to render IWB an efficient tool. Sözcü and İpek (2012) indicated that applying, designing and developing materials was necessary for teaching and learning outcomes. Fifth, while using IWB in classrooms, some points should not be ignored in terms of teachers' pedagogy and students' general backgrounds in ICT.

All EFL teachers and administrators must be trained on how to use IWBs effectively. Periodic in-service training programs should be organized to overcome the aforementioned difficulties in using IWB.

IWB use in education supports the student learning outcomes, but IWB use alone is not sufficient. So IWB use should be supported by teachers' experiences, software, and enough technical and pedagogical training to make teachers' progression permanent (Sweeney, 2010). Finally, thanks to the FATIH Project, which is still being carried out, a high percentage of the classrooms are equipped with IWBs, but there are still some discrepancies in using it as an effective multimedia tool at high schools. There is a lack of awareness about technology use in EFL classes. So it is necessary to develop awareness among IWB users and the differences between IWB and TWB should be monitored.

Learning and teaching methods were not handled in this study. The scope of the study included only 9th grade EFL students, so the study might be extended to other grades in which IWB is effectively used, especially in EFL prep-classes where IWBs are used extensively. Therefore, further research can be conducted in different institutions using experimental or action research designs.

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