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## **IMS-ETLP: Information Management System Evaluating Teaching and Learning Process**

**Ali KELES\***

*\*Department of Computer Education and Instructional Technology, Faculty of Education  
Ağrı İbrahim Çeçen University, TR-04100 Ağrı, Turkey*

### **ABSTRACT:**

*One of universities' the main goals are to provide quality education and training, and maintain high academic standards in all education programs. In order to achieve this purpose, the linkage of performance evaluation reporting with university strategic planning and objectives is necessary to ensure that the university and evaluation system performance improves in the chosen target areas to move the organization strategically in the desired direction.*

*There are many teaching performance evaluation systems in the literature. But, they were developed as a one-way system of evaluating because of evaluating from of students' point of view. In this study, it is developed information management system entitled "IMS-ETLP: Information Management System Evaluating Teaching and Learning Process" to evaluate education process from two respect instructor and learner. This system presents significant information to head of units, instructors to improve quality of education, and even to students to improve their learning skills by involving two sides, instructors and students, of the education process. This system thanks to advisory module interprets all results and presents benefit recommendations to the students and instructors. IMSEP with special methodology can provide significant contributions to manager in the process of management and deciding. IMS-ETLP system continues to be implemented our Department of Computer Education and Instructional Technology successfully since 2013. Results obtained from this implementing process provided significant contributes to improve the system. This study had been performed under the EGITIM 2012-03 Scientific Research Project of Ağrı İbrahim Cecen University.*

**Keywords:** *teaching and learning process, teaching performance, information management, online evaluation, web-based system*

### **1. INTRODUCTION**

In the all of the world, many higher education institutes collect feedback from student for evaluating of teaching progress. They are use different survey forms that were prepared by education experts. End of each semester many students evaluate their instructor and their courses by filling these surveys. Generally, evaluating of teaching is made for four major goals. The first is to provide data will be used continually improve the experience of students learning. The second is to provide students, instructor, department, unit and the university with a source of data on the overall quality of teaching. The third is to give instructors information on their teaching performance and to contribute to improving their teaching skills for next semester. The fourth is to provide the university with data on the quality of teaching

to be used for operational purposes, including but not limited to assessment of faculty for merit and/or performance adjustment salary awards, promotion, tenure and intuitional recognition.

In Australia all universities are required to use the Course Experience Questionnaire to evaluate their programs (Ramsden, 1992). It has become common to subject universities to quality reviews in which they are required to demonstrate that they have in place adequate procedures for ensuring teaching quality. Having a system for regularly administering student feedback questionnaires would probably be the number one requirement of most review panels.

There are varied instruments and techniques used by the higher education institutions to gather and measure the instructor performances. Some institutions use traditional pen- paper survey distribution and manually evaluating the performances. Some of them in the developed country prefer to use online methods to gather data collection. The teaching evaluation management system as a sample was studied by Zhiyu et al (2010). According to them, the most important work of the institutions is to manage evaluation of instructors. They proposed the design idea and implementation techniques to help in supervising and responding to the teaching situation and teaching effectiveness.

To provide a serious improving in educations should collect continuous and detailed feedback from learners. McFall et al (2002) developed common goal web-based system to gather data and to handling them. The system was developed by using HTML, JavaScript programming languages and has also several analysis tools.

Emery et al (2003) focused on this evaluating problem. According to them, the manager should use student feedback obtained from evaluation instruments to measure the effectiveness of teaching process.

According to the Dommeyer et al (2004), the response rate to the online questionnaire is commonly lower than that of the in-class questionnaire. To get more online responses depend on motivating of Learners. But, they introduced that both the online and in-class evaluations have same mean values regardless of any incentives.

Glotzbach et al (2007) studied on a web based system for evaluating of teachers. For this, they used ASP.Net, SQL data structures and added some functions to the system such as graphing and charting.

Learners are disposed to evaluate teaching process contrary to general belief of university managers. They want to see that their feedback is taken to the consideration by the head of units. However, learners do not notice that their feedback is being used. They believe that all feedback uses only formative aims. Whereas, learners want to see that their responses use for summative aims and special surveys are used to evaluate effectiveness of teaching by the manager (Sojka & Deeter-Schmetz, 2002; Chen & Hoshower, 2003)

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## **2. IMS-ETLP System and Components**

Evaluation of teaching in higher education institutes by students is now commonplace in the world. The importance of students' input in the evaluation of teaching is recognized (Marsh, 1987; Feldman, 1978). Collection of feedback from students is usually done through paper-based questionnaire survey. The World Wide Web (web) opens up the possibility of collecting data from students on-line. Many institutions are beginning to use on-line student ratings forms due to the ease of administration and affordability of this format of evaluation. However, these online forms dispose to get low student responses. But, some researches show that institution managers can overcome incentives, reward, and requirement of student completion of forms. On-line forms can also provide an opportunity for students to write their comments on teaching process through the open-ended questions (Johnson, 2002). Performance evaluation systems which have been developed in the literature so far have a one-way system of evaluating. The educational processes have generally been evaluated from of students' point of view.

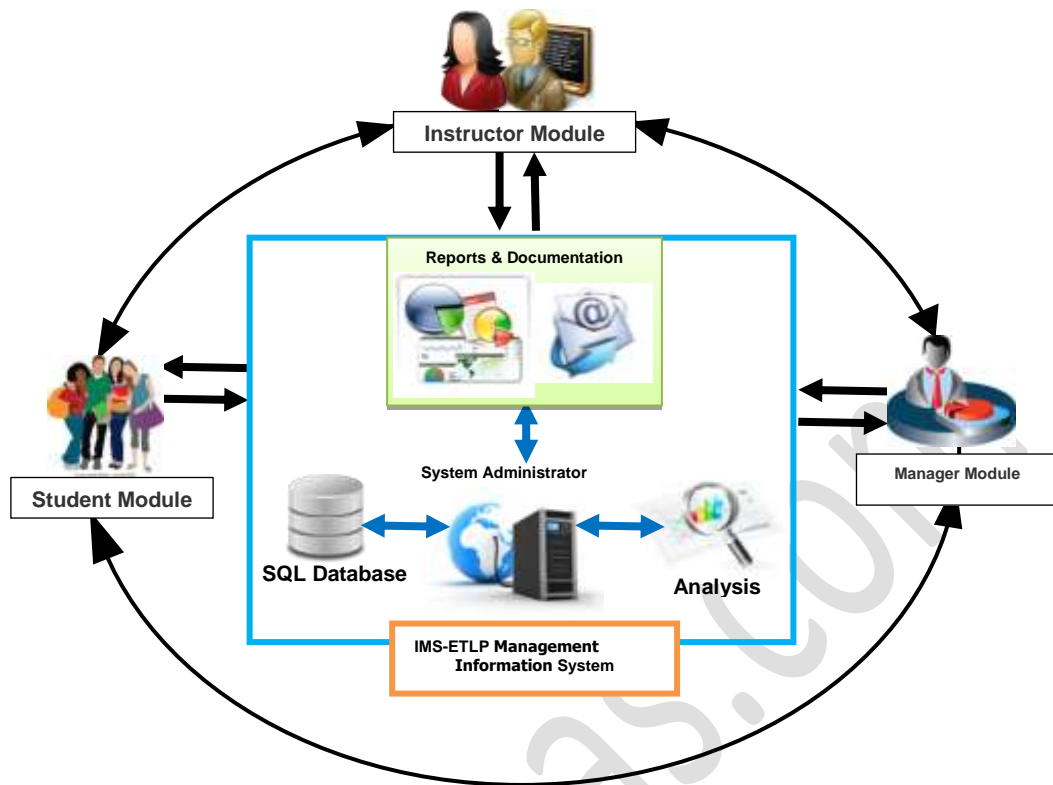
There are thoughts that suggest it may not be the best way for the education quality and instructors to be evaluated by students. The most frequent thought amongst all of them is that the prejudice of students, for instance, disliking of instructor's looking, expectation of high grades, lacking motivation towards lectures may cause misevaluating (Reboloso et al., 2000).

Moreover, students who evaluate quality of education and instructors should have skills such as communication, researching, readiness level, motivation, thinking and reasoning. It is discussed how valuable it is to allow students who cannot speak the instruction language well, do not prepare before coursing and do not achieve high grades.

The system we are offering in this study takes into account on the one hand students' thoughts and on the other hand it gives a chance to instructors to evaluate their students. This system presents significant information to administrators, instructors to improve quality of education, and even to students to improve their learning skills by involving two sides, instructors and students, of the education process. This system includes an advisor module which pursues the evaluation process. The module advises instructors of the misapplications during education process or skills which they have to improve by interpreting them with numerical values.

IMSEP system fundamentally contains four modules and evaluates educational process in two different dimensions (student-instructor) (Fig.1). These modules and functions were described in bellow.

- 1- Student Module
- 2- Instructor Module
- 3- Management Module
- 4- Advisory Module



*Fig. 1. Architecture of IMS-ETLP system and its components*

## 2.1. Student Module

It is a module making processes such as defining students, associating students with their lessons and presenting a report about instructor and his/her lessons. In the current system, students cannot show in any way the effects or results of evaluations that they make during teaching process. Thus, they think that the surveys filled by them are of no use and that these surveys are not taken into enough consideration. By means of reports (Fig. 2) to be presented by IMSEP system, the students can have information about the instructors' performance and their acquisitions from the lessons.

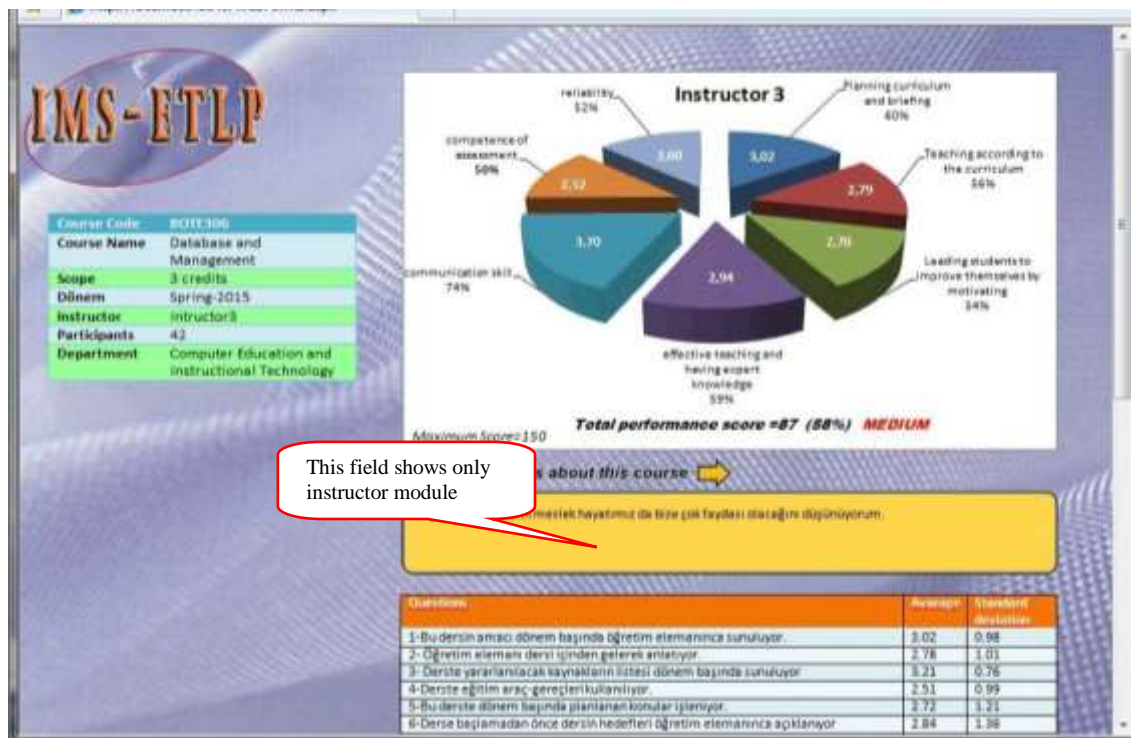


Fig.2 Sample evaluation report on instructor' teaching performance related to the course

Students and instructor can access this knowledge from their individual accounts defined by system manager or informative e-mails received from mail server. But, students cannot see part of student's thoughts about this course in the report page. Only Instructors can read student's comments.

The survey filled by students consists of 30 questions to evaluate teaching process and instructor. These are planning curriculum and briefing (3), teaching according to the curriculum (2), leading students to improve themselves by motivating (4), effective teaching and having expert knowledge (7), communication skill (5), competence of assessment (5), reliability (4). The highest score to be able to receive for an instructor is 150 from this survey (Appendix 1). Moreover, in this survey, the student can write his/her thoughts to the comment area defined by administrator. Instructor with administrator permission can revise and delete current survey questions. So he/she can create a special survey and imply.

## 2.2. Instructor Module

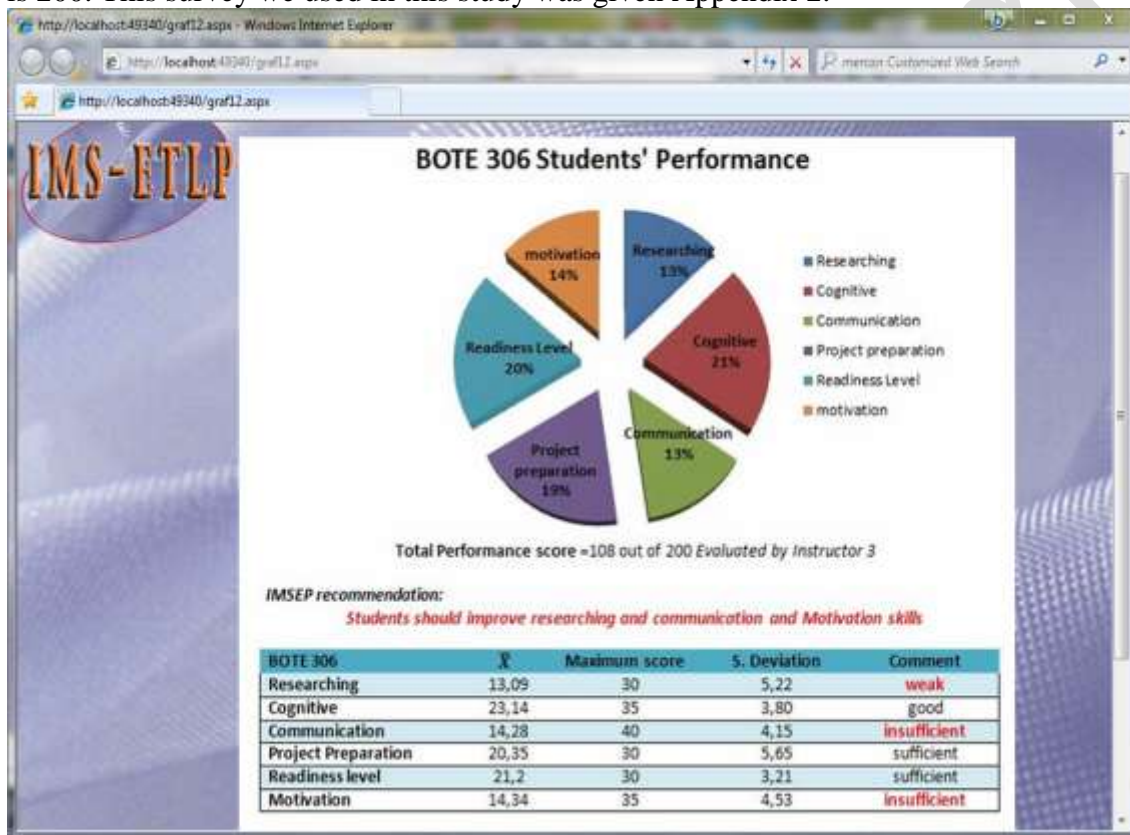
Many procedures related to instructors such as defining instructors, associating instructors with the lessons they carry out, creating standard or special survey forms, determining survey period, following the evaluation of the reports on online system will be realized in this module. In the many current evaluation system, the results of evaluation are reported to instructor superficially. Whereas, in this study, IMSEP system presents to instructor detailed report concerning with his/her own lesson and teaching performance by processing data collected from surveys. Moreover, this system will provide an opportunity to the instructor to see students' personal thoughts about lessons and their instructors (Fig. 2.). Through this



effective feed-back the instructor can improve his/her own teaching performance by planning and setting a special teaching strategy.

IMSEP presents to instructor to evaluate his/her students from the point of their competences related to the course (Fig. 3). Because, it is not expected being successful students not having necessary skills on course.

In this process, instructors have evaluated their students researching (6 question), cognitive (7), communication (8), project preparation (6) skills and readiness level (6), and motivation (7) with a total of 40 questions. This survey was given in native language at the end of this paper (Appendix 1). Instructors' opinions are more positive about students' skills whenever higher marks given to questions by the students. The highest mark received from the survey is 200. This survey we used in this study was given Appendix 2.



*Fig. 3. Sample students' learning Performance report ( BOTE 306 Course)*

In this study, descriptive method is used to determine the thoughts about students' characteristics. The research method here used is School Survey which is a sub-type of Survey. That is used to identify thoughts of instructors about students. Alpha reliability coefficient was found (Alpha) 0.96. The School Survey which had been developed by Kaya et al., as 5 point likert scale was used on instructors ( Kaya et al., 2007)

### 2.3. Manager Module

To improve teaching process, this module helps to take the necessary managerial steps on time by evaluating teaching process effectively. This module has three dimensions as administrative, instructor and student. On the instructor base, every kind of information

related to teacher is available online in the system. In the evaluation of department or unit basis, the system prepares online detailed performance reports about the unit's instructors and the lessons they carry out (Fig.4).

The management module processes all feedback in every phase of evaluation presents effective results and reports to instructors, students and manager. Thus, students have a chance to examine the results of the evaluation of their lectures and lecturers in graphs.

## 2.4. Advisory Module

IMSEP gives students advice on what they should do during their studies to be more successful. The system was used a classified scale (weak-insufficient-sufficient-good-very good) to interpret scores received from the surveys. In this way, Instructors and students can realize their weakness on teaching and learning process. For instance, *"IMSEP Recommendation: Students should improve researching and communication and motivation skills"* (Fig. 3). If an Instructor receives low score (score<3) from any evaluation criteria then IMSEP interprets that he/she should improve his/her weak sides and creates a recommendation to the instructor or manager. For instance, *"IMSEP recommendation: Instructor3 improve on B-Teaching according to the curriculum"* (Fig. 4).

IMSEP shows lecturers the results of the evaluation by students on the lectures. It also shows lecturers the arithmetic mean of the evaluation by students for each question, students' individual thoughts and comments anonymously. By this way, lecturers may have an idea of the view of their students towards their lectures and themselves. Moreover, IMSEP interprets the survey results and presents suggestions about how to develop their lectures.

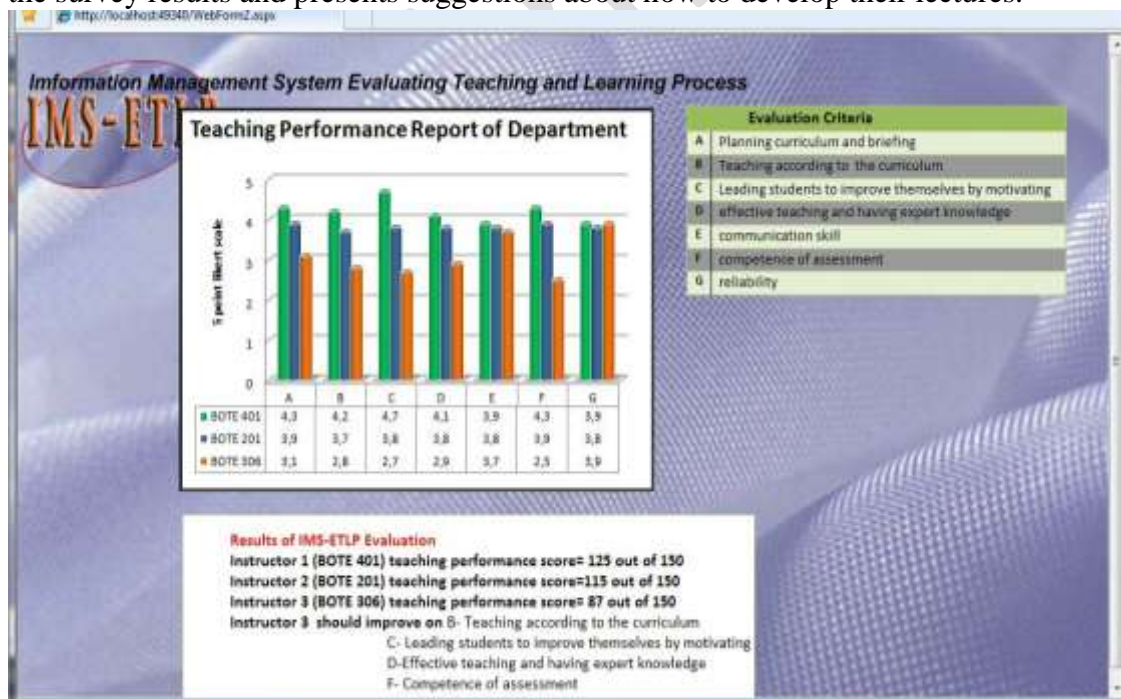


Fig 4. Sample department's teaching performance report and suggestions presented by advisor module

It enables the head of unit to evaluate students and lecturers and it gives him comments on the results of surveys together and also separately. Thus, he can evaluate the results more objectively. It might be discussed how to improve students' and lecturers' quality by the heads of units. The results obtained from the system will provide significant contribution towards making term-time, annual and long-term plans and strategies which are made to improve the quality of education process, students, lecturers and the university. Thus, new plans related to the next teaching period can be made. In a similar way, this procedure can also be utilized by faculty or university management.

## **CONCLUSION**

Thanks to the current Information Technology (IT) trends, educational intuitions college can implement course evaluation through an online format for courses in order to lower costs, increase timeliness of feedback, and assist with ease of record-keeping and analysis.

This study was performed under the EGITIM 2012-03 Scientific Research Project of Agri Ibrahim Cecen University in our department of Computer Education and Instructional Technology. Firstly the system was developed for teaching process with one side of education by using student feedback. Later it is noticed that evaluation of one side is inadequate in terms of objectivity. So, two sides of education were involved in this system. This system has been implemented in our department since 2013. So far, its application was made with the participation of 500 students from the department and evaluated seven different courses program every year. In this study, the names of the lecturers were not showed clearly instead of this they were named such as "Instructor1, Instructor2..". This system was developed in Turkish. The system user interfaces was reorganized in English for a better understanding of the system at the stage of converting the publication of this study. IMS-ETLP system developed under this study has been provided an efficient management of the teaching and learning process in our institutions. It is possible to collect the positive contributions of this system under three titles. These are given respectively below.

### **1- Financial value added**

- Monetary saving
- Time-saving: For implementation and coordination of the survey no more time have been spend.
- Labor force saving: Hundreds of lecturers conducting the survey can more efficiently use their time.
- Human resource planning; Educational intuitions can use data on the quality of teaching to be used for operational purposes, including but not limited to assessment of unit for merit and/or performance adjustment salary awards, promotion, tenure and intuitional recognition.
- Flexible use -independent of time and space- full participation: With this system, students can evaluate the teaching process in a flexible manner. For this, a computer connected to the Internet is enough. They can make evaluation when and where they want. In this way, not only students who are in the classroom but also all of them can participate in evaluation of teaching process.



**2- Improving the education quality**

- To provide data that will be used to continuously improve the student's learning experience.
- To make students play a more active role on teaching process.
- To provide students, educational institutions and their sub-units with a source of data about the overall quality of teaching.
- Thanks to the system, instructors can determine new strategies to improve their teaching process by using information on their teaching performance.
- It is effective tool in determining educational institutions' and their sub-units' teaching plans and policies.

**3- Scientific value-added**

- Thanks to the developed system, a very comprehensive database will be created from the evaluation of teaching and learning process.
- IMS-ETLP database is an important resource for new researches dealing with education sciences. Besides, the system with its flexibility in editing survey will allow different regulations for new researches.

**ACKNOWLEDGEMENTS**

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**Appendix 1**

**Evaluation Survey of instuctor's teaching performance (course evaluation)**

**A-Dersi planlama ve yeterli bilgilendirme**

- 1-Bu dersin amacı dönem başında öğretim elemanınca sunuluyor.
- 2-Derste yararlanılacak kaynakların listesi dönem başında sunuluyor.
- 3-Derse başlamadan önce dersin hedefleri öğretim elemanınca açıklanıyor.

**B- Dersi planladığı şekilde işleyebilme**

- 4-Bu derste dönem başında planlanan konular işleniyor.
- 5-Öğretim elemanı ders saatini dersin amacına uygun olarak kullanıyor.

**C-Öğrenciyi motive ederek gelişimi için yönlendirme**

- 6-Bu derste araştırma yapmaya yönlendiriliyorum.
- 7-Bu derste ufuk açıcı bilgiler edindim
- 8-Bu derste öğrendiğim bilgilerin bana yararlı olacağını düşünüyorum.
- 9-Öğretim elemanı öğrencilerin olumlu davranışlarını takdir etmektedir.

**D-Dersi başarılı işleyebilme ve bu alandaki uzmanlığı**

- 10-Öğretim elemanı dersi içinden gelerek anlatıyor.
- 11-Bu derse aktif olarak katılmam sağlanıyor.
- 12- Öğretim elemanı dersi başarılı bir şekilde işlemiştir.
- 13- Öğretim elemanı çeşitli yöntemler kullanarak dersi işliyor.
- 14- Öğretim elemanı öğrencilerin derse karşı ilgilerini çekebiliyor.

15-Derste eğitim araç-gereçleri kullanılıyor.

16-Öğretim elemanı öğrencilerin sorularına yeterli cevaplar verebiliyor.

**E-Öğretim elemanının iletişim becerisi**

17- Öğretim elemanı derste beden dilini (jest, mimik) etkili bir biçimde kullanabilmektedir.

18-Öğretim elemanı açık / anlaşılır bir dil kullanmaktadır.

19-Öğretim elemanı öğrenci hatalarını kişiliklerine hakaret etmeden erıştırilmektedir.

20-Öğretim elemanı dersi ile ilgili eleştirileri anlayışla karşılamaktadır.

21-Öğretim elemanı öğrencilerle derste sağlıklı bir iletişim kurabilmektedir.

**F-Öğretim elemanının ölçme değerlendirme yeterliliği**

22-Bu dersin sınav soruları işlenen bütün konuları kapsamaktadır.

23-Bu dersin sınav soruları açık ve anlaşılır biçimde sorulmaktadır.

24-Bu dersin sınav soruları öğretici bir nitelik taşımaktadır.

25-Öğretim elemanı dersle ilgili sınav, ödev, proje vb. etkinlikleri değerlendirmektedir.

26-Bu dersin sınav soruları bilenle bilmeyeni ayırt edicidir.

**G-Öğretim elemanının adil değerlendirme güvenilirliği**

27-Öğretim elemanı tarafsız olarak not vermektedir.

28-Bu dersin sınavlarından beklediğim notu almaktayım

29-Öğretim elemanı herkese eşit davranmaktadır.

30-Öğretim elemanı bu derse ilişkin sınav kâğıdını inceleme fırsat veriyor.

**Appendix 2**

**Survey evaluating students' skills related to the course (evaluation of course students)**

1. Bilgiye ulaşmada interneti etkin bir şekilde kullanabilmektedirler.

2. Derslere zamanında gelmektedirler.

3. Derslerde incelenen konu ile ilgili görüşlerini çekinmeden ifade ederler.

4. Görüşleri sorulduğunda görüşlerini açıkça söylerler.

5. İleride iyi bir öğretmen olabilecek özelliklere sahiptirler.

6. Derslerde anlamadıkları noktaları sorarlar.

7. Birbirlerinin düşüncelerine saygılıdır.

8. Derslerde devamsızlık sorunları yoktur.

9. Derslerde kendilerine verilen bilgilerin onlara yararı olacağı bilincindedirler.

10. Sunumları sırasında özgüvene sahiptirler.

11. Proje raporlarını düzgün ve anlaşılır bir dille yazarlar.

12. Projeleri amaca uygun nitelikte hazırlarlar.

13. Çalışmalarını arkadaşlarının ilgisini çekecek şekilde sunarlar.

14. Verilen çalışmaları içtenlikle yapmaktadırlar.

15. Öğretim elemanı tarafından kendilerine yapılan eleştirileri anlayışla karşılamaktadırlar.

16. Öğrenciler bilgi kaynaklarına nasıl ulaşacaklarını bilmektedirler.

17. Araştırma ve inceleme çalışmaları sonucunda genellemeler yaparlar.

18. Dersle ilgili farklı örnekler verirler.

19. Dersi iyi dinlediği izlenimi veren sorular sorarlar.

20. Eleştirel düşünme becerilerine sahiptirler.

21. Proje ile ilgili elde ettikleri bilgileri anlamlı bir bütün oluşturacak şekilde bir araya getirirler.
22. Derste sunulan kaynaklara ulaşırlar.
23. Dönem başında öğretim elemanı tarafından sunulan programa ulaşırlar.
24. Dersleri içlerinden gelerek dinlerler-dersi dinlemek yerine başka şeyler yapmazlar.
25. Dersle ilgili özgün sorular sorarlar.
26. Problem çözme becerisine sahiptirler.
27. Özgün görüşler belirtirler.
28. Öğrencilerin sözlü anlatım becerileri gelişmiştir.
29. Derslerde başka bir dersin çalışması veya sınavı ile uğraşmazlar.
30. Çalışmalarını yukarıdaki programın amaçlarına göre yaparlar.
31. Öğrenciler ulaştıkları kaynaklardan etkin bir biçimde yararlanırlar.
32. Öğrencilerin, hipotez kurma, analiz ve sentez gibi bilişsel becerileri gelişmiştir.
33. Türkçe'yi yeterli düzeyde kullanabilmektedirler.
34. Beden dilini etkili bir şekilde kullanabilmektedirler.
35. İnceleme ve araştırma çalışmalarında farklı kaynaklardan yararlanırlar.
36. Dersle ilgili materyalleri derslerde yanlarında getirirler.
37. Kendilerine verilen kaynaklarla yetinmeyip başka kaynaklara başvururlar.
38. Derslere hazırlıklı gelirler.
39. Derslere değişik yardımcı kaynaklarla gelirler.
40. Alan dışı yayınları takip etmektedirler.

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