

THE PRIMARY STUDENT TEACHERS' VIEWS ABOUT A BLENDED LEARNING APPLICATION IN A BASIC PHYSICS COURSE

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ABSTRACT

In this study we present an overview of the undergraduate blended Physics course that has been supported by the Moodle platform. The course that has been applied is a basic physics course for primary student teachers. The aim of Moodle is to create an online learning environment which helps students to have a virtual space where they can share knowledge through different kinds of supervised activities, chats and forums. Students have to enter Moodle and they have participated activities that have been offered by the instructor after the lesson every week. After the study, results have shown that teacher candidates using Moodle processing have positive thoughts about the course. In the study, it has been emphasized views of prospective primary teachers about MOODLE in some subjects of physics. Students are challenged to doing research. Prospective teachers tend to use this method in their professional life; therefore, it is recommend that offering challenging possibilities to them about their using. It is recommended that this application is become widespread in education (especially higher education in Turkey).

Keywords: Moodle, Prospective Teachers, Physics, Constructivism, Learning environments

INTRODUCTION

New technologies (in particular, the internet) provide teachers with many interesting tools that can be used to improve the teaching–learning process. The usefulness of these tools proves to be important for teachers to have more information about the advantages and possibilities of using technology in the classroom (Kaminski, 2005), as well as about the results derived from their application (Martín-Blas & Serrano-Fernández, 2009). The use of computers in Physics instruction began in the seventies (Chonacky, 2006). Since then, there have been many studies that analyze the effectiveness of new technologies applied to teach Physics (Kenny, Bullen, & Loftus, 2006).

There is a wide debate about the influence on computer-assisted education in Physics courses (Kenny et al., 2006). Some authors consider that computational Physics provides a broader and more flexible education than a traditional Physics course. Moreover, they consider that teaching Physics as a scientific problem-solving paradigm is more effective and efficient than using the traditional approach (Landau, 2006).

Course management systems (CMSs) or Learning management systems (LMSs) can offer a great variety of channels and workspaces to facilitate information sharing and communication among participants in a course.

They let educators distribute information to students, produce content material, prepare assignments and tests, engage in discussions, manage distant classes and enable collaborative learning with forums, chats, file storage areas, news services, etc. Some examples of commercial systems are Blackboard (BlackBoard, 2007), WebCT (WebCT, 2007) and Top-Class (TopClass, 2007) while some examples of free systems are Moodle (Moodle, 2007), Ilias (Ilias, 2007) and Claroline (Claroline, 2007). Nowadays, one of the most commonly used is Moodle (Modular Object Oriented Developmental Learning Environment), a free learning management system enabling the creation of powerful, flexible and engaging online courses and experiences (Rice, 2006).

Its modular design makes it easy to create new courses, adding content that will engage learners and it is designed to support a style of learning called social constructionist pedagogy (Rice, 2006). This style of learning believes that students learn best when they interact with the learning material, construct new material for others, and interact with other students about the material. Moodle does not require the use of this style in the courses but it supports this style best, and it has a flexible array of module activities and resources to create five types of static course material (a text page, a web page, a link to anything on the Web, a view into one of the course's directories and a label that displays any text or image), as well as six types of interactive course material (assignments, choice, journal, lesson, quiz and survey) and five kinds of activities where students interact with each other (chat, forum, glossary, wiki and workshop) (Romero et al, 2008). The growing use of learning management systems (LMS), many of which automatically keep logs of student activity, presents an exciting means of narrowing this gap. Lately, many researchers have worked to exploit this potential, both in academic research and the design of practical online learning applications.

WHAT IS MOODLE? AND WHO USES MOODLE?

"Moodle is a free, open source course management system software package that is designed to help educators create quality online content and a collaborative, interactive environment to support their classroom courses" (Maikish, 2006). Moodle has two meanings. "First, it is an acronym for Modular Object-Oriented Dynamic Learning Environment". "Moodle is also a verb that describes the process of lazily meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity" (Cole & Foster, 2008). Many types of institutions use Moodle. Business and education institutions alike use it; although, it was originally designed with a social constructionist philosophy which makes it more appealing to educators. This is the understanding that students learn by doing and that learning is more effective when it is constructed from the experience of others (Tuzi, 2007). "Collaborative learning and discovery are at the foundation of this CMS application" (Tuzi, 2007). It was "designed to be an easy to use, intuitive learner-centered system" (Carmichael, 2008. para. 4).

Users of Moodle describe it in various ways. The technology team describe it as an interactive learning environment that enables "teachers and students to easily share information in pursuit of creating learners prepared for the 21st century" (as cited in Durham Academy, 2008). San Diego Unified School District defines Moodle as a way to "deliver online courses and to supplement traditional face-to-face courses. Moodle is an Open Source, web-based software package designed using sound pedagogical principles to help educators create effective online, constructivist, learning communities" (SDUSD Educational Technology,). Buddie describes it as an environment that "allows the tutor to create core resources and activities that guide the students as opposed to traditional approaches to teaching which can lead to ineffective learning, as they imply a passive transfer of knowledge from teacher to student" (2006).

WHAT IS MOODLE OFFERS? (TEACHING, LEARNING, EVALUATION AND/OR ASSESSMENT)

Moodle has several features that can be used in various ways. Since so many users are registered to use Moodle, it is easier to find assistance to learn more about the features. Several third-party groups have created help sites for Moodle users (Tuzi, 2007). The project manager for Cumbria and Lancashire Education Online (CLEO) in the UK says that Moodle offers a lot of flexibility. Primary schools use it for project-based work; while secondary schools have a broader range of use (Mudle, 2007). Each Moodle course room can be unique and individual. The teachers can choose the themes, modules, layout and so on of their own Moodle classroom (Tuzi, 2007).

Moodle has over 100 gradable activity modules and plug-ins (Tuzi, 2007). This includes items such as quizzes, tests, and essay workshops. Teachers can create quizzes that include a variety of styles of questions: multiple choice, fill-in-the-blank, essays, short answers, true/false and matching. These quizzes can be graded online and can be designed to provide instant feedback for each question of the quiz. A feature that teachers should enjoy is its ability to grade these online quizzes. Some teachers even use this for online homework quizzes so that students will have a desire to complete the homework (Maikish, 2006).

INSTRUCTORS' ROLE IN MODDLE APPLICATION

Integrating technology into the delivery of a college course inherently changes the role of faculty in that course (Bennett & Lockyer, 2004, Berge, 2000, Palloff & Pratt, 1999, Wolcott, 2003). The role of the instructor in an online course has changed to one of a mentor, facilitator and coach (Hardy & Bower, 2004; Hirumi, 2005; Palloff & Pratt, 1999). This change in role enabled students to discover meaningful experiences by constructing their own knowledge in the online course environment (Bangert, 2004; Ko & Rossen, 2004; Rovai, 2004; Palloff & Pratt, 2001).

In the earlier research, professors at the University of Georgia perceived three primary roles when teaching online: course customization, facilitation, and grading and assessment. Course customization referred to the adjustments that these faculty members made in their courses, checking, updating and adjusting content, revising the courses' activities and the discussion assignments. Fifty percent of the instructors in this study identified with the student as being the center of the course experience, that they take the primary role in their own learning and that the faculty member should facilitate the course. A look at the archived courses revealed the third area, the course evaluator/grader. Professors confirmed that a tremendous amount of time was spent in the course grading assignments and giving feedback to students (Morris, Xu, & Finnegan, 2005).

MOODLE AND CONSTRUCTIVISM

Constructivism refers to an environment where learners build or construct their learning experiences. This requires a much different approach to teaching and learning than the traditional classroom environment (Conrad & Donaldson, 2004; Land & Hannafin, 2000; Palloff & Pratt, 2005; Savery & Duffy, 2001). Bedard-Voorhees (2005) described the change in moving to more learner-centered online activities as one in which the learners must take charge of their own learning.

A student-centered learning environment (SCLE), in the true sense of the concept, is one where students make decisions regarding their own learning and is designed from a constructivist framework (Land & Hannafin, 2000; Savery & Duffy, 2001).

Moodle was designed to support those who are interested in developing constructivist, student-centered learning environments (Dougiamas & Taylor, 2003). Moodle is a content management system that has adopted a social constructivist theory. "Social constructivism is based on the idea that people learn best when they are engaged in a social process of constructing knowledge through the act of constructing an artifact for others" (Cole, 2005). Benbunan-Fich, Hiltz and Harasim (2005) described the collaborative nature of learning in an Asynchronous Learning Network (ALN) as based in the roots of constructivism. Community building comes from the constructivist approach in teaching and learning. In constructivist theory, learning occurs through actual experience, building knowledge through the interaction between the student and the material, or between students, and not necessarily just because the teacher delivered information (Alavi & Dufner, 2005; Benbunan-Fich, et al., 2005; Land & Hannafin, 2000; Preece, 2000). Community and collaboration are two concepts that, as Palloff and Pratt (2005) stated, are heavily intertwined, with each feeding the other. Alavi and Dufner (2005) described collaborative learning as a "learner-centered and team based approach based on constructivist and social learning theories". Antonenko et al. (2004) conducted an analysis of Moodle using a framework developed by Hannafin and Land (1997). "Learning environments, directed as well as constructivist, are rooted in five core foundations: psychological, pedagogical, technological, cultural, and pragmatic" (Hannafin, 1997). Figure 1 shows the five components of the core foundations of a student-centered learning environment.

By breaking down these five foundations and looking at the various components of Moodle, Antonenko et al. (2004) were able to determine that it does provide a constructivist learning environment.

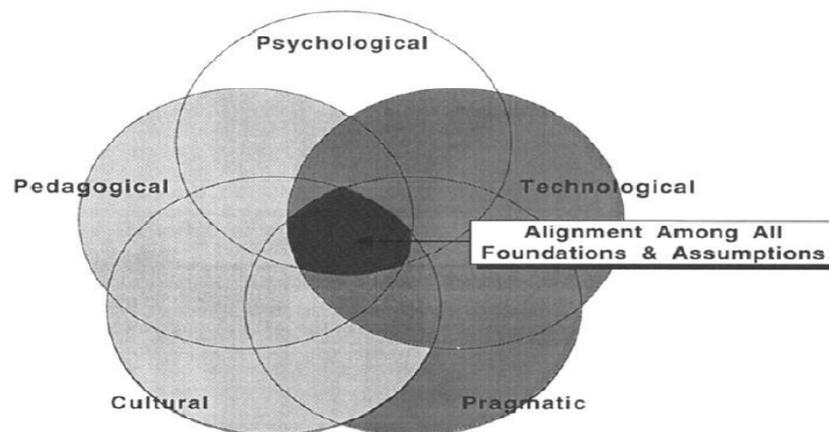


Figure: 1
Five Components of Student Centered Learning Environment (Hannafin, 1997)

Their findings concluded that it is possible to promote the design of a Moodle that integrates general principles of constructivist learning and provides an online learning context that supports student-centered pedagogy.

MATERIAL AND METHODOLOGY

In this study, in the department of primary education at the faculty of education, in addition to face-to-face teaching, Moodle course management system was used to enhance the effectiveness of teaching Basic Physics. 57 students were participated in the study, who took on General Physics classes of the summer term in 2009.

The study covered seven weeks. Firstly, the participants were listed and recorded in the Moodle media and they were informed of that. Weekly class notes of the subjects were transferred into the Moodle media immediately after they were studied in the class. A Forum in Moodle was also designed to foster in-class interaction among the students and they were also asked to share the subject-related questions of their own in the medium. Midterm and general exams were done in the computer lab using the Moodle interface. Figure 2 shows Moodle homepage screenshot. Among the students taking on the Basic Physics as their subject, four of them were picked up by randomly selection and a pre-interview with them was held on the use of Moodle. Following the interview nine-item questionnaire were given to the students on teaching and assessment purposes. Students were also asked to answer the questions using the Moodle interface. The answers given by the participants were encoded by three specialists using the program of HyperResearch 2.8. They were later analyzed and the results were shown in Frequency Tables.

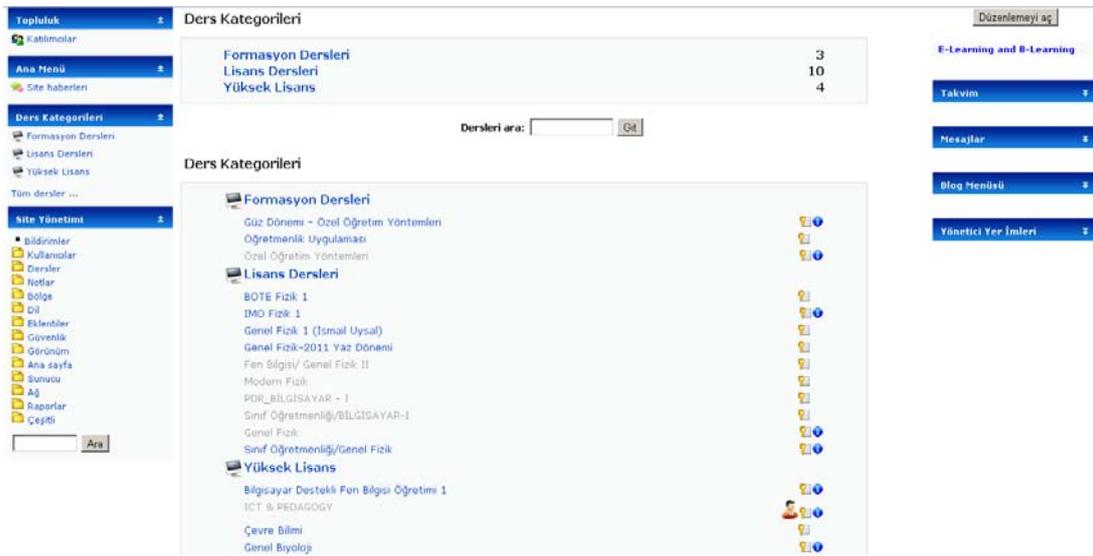


Figure: 2
Moodle Intro Page

FINDINGS

Findings derived from semi structured interview source were depicted in the form of frequency values in Tables using HyperResearch 2.8 qualitative data analysis program. Each of the answers given to questions by the students was coded and compared by three separate researchers. Comparisons showed that the consistency rate was by %81. Every single interview item directed at the candidate teachers was put into Tables and there on commented.

Table: 1
Results of Data Analysis for Question 1

Gender	Frequency	Question 1. In your daily life are you able to make out the relationship between the physical principles and the everyday happenings and then be able to comment on?		
		yes	no	partly
female	Frequency	9	4	8
male	Frequency	4	5	7

Total 18 students 9 of whom are male and the remaining 9 female students gave answers to the following question: "In your daily life are you able to identify the relationship between the physical principles and everyday events and then be able to comment on?" and they stated that they can set up relations between the physical principles and the daily events (See Table: 1). Some of the student statements are quoted below:

Yes, there is a mobility platform in life itself anyway...and to be able to see the positive effects of this mobility, thinking that it is a must to be on the axis of balance I can set up relations with principles of physics...

As I was a student holding equally-weighted score until I came to the university, I could hardly have information about physics. Here in this school I have learned the basics. Until very recently I have not had any skill to be able to comment on the situations I face in terms of the physical principles. Now, thanks to the examples you gave us during class sessions, I notice that these physical principles do exist in our daily life.

In daily life, in situations I confront I am able to predict relations in terms of physical principles. For instance; gravitation, light I have the opinion that physics is a science interwoven into our life. At times I do recollect some examples given during the class when I watch students playing balls, when I push door handles or when I carry things.

Total 9 students 5 of whom are male and the remaining 4 female students gave answers to the following question "In your daily life are you able to identify the relationship between the physical principles and the everyday events and then be able to comment on?" and they stated that they cannot set up relations between the physical principles and the events they confront in daily life (see Table: 1).

Some of the student statements are quoted below:

*No. Rather than physics I do relate them to geography.
No. Never had I thought of that.*

Total 17 students 7 of whom are male and the remaining 8 female students gave answers to the following question "In your daily life are you able to identify the relationship between the physical principles and the everyday events and then be able to comment on?" and they stated that they can sometimes set up relations between the physical principles and the daily events (see Table: 1). Some of the student statements are quoted below:

Taking the examples the teacher gives us into consideration I sometimes make correlations between and sometimes I cannot.

I cannot tell it exactly but I do it at times on some certain subjects...and it is my opinion that most people can comment on subjects I could comment on anyhow...

To the question of "Are you at difficulty in understanding physics subjects?" totally 34 students, 14 of whom are female and the rest 20 are male, replied that they had difficulty in understanding the subjects.

Reasons for students' difficulties in understanding were encoded and are shown in tabular forms. Some of the students have stated their difficulties as such:

I cannot fully grasp physics subjects during the class hours because class hours are short and classroom situation is not favorable. It is too hot in summer inside, some materials and teaching tools could be used. For instance some experiment could be done. Back at home I could think of more examples in life when I went over the subject. For example; Newton's law of motion and energy helped me do more jobs using less energy.

Yes. I have been in difficulty in understanding physics lessons since I first started it at lycee... However I studied physics in high school it was not a push on my side thinking that scores I would get on physics could not be of any use in qualifying for the kind of department at university entrance exams. My poor background knowledge of physics therefore does not allow me to understand the physics now taught to us.

Yes, I have a great difficulty. I have a strong prejudice against quantitative subjects since I have no concrete background for them. This is not just my problem, and it is the same suffering among the other students taking university entrance exams. Statistics of the current central testing system in Turkey show that there is a great gap between scores of social sciences and that of quantitative, especially in physics the average true answers barely reach 4 to 5 in the exams.

In many universities physics is ranked as the most difficult of all subjects by students. Among many factors for the present unfavorable situation in learning physics, inadequate teaching system at primary education could be blamed. At the primary schools teachers are weak at getting the basics of the subject across to pupils.

Yes, I think my difficulty sources from the fact that I am an equally weighted student. At the very time when the topics are taught I do understand but then after I feel at a loss to remember too many formulae. So it becomes a mix.

Table: 2
Results of Data Analysis for Question 2

gender	frequency	Question 2. Are you at difficulty in understanding physics subjects?						
		A					B	C
		A1	A2	A3	A4	A5		
female	frequency	9	1	2	1	1	6	1
male	frequency	16	1	1	1	1	1	0

A: Yes, A1: Because I do not have background knowledge, A2: Because of the subject teachers, A3: Anxiety for scores, A4: Because of formulae, A5: Insufficient length of time for the lesson, B: No. I like Physics, C: Sometimes. Because I am a student holding Equally Weighted Score

To the question "Do you have any difficulty in understanding physics subjects?" Students totally 7, six of who are female and one male, stated that they liked physics and that they did understand the subject with no difficulty (see Table: 2).

Some of the students who had no difficulty stated as follows;

No, I have no difficulty, I think I love physics and it is because of my enjoyment for mathematics.

No, I have no difficulty. I like maths. I think it helps to understand physics better.

Table: 3
Results of Data Analysis for Question 3

Gender	frequency	Question 3. Would you like the physics lessons be taught?				
		A	B	C	D	E
female	frequency	2	14	3	2	0
male	frequency	6	11	1	1	2

*A: At a more basic level, B: Practicing more examples/relating them to daily life happenings, C: Present system will do, D: Rather by teaching the very logic of physics
E: Have no idea*

“How would you like the physics lessons to be taught?” To this question, two female and six male students stated that the physics topics should be taught in a simpler way (see Table: 3).

I would like the visuals to be used in teaching and explanations be made simpler.

I am very poor at physics. I speak for myself I would like the topics in physics to be taught in the way as it should be taught to a student who has no preliminary knowledge about it.

Without going deeper into details concentrating on simpler formulae to solve the physics problems I think physics should be taught on a gradual basis from easier to upper level.

*I would like it to be designed accordingly for us in a simpler mode.
It should be taught at a level lower than that of ours.
Physics is a rather a comprehensive lesson so it could just as well be taught at a simpler surface level for teachers of primary school education.
Basics will just do well and there is no need to go urther.*

As understood from students’ statements, there is an expectation so as not to have too many operations and complex and formulas during the presentation of the subject.

To the above mentioned question, 14 female and 11 male students have stated that physics classes should be taught by way of practicing on many more exercises relating them to the daily life experiences (see Table: 3). Those views released by students are;

In fact; I would like the lessons such as physics to be taught in labs. While describing the events if concrete examples were shown the learning experience would be inscribed in the mind of the students and learning would not fail to last long.

I would say for myself that I learn better if I can draw a mental picture of something in my mind. When I do this I can set up relations between things and physics. I would like this kind of teaching system.

As much as possible questions should be derived from the real life examples to make learning more concrete and relate the questions to everyday life practices to enable the students develop a liking for physics. In my opinion teacher has an important role in teaching procedure, so they should employ more than one method while teaching.

Should physics be taught on concrete basis then it would add more to the understanding of the topic by students. Because I think physics, itself, is a lesson in life. While giving tests that measure quantitative skills of students, verbal tests should also be given to test verbal skills. Questions on verbal skills to test conceptual understanding should be given and in the exams the number of questions for quantitative conceptual understanding should be equal. This way students having difficulty in understanding figures may find it easy to understand physics better

To the question of "How you would like the physics lessons to be taught?" three female and one male student stated that they are happy with the current system of teaching.

Those who share this idea claim as follows;

I do not think this could be done otherwise, through a different method. I would say this method is the best. Apart from midterm and final exams, additional internet based tasks or take-homes could also be assigned to the students.

These works should be credited for the evaluation of the total scores of the students each.

In fact the current system is not bad at all. Some additional efforts could be exhorted to make it more fun for the student.

How would you like the physics lessons to be taught? To this question, two female and six male students stated that the physics should be taught conceptually by concentrating more on its logic rather than using just figures. They state as follows:

Logic should be taught rather than formulae. Instead of memorizing formulae, teaching through reasons.

**Table: 4
Results of Data Analysis for Question 4**

gender	frequency	Question 4. Are you content that physics classes are done through moodle? Why?						
		A				B		C
		A1	A2	A3	A4	B1	B2	
female	frequency	4	10	2	0	3	0	2
male	frequency	6	7	2	1	1	3	1

A: yes, A1: Yes. It came out to be a different experience., A2:Yes.I can go over the lessons through internet. A3: Yes, it is a great thing to send questions and share them A4: Yes, it is nice to see exam scores instantly. B: No. B1: No, there is no access to internet at every location. B2: No. I am not competent enough on computer. C: I could not get used to

"Are you happy that physics classes are done through Moodle? Why?" This question was asked and it was encoded in two phases. The first phase is grouped as to whether there is satisfaction or not; the second phase was grouped as to the reasons. Accordingly there are 9 groupings; three of which are top code and six are sub code.

"Are you happy that physics classes are done through Moodle? Why?" To this question, 33 participants gave answers saying "Yes, I am happy".

10 students 4 of whom are female and 6 male said they were happy because it was a different experience. 17 students 10 of whom are female and 7 male uttered satisfaction because they could repeat the subjects through the internet. 4 students 2 of whom are male and 2 female stated that they were happy because Moodle enabled them to send and share questions (see Table: 4). One student said:

I was happy with Moodle because I could see his exam scores instantly
Some of the views uttered by students are as such:
I am happy that classes are done through Moodle because when I fell short of taking notes during the lessons I can go over the missing parts and make do.

Certainly yes... I need some help and at times from some of my friends registered on the system. It also tests our knowledge on technology. It saves us from paper consumption. I should also add that in case of any problem or difficulty I have the chance to contact you through the web address. I could say I am happy.
Yes, it did great. At last we could follow everything through Moodle. We could see different questions and we are always on the contact and can share things.
Of course, I am happy. To be able to see the announcements and follow them on-line are great.
Yes, I am happy because it gives us more input and learning is not only in the class but also outside. I could say it sets up an out -of- the class learning medium and it could be developed further.
What I like most about Moodle is I could see the exam results instantly. I wish you had not scared us that much before the exam. We developed a kind of prejudice.

"Are you happy that physics classes are done through Moodle? Why?" To this question, 4 students, 3 of whom are female and 1 male said that they are not happy with Moodle because internet access is not always possible at any location and 3 male candidate teachers said that they are short of knowhow on internet and computer so they uttered dissatisfaction with Moodle(see Table: 4).

I am not happy. An easy access to internet is not possible for anyone anytime he wants. If I had an internet in hand I would think differently. Not much. Because I do not like to go to internet cafe and I know nothing about computer.
Exams on Moodle proved to be difficult and Moodle itself is not enough for subject instruction.

I am not happy. I do not have much chance to internet access. I am not used to following lessons through internet. Besides, the internet training we take is not sufficient

Are you happy that physics classes are done through Moodle? Why? To this question, 2 female and a male student gave answers contrary to the expected stereotypes. They stated that they could not get used to it.

Table: 5
Results of Data Analysis for Question 5

Gender	Frequency	Question 5. Did the use of Moodle have any effect on you to change your ideas about physics lessons?				
		Yes		No	Partly	No idea
		Positive	Negative			
female	frequency	7	1	10	2	1
male	frequency	7	1	11	1	1

"Did the use of Moodle have any effect on you to change your ideas about physics lessons?" To this question among the teacher candidates, 14 students, 7 students from both genders, said it had positive effect while 2 participants, one from each gender, said it had negative effects on them. 21 candidates, 10 female and 11 male, said no. 3 students, 2 female and a male student, said Moodle had an effect partly. 2 students said they had no idea (see Table: 5). Some of the expressions of the teacher candidates stating positive response to the question "Did the use of Moodle have an influence in changing your opinions about Physics course?" are as follows:

Yes. Especially what I listened in the course generating questions became more permanent.

Use of Moodle became influential, Moodle is contributive in Physics course and it also shows that internet is used not only for Msn but also useful for the courses at internet age (I think it can be more effective if used in all courses).

Physics course has become more enjoyable with moodle, especially exams.

Some of the expressions of the teacher candidates stating negative response to the question of "Did the use of Moodle have an influence in changing your opinions about Physics course?" are as follows:

My opinions about the course changed in a negative way because I used to think that the course was difficult and upon that, the use of computer in this system made it more challenging and difficult.

Table: 6
Results of Data Analysis for Question 6

Gender	Frequency	Question 6. Do you think use of Moodle in the course made a change in your attitude towards Physics course?				
		Yes		No	Partly	No Idea
		Positive	Negative			
Female	Frequency	10	0	10	0	1
Male	Frequency	10	1	6	2	2

The question "Do you think the use of Moodle in the course made a change in your attitude towards Physics course?" has been asked to the candidates. 20 of the participants 10 female, 10 male, stated positively that "a change in their attitudes took place". 1 male teacher candidate stated "it made a negative change and decreased his interest in the Physics course" (see Table: 6). 16 participants (10 females and 6 males) stated "using this method created no change in their attitudes towards Physics course". 2 male teacher candidates expressed that "a partial change occurred" and 3 participants (1 female and 2 male) stated that "they have no idea about this matter".

Table: 7
Results of Data Analysis for Question 1

Gender	Frequency	Question 7. Do you think of using Moodle while teaching your course during your teaching life? Why?		
		Yes	No	Indecisive
Female	Frequency	18	3	0
Male	Frequency	18	2	1

The question "Would you consider using Moodle in your classes? Why?" has been asked. 36 teacher candidates (18 female/18 male) have stated that they consider building a Moodle platform and using this method throughout their future careers. 5 teacher candidates (3 female/2 male), on the other hand, have declared that although this method is agreeable, they don't consider using it because of some difficulties in the implementation phase, considering the conditions in Turkey. 1 male teacher candidates has indicated that he is indecisive about using it (see Table: 7).

Here are some statements by some teacher candidates who have replied positively to the following questions: "Would you consider using Moodle in your classes? Why?":

Yes, I consider. Since I will be a class teacher, it would be of more benefit for my students if I could teach them how to use internet properly and effectively and do research.

Of course I would consider, why not? Technology is developing gradually and teaching a lesson through technology should be a pleasant feeling.

Of course I would consider. Today's been a technology era. In terms of providing simultaneous feedback for everybody under very busy circumstances, the benefits of Moodle are undeniable. Briefly, the best shortcut is "Moodle".

Yes. I would apply it because computer-based methods increase the practicability in education. And also missing a class won't be a deficiency by using this method.

Yes, I would definitely consider. I think it won't be difficult to implement it since internet access has become widespread; and also it will be very beneficial to provide students with some materials related to a course and study on the Moodle. Moreover, sending assignments through Moodle will solve such problems as wasting paper, failing to reach teachers and failing to hand assignments on time.

Here are some statements by some teacher candidates who have replied in the negative way to the following questions: "Would you consider using Moodle in your classes? Why?":

I don't consider using it since I don't know how to use internet. No, I wouldn't; because there are also some people who do not like surfing on the internet or internet itself.

No, I wouldn't consider. In fact, I cannot consider because there are not many schools in our country which have the infrastructure for the implementation of it.

Table: 8
Results of Data Analysis for Question 8

Gender	Frequency	Question 8. What are the main and the most important function of using "moodle" for you? (teaching, providing extra course materials, assessment, etc.)				
		A	B	C	D	E
Female	Frequency	10	7	1	2	1
Male	Frequency	12	5	0	0	4

*A: Teaching process, B: Course material, C: Interaction and sharing, D: Assessment
E: Irrelevant/No answer*

"What is the main and the most important function of using Moodle for you?" is the question asked. 22 of the participants (10 female/12 male) have stated that "teaching process" is the most important application field of Moodle.

12 of the participants (7 female/5 male) have indicated that it is "course material".

Another female participant and 2 more participants (2 females) have chosen "interaction and sharing" and "assessment", respectively. Lastly, 5 teacher candidates (1 female/4 male) have either written irrelevant answers or no answers (see Table: 8).

Some of the expressions of the teacher candidates responding as "instruction process" to the question "What is the main and the most important function of using Moodle for you?" are as follows:

It is very important for the instruction process, I think, if the site were a bit more appealing and has more resources in it, it would be a source which I could visit often and could make use of. I don't think it is appropriate for grading or assessment.

Its first function is that it should be so orderly for everybody to access in order to decrease its problems... It is important for instruction, let's say imagine that you finished your instruction but had no time to finish it, what can you do?, then comes the Moodle into engagement and enables everybody to learn the rest of the course... It attracts the attention of the students to the course more. If it weren't for such a thing, we would only listen to the course and would not have the need to look at the questions later on. However, we look at them now even if we don't want, and we look at what is sent though we don't post something.

Some of the expressions of the teacher candidates responding as "course grade" to the question "What is the main and the most important function of using Moodle for you?" are as follows:

*For course grad, it is a nice place for those who don't follow the course.
I think the most important thing is learning the course grades
instantly and learning the grades online.
Even if we don't attend the courses, we don't have resource
problems as they are shared.*

Table: 9
Results of Data Analysis for Question 9

Gender	Frequency	Question 9. Do you think a preliminary preparation is necessary before using Moodle?			
		A	B	C	D
Female	Frequency	16	4	1	0
Male	Frequency	17	2	0	2

A: Yes, necessary, B: No, it is not necessary, C: A course should be given to prepare this portal, D: Blank

The question of "Do you think a preliminary preparation is necessary before using Moodle?" has been asked. 33 participants (16 Female 17 Male) stated a preliminary preparation is necessary, 6 participants (4 Female 2 Male) thought preliminary preparation is not necessary and 1 female teacher candidate stated she needed a course to learn how to make the module. 2 male candidates gave no answer to this question (see Table: 9).

Absolutely, because it is not right to try to use something if it is unknown. Otherwise, there will surely be a mistake or mistakes. But, of course, it is necessary to start from a certain point.

It is surely necessary... For example, a tentative study will be to our advantage before the midterm exam while everybody is complaining that they wouldn't be able to write...

Question 10. If you have any ideas about Moodle, please state them.

Lastly, the teacher candidates were asked; *do you have anything to add about the use of Moodle platform?* Common responses to this question:

The point which teacher candidates focus on is that this is a great system as it also enables asking question to the instructor out of the classroom as well as sharing the course notes and the questions. Some of the statements of teacher candidates are as follows:

*It is sure that it was repulsive at first but it turned out that it could be used. It is sure to be helpful to the teacher as it is to the students who don't attend the course, as well. The most important side of it for me is the experience I had and understanding the subject by checking the questions.
It is a good system for sharing.*

*In fact, it can be used in all courses. We can compare the change better in his way
Moodle moderator should prepare tests for the subject instructed that week.*

Generalizing its use in all courses will be beneficial to students. It is important to make use of the advantages of technology all the time. However, because of the problems occurring at course enrollment times at first, the students may have a negative attitude to Moodle, so these problems should be reduced. Thanks... That's an awesome system, it should be used everywhere and should immediately be prevalent in all universities.

This system is great, but the appropriate environment should be organized in order for it to be used. In short, even if I fail in the course, I want to thank you my dear teacher for providing me to experience this change.

I really want to have the education about the installation of this system and want to use it in my teaching life. Additionally, the exam given within this system has been efficient when enough time is given.

RESULTS AND DISCUSSION

This study was conducted on the third grade teacher candidates having Physics course at Primary Education Department of Education Faculty.

The aim of this study is to understand the teacher candidates' course experiences by creating an online learning framework, to create a sharing environment with their friends and instructors related to course out of classroom, and to engage this platform into instruction and assessment process.

In accordance with this aim, teacher candidates were asked 10 open-ended questions and findings obtained were assessed.

According to this; 78.57% of the teacher candidates responded as "yes" and "partly" to the question "Can you link and interpret the physical principles to the situations you come across in your daily life?" asked in order to evaluate the effect of Moodle use and to find out the teacher candidates' current position about correlating or interpreting the science with daily events, one of the main aims of teaching science course according to MEB (Ministry of Education). That is, we can say that they are able to correlate the situations they come across in their daily lives to the physics principles. It can be stated that according to teacher candidates' responses given, their correlation level increased more after the use of Moodle in the course.

Most of the teacher candidates (83.33%) responded "partly" or "completely" to the question "Do you have difficulty in explaining the subjects related to Physics course" and 16.66 % stated they had no difficulty.

59.52% of the teacher candidates responded to the question "How would you like the Physics course to be taught" as by doing more exercises and by correlating it to daily life, 19.04% responded as "at a more basic level", 7.14% by teaching the basic logic of physics while 9.52% stated that the current system was quite good. Their responses indicate that teacher candidates have not fully been adapted to the system applied yet.

We see that most of the teacher candidates (76.19%) are content and some are not content (16.67%) and others are not adapted to this system (7.14%) according to their answers given to the question "Are you content with Moodle use in doing the Physics course?"

The candidates were asked if the use of Moodle had been influential in changing their ideas about physics course. From the analysis of responses given, it is seen that 50% of the participants stated it didn't affect, 38.1 % stated it affected and 7.4 % stated it partly affected.

From the responses to "Did continuing the Physics course with the help of Moodle change your attitude towards Physics course?" it is seen that a positive or negative change in their attitudes occurred in most of the candidates (54.76%).

We see that most of them (85.71%) think of using Moodle based on the question "do you think of using Moodle in your teaching life?" 52.38% of the participants responded as instruction process, 28,57 % as course grading, 4, 76% assessment and 2.38 % as interaction and sharing function to the question "what is the first function of using Moodle and which do you think is the most important?"

Most of the teacher candidates (80.95%) responded to the question of "Do you think a preliminary preparation is necessary before using Moodle?" as it required a preliminary preparation, and some (14.3%) indicated that it could be used easily with their current computer knowledge and it didn't require a preparation phase. Based on these, we can conclude a preparatory phase is required before using this system.

It is also possible to conclude that using this system is a very good experience on part of the teacher candidates and it makes them content to use it when their response is evaluated to the question "If you have any ideas about Moodle system, please state them".

As a summary; the results show that teacher candidates have positive ideas about course instruction with the use of Moodle.

It is seen that teacher candidates are indecisive about whether the use of Moodle would change their ideas and attitudes related to Physics.

What makes them content in this system is the share of course notes and instant access to their exam evaluations. However, teacher candidates should be given information about Moodle platform before applying to the courses with this system, and a few courses should be made together with sample practices.

CONCLUSIONS AND EDUCATIONAL IMPLICATIONS

In this article, we presented prospective teachers' views about potential contributions of applying moodle to course content in some physics subjects.

Like that is dealt with above, students mentioned that using moodle in this course has been earned to course activity and/or property. In this way, such blended learning applications facilitate the actively participation to lesson.

Students are challenged to doing research. Prospective teachers tend to use this method in their professional life; therefore, it is recommend that offering challenging possibilities to them about their using.

It is recommended that this application is become widespread in education (especially higher education in Turkey).

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