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The effect of presenting the electronic circuits lesson on virtual environment according to the project based learning approach on the views of the students

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Abstract

In this research, the views of the students on the process of the Project based learning carried out on virtual environment have been determined. The universe of this research consists of the 2nd class students at Electronics and Computer Teaching Technical Education Faculty at Fırat University during 2005-2006 teaching year first spring and (85) students participated. In choosing the examples, academic success, internet connection, connecting internet any time, the Project based learning and dimensions of virtual learning are used as neutral criterion. Two different methods as quality and quantity have been accepted in this research. "Richened Pattern" in which quality and quantity researches are used together has been chosen. Firstly, the views of the students during their studies have been taken to the forum section as they reflect. Besides, the views before and after application have been collected by a view showing survey. While comparing the views of the students before and after application, t test has been used for the independent groups. When the distribution is normal, student t test has been used, when the distribution is not normal Mann Witney U test has been used. Some of the main findings of this research are as follows.
The students come over the anxieties about the new situations by dialogue- consultation
Internet is seen the first knowledge resource in the sense of getting information.
It is seen that division of labour and cooperation have been used mostly.
The students tend to diverge from the teacher centered learning.

Keywords: Virtual Learning; project based learning; views of the students; education; technology .

Introduction

Education, through in the advances in the computer and internet Technologies, has entered the process of being renewed. A great deal of interest has been given to using the technology in education by the education actors. The reason of this interest is to automize the education and the need to renew the broken communication between the teaching staff and the students (Robinson and Ikeda, 2002). Internet is used in many applications in education (Akbaba and Altun, 2000). Interactive environment (Tests, Forms, Database), Virtual Classes (List Server, Discussion rooms, Message Boards), Project Based Education, Event Based Education are some of these.

Using internet in education is identified by various terms (Paulsen, 2003). They are; Virtual Learning, internet based education, web based education and education presented by computer communication. Besides, in Australia it is named as "out" or "out of campus" study. In South America and Europe, it is called as education through correspondence, free- study, study at home, open education and training. In Germany, it is called Fernstudium or Fernunterricht, in the countries Spanish is spoken, education distancia in New Zealand extramural and France tele-enseignement (UNDP, 2005).

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In virtual learning, a great variety of structure is the main subject in the kind of interaction. For example, while the discussion groups give chance to two different groups consisting more than one person to interact (Multiple-Multiple), in the sense of data-logs there is only one way communication. From the angle of teaching duties, a project which will improve the mental, social and organizational abilities is aimed. While the student can evaluate himself/ herself, this evaluation can be made by the teachers and computers, too. Besides, there is the possibility of synchronous learning and asynchronous.

In virtual learning, the project based learning is the most preferable teaching approach. The Project Based learning is a pedagogic model which becomes popular in every phase of teaching. The aim of the Project based learning is to improve the students' skills to solve problems, to make them think at high level, to condition them continuously in their learning process, to provide them with self-confidence by solving the problems they face (Erktin, Özkan ve Balcı, 2006). On the other side, to train individuals who can obtain the knowledge on his own, and never yield while solving the problems they face, are willing to cooperate and to share is required from education institution of the business world today.

Another development supporting this requirement in the business life has been seen in the social environment. What we have learnt is not sufficient anymore. It is getting difficult to follow the technologic advanced day by day global waves, food, education, trade etc, have made the sectors unstable desperately. The population of the cities are increasing quickly, the increasing education requirement are going up at such financial dimensions that schools can not meet, as a natural result of information age, the wear- out of skills for the workers has gone up to a limit which has never been seen before. The philosopher of Education pronounces the principles to be adopted. However, trying to reach these groups to bring these principles into life has not resulted. Although equal opportunity in education becomes the main principle, the attempts which will provide this equality need financial sources, new technologies and the actors with high qualities. From these improvements it is understood that the learner and our education approaches, our belief about learning situation and the quality of the teaching staff change as the knowledge changes.

Problem

Various definitions about the concept of learning have been made. These definitions mention a change of behaviour which is relatively permanent as a result of the activities being carried out (Senemoğlu, 2003:13). The process which the individual gains this situation through his experience is defined as education (Çalık, 2006:15). These definitions are made to explain our activities we carry out in the education organizations. However, these definition do not allow us the educational facts today as a whole and together. So we will have to focus on a more common concept, developmental concept. Developmental is the interaction of learning, life and maturation factors (Selçuk, 2004:13).

To direct the learning individual's education and learning activities correctly, we must know his/her level of improving. Because, the differences of the learners in- school and out of school are about to exceed the political and philosophical estimations. Especially, as a result of sudden social changes, the need to research and how many negative behaviours which we have difficulty in understanding are gained. Obviously, it is seen that Prennialism and Essentialism philosophies are not applicable today.

Because of the education organizations are far from the life, the teacher known as a source who knows everything takes place in the center more than the learner, it is not possible to apply the principles, which we often refer to, in teaching with unchanged knowledge piles. As the education expenses increase, the need to renew the gained talents continuously and the life span of the products shortness, these reasons cause education-teaching needs to change (Vesel, 2005). As it is known, the Industry age left its place to the Information age. Information is not only renewed but it is sent, in very short times, to whom it may concern. As a result of using computers and internet in education, a lot of improvements have been provided to prevent the unequal opportunities, to use the sources more efficiently, to reduce the cost of education, to adopt the standard education concept (Kaya, 2002:9).

This story of development as mentioned above differentiates the experience of learning and it leads to new researches. The world of education has a rather functional structure like computers and internet. The problem is how to use this structure helps to bring education to everyone without limiting geography and time, it gives the opportunity to the learner to learn in his own conditions, in an intellectual situation and colloboration.(Robinson ve Ikeda, 2002; UNDP, 2005). Wilson and Marsh attract the attention to two specialities which internet connection gives to the students (Akbaba and Altun, 2000). First, the students who use internet for information connection and sharing, communication and researches will be closer to the technology in their future life. These individuals easily adapt to the team work and they build their own knowledge potential through these sources. Second, internet connection takes the students away from physical limits of the classroom and urges them to have a self-confidence in an individual centered structure. But, the comfort of the learner in this new learning situation may cause various negative behaviors and some social talent loses according to the age group (Siber Sexual and Addiction to Net Games) (Samson and Keen, 2005).

The researches about using internet which we define as virtual learning do not consist of alternative findings to the traditional education in all directions. Though, using different learning approaches in the applications of virtual learning, this structure must be put into a more functional form. For this reason, we adopted the project based learning as the main component of virtual learning applications in this research. It is aimed that the students being aware of their learning responsibilities and with their individual efforts learn by an education which includes collaboration and sharing. It is believed that the virtual learning and the project based learning are very good choices in the sense of texture harmony. However, in the learning activities which these two are assigned, we want to know what the students really think and what kind of attitude they exhibit. This research has been planned to bring explicitly to this dimension.

Aim

In this research, the views of the students who are in the process of learning – teaching founded in accordance with the Project based learning approach is tried to be defined. For this aim, both the views of the students were recorded by the system and the data were obtained through the survey determining the view of the student on the Project based learning. The student's views in the virtual learning environment are taken into consideration in three dimensions. These are as follows;

- To determine the views of the students before the application of the Project based learning
- To determine the views of the students about the learning situation for the Project based learning being carried out in the virtual situation.
- To determine the views of the students in the process of the Project based learning (Sharing Information, Group Working, Working Attitudes, Preparing Reports)

Beside this the view determining survey which was realized by scanning the literature has been planned to support these findings in the web environment.

Importance

In this research, we tried to determine the Project based virtual learning application and the change in the views of the students. Thus, we believe that we have reached important findings in determining the problems which the virtual learning will cause and their tendencies in the education and teaching in the future. It is thought that the findings of this research have participated in the studies in this subject.

Study model

While the quality researches tend to the existence and meaning of the fact, the quantity research tends to know to what extent this fact exists (Yıldırım ve Şimşek, 2005:77). Thus, in the quality research, the availibity means that the researcher observes neutrally the event as it is as much as possible. Basically, reliability is the stable one in the course of time and it is a necessity for the measurement of the unchanging facts. Though, manner etc. variability's which are the fields of social sciences, the possibility of the consequences of measurement and certain time range is rather low. As the research made is relatively long period and using the approach collecting more than one data and thinking that the aim is to reach richer data varities, it is thought that the design of the research gains a quality dimension (Yıldırım and Şimşek, 2005:77). For this reason, the design which has gained quality and quantity data synchronous has been adopted as the richened design research. In the richened design, it is searched to what extent these findings found out support each other (Büyüköztürk and others, 2008:212).

Population and Sample

The population of this research consists of the 2nd class students (85 people) at Fırat University Technical Education Faculty Electronics-Computer Teacher in the spring education term in 2005–2006 education year. When the sampling of the research is chosen, the academic success, internet connection, connecting internet any time, the Project based and virtual learning have been defined as the neutral measurement. To determine the academic level of the students, two subjects (lessons) which they took previous year were chosen, the close relation between Electronic circuits lesson and choosing these lessons. As the sampling group will be included to the teaching in the electronic situation, one of the principles of the research is to include the students in this group to have internet connection and to participate in the teaching without time limit. The students who are included in the sampling group need to have information on the Project based learning. So, those who do not have information on the Project based learning have been excluded from the group. Besides, the informing seminars on the Project based learning to the sampling group before the application of the Project. It is needed for the students included in the research to get information about virtual environment and to use it. And it means that one must have information about the programmes like internet, MS word, MS Power Point, Acrobat Reader. The table below has been reached by taking the measurements into the consideration according to the analysis in two, three, four on cluster analysis on 85 people above.

The best cluster was reached in the triple analysis with 61 students. Of these, 32 were enrolled in regular daytime education, while the remaining 29 were enrolled in second education and therefore attending evening classes. The former was randomly assigned as experimental, and the latter as control group. In order to eliminate bias, one student from each group who did not own computers were excluded from the study, thus leaving 31 students in the experimental group and 28 in the control group. Later, 3 more students who responded negatively to the statement "I can obtain and use information from the virtual environment" were also removed from the sample. Accordingly, the resulting sample included 30 students in the experimental group and 26 in the control group. In order to maintain intergroup balance, 4 more students from the experimental group, who either could not use the Internet, was not informed about project based learning or did not have Internet access, were also excluded from the study.

Findings and Comments

The findings of the research have been obtained from two different sources. The students' views which are recorded in web-site are taken into consideration in three dimensions. These are;

- The views of the students before the application of the Project based learning
- The views of the students about the Project based learning being carried out in a virtual environment (The views about the learning environment)
- The views of the students in the process of the Project based learning.

Dimension 1: The views of the students before the application of the Project based learning.

In this dimension, we have tried to determine the views of the students before the application of the Project based learning. The aim in this dimension is to determine the worries, wishes etc. of the students before the application. The first reactions given by the students to the circumstances prepared at the beginning of the application are that this new approach will provide them with positive participation. In general, the students do not have worries, they keep their beliefs in the success. Some views about these situations are shown below.

045…3 No Student : *"Trying the different approaches in our education system are indeed very nice. It will absolutely take time to get used to it, we may have difficulties in the beginning as it is true for all important changes, but not looking at it prejudecely in this situation will remove all the psychological obstacles from the circumstances and will make it easy to adapt, this problem has to be solved first, Later, I think, the success in this new system will be obtained more easily. May it be easy, my friends, in the meantime it is better to have friends who can share the unit teaching information and examples except than the ones which our teachers broadcast in the site."*

045… 5 No Student : *" As it is valid for every new thing, it is not possible to look at it prejeducely. But I have already got used to it. There is no problem for me because I know everything whether good or bad will make people gain some things. Surely, this system will make us gain some things, too. I wish it would not make us lose."*

As understood from these views, the students had some worries at the beginning, but it is seen that they have tried to get used to this new situation by supporting through sharing the information. In spite of this worries before the application, it can be said that the students are willing to it.

Dimension 2: The views of the students about the Project based learning being carried out in a virtual environment.

The foremost findings in this dimension show that their worries lessen as they know the system and their beliefs in success become strong. Besides, the most favourite side of this system is that it is not compulsory to attend. Another finding we have came across is that some students give importance to their less individual roles in the traditional teaching approach. Some views about this dimension are shown below.

045… 1 No Student :   *"I believe this system will be useful, I wish this system to be used in all our lessons."*

Mus… N: *"I also want to study at home comfortably (of course, for the ones who do), but we must stop when it comes to every lesson topic, there are some lessons applicable, there are some lessons not to be applied to, I think."*

045… 8 No Student: *"I believe that we complain about the mistake and distortion in our education system whenever we are given the chance and perhaps we never step back to show it the biggest source of our failures / our being unsuccessful.*

Now that it is so, you see what a good chance we have been give, let us do whatever we can do in the step of this system change as much as possible "Success does not come to you, you will go to it."

In general, it can be said that the students have got used to this situation, they have developed positive attitudes. It is seen that the worries before the application lessen. In spite of this, it can be stated that the most remarkable findings are the fact that the students want all the learning activities in their own control and they do not find the teacher- centered learning approach sufficient.

Dimension 3: The views of the student in the process of the Project based learning

In this dimension, the continuity in the students' wish of learning, their change of their attitudes intended to the learning situation, the data like cooperation, sharing, presentation, as it is necessary in the Project based learning, and the students' participation is obtained.

Dimension 3.1: Getting Information

It is an important subject for the students to exhibit what kind of behaviors in the new learning approaches as a tool of getting information. Some of the views which the students mention about the ways of getting information are as follows.

045 … 3 No Student : *"I think "internet" is the most effective and common and it continues to spread very fast."*

045 … 9 No Student : *"For the one to know how to use" The Most Trustworthy Information Source" is internet for me. Because of internet I believe I can reach the information from faster and more different sources."*

The views of the students concentrated on the direction that internet is the first source in getting information. Besides, it attracts attention that some students inquire about the trustworthy of the information in the internet situation and the expertness level of the people giving this information. When taken into consideration from this angle, it can be said that the students have gained right behaviors according to their aims of learning. Finding source, the qualities like inquiring about the sources will urge the applications of virtual learning. Beside this, some views tend to show that the students find the teacher sourced information more valuable. This situation may come from the evaluation system in the traditional approach is the teacher- centered one as it is thought that there will be a great deal of subjective evaluations in the traditional learning approaches.

Dimension 3.2: The Source Offers About The Project Topics

The students have been given both an informative seminar about the Project based learning and links have been added to the associated web-pages for the students who want to get information. Some students have informed their friends about the web addresses in the forum section because they believe it will be useful in the Project based learning. One of these announcements is given below.

045 … 3 No Student : *"Friends(fellows), a good article about the Project based learning, I think it will be useful.*
http://www.intel.com/corporate/education/emea/tur/elem_sec/tools_resources/plans/harness.htm besides;
http://www.erg.sabanciuniv.edu/iok2005/
At this address there is a section which I think will be useful about "The Project based learning" in the study of "The best Examples lecture 2005." It is a practice bringing out what the teachers and the students who first met the process of the Project based learning did, how they reacted and what they developed…" there is nice information there starting with the above words.

The students have searched out of their own Project topics and they have announced it in the forum section for the other groups because they have believed it will be useful. The announcement which a student has announced to the groups about sharing information is as follows.

045 … 8 No Student : *"This is the address which you can use in your Project researches it will be helpful for every body's Project research.*
http://www.silisyum.net/index.htm Friends there may be something useful for you. If you want, have a look at it.
http://myo.mersin.edu.tr/Orgun/Tp/EndElo/Eln-220/02.htm http://myo.mersin.edu.tr/UZAK/TP/EndOto/Elo-209/anl12.pdf
If you would like to order books, have a look at it, it seems rather effective book
http://www.necatguney.com/index.php?yol=kitap&gelen=telo….

Also, the programmes which are thought to be useful about the Professional field have been announced through this situation.

045 … 6 No Student : *" Tick to download the Electronic workbench. Version 5.0 when you download and unzip you will see a file named (C: www.silisyum.net.) Your Electronic workbench programme will be ready.*
1st section, 2nd section, 3rd section. Dimension 3.669 MB. In this writer elements you choose slided two lines in this bar. Be careful!. I suggest you Flash Get programme to download any files.
I do not remember the source Integrated Catalogue but it has the opening 20 entegres and the producing firm is present. (you must have Adobe Reader on your computer.) Using the gates, you can plan a lot of circuits. Digital Works. It is a useful programme to be used in the works about the semi-conductive, PhD Electronics…

As understood from the correspondence in this section, "cooperation", "sharing" which are often pronounced in the Project based learning and virtual learning have been proved once more. The students help their friends about various topics and they tend to exceed the problems they face together. In a way, this situation will affect their professional progress. This interaction can provide the students to get rid of their heterogenic information level and to reach their approximate information level. The students can put the social learning into life by helping each other.

Dimension 3.3: Group Studies

After having determined the Project topics, they have tried to prepare their projects in cooperation between the members of the group using the web-site. Some of the dialogues reflecting the studies of the eighth group are given below.

045 … 5 No Student: *"8th group members are here. Let's discuss about introduction of MOSFET and JFET. (The structure working principles and characteristic curves of JFET) The forms of JFET's bias (the structure of MOSFET, the kinds, working principles and characteristic curves) (CMOS structures), (introducing Logic or and NAN gates realized by E-MOSFET) is there anyone who has found any information link about the structure, working principles and characteristic curves of JFET.*
045 … 2 No Student: *"To the attention of the members of the 8th group.*
http://www.silisyum.net/htm/fet/mosfet.htm I think this link will be very useful for us. I am expecting your views.
045 … 5 No Student: *"This is a good link; it leads us to the good way."*

As it is seen, the responsibility of learning has been shared among the students without the affect of the teaching staff. The students tend to cooperate. From the views, it is easily understood that the wish to find source and share it with the friends in the group.

Dimension 3.4: Sharing

After the groups have presented their Projects in the class and associated web address, they have added the whole text of the projects to the web address for their friends. The message of the second group about this subject is given below.

Ö … K (2nd Group) *"Friends, you can provide the printing circuits technique web-page, pdf file, Picture gallery and word documents from the following address.*
http://www.firat.edu.tr/mtuncer/forum/forum_posts.asp?TID=28&PN=1
http://www.firat.edu.tr/mtuncer/forum/forum_posts.asp?TID=28&PN=1&TPN=2
045… No Student : *"Friends, you may want to take the Project we have presented as the 7th group. The ones who want to download can visit my web site http://www.kalbimizdekalanlar.net/*

As it is understood from the communication among the students, they believe that they will not face any negative situation while sharing their products and they will response to the critics. The most remarkable finding reflecting to this section is the self-confidence of the students.

Dimension 3.5: Preparing The Report

After having finished their Project studies, the students have passed to the step of preparing the report. For the style of preparing the Project, the links about preparing the report on the Project based learning have been scanned and this situation has been recorded as follows.

M… : " *In these links, there is information about the Project based learning and preparing the Project, the ones who want to have a look can look but I think you can do better.*
http://rapidshare.de/files/20039150/teklif_sureci.ppt.html
http://www.bilkent.edu.tr/~serpilt/pro.htm
http://www.geocities.com/projetabanli/"
055… 3 No Student: *"I thank you because you have shared this information with us. I believe it will be more useful.*
M …N
1-) Choosing the Project to be applied The teacher and the students get together and decide about the Project (subject/topic)
2-) The title of the Project: (An interesting title always attracts attention)
3-) Curriculum Relation: (In which lesson's field does the topic to be studied or the Project go into?)
4-) Aim: What is the target of this Project? What is intended to be realized through this Project?...
As a result activity, the students prepared a report on their studies. While doing this, they carried out a study suitable to the Project based learning format. Preparing the report according to the Project based learning approach principles can be commented as an important behavior for the students to realize.

Findings about The View Determining Survey for The Project Based Learning

The situation of having different views about the Project based learning for the students in the experiment group before and after the application is determined through a developed survey. Before forming the survey, the researches made about this topic were scanned and writing the articles was started by taking the steps of the Project based learning. In grading this survey as a means of collecting data, it is valued as 1-1,79 I never participate, 1,80-2,59 I do not participate, 2.60- 3,39 partly participate-partly do not participate, 3,40- 4,19 participate and 4,20- 5,00 participate completely. Independent group's t test has been used to determine whether there is a meaningful difference in the sense of the averages in both applications because the distribution is normal. The situation realized according to this analysis is as follows.

Table 1 : t- Test Table About The Dimensions Of The Project Based Learning.

	N	$\overline{X}$	SS	Sd	Levene (F)	Sig. Level	t	Sig. Level
Pre- Application	26	3,50	0,14	50	0,295	0,589	1,009	0,318
Last Application	26	3,46	0,18					

p<0,05 meaningful

As seen in the table, there is not a difference of view at the meaningful level between the first and last applications. To determine the position of each article from the angle of the students in the experiment group at the beginning of the term and at the end of the term, the Independent t test has been applied. The analyses result of each article is shown in table 4. While the distribution is normal, the student t test is used, Mann Whitney U test is used where the distribution is not normal. As a result of the analyses made, it is seen that in 22, 25, 29, 39, 41, 45, 53, 59, 73 and 75th articles, the distribution is not normal. According to this, the result of the pre- application and the last application t test for each article is given in the table below.

Table 2: t Test Analyses Table For The Pre-Application And The Last Application Of The Students In The Experiment Group About The Project Based Virtual Learning.

Applications	N	$\overline{X}$	SS	Sd	Levene (F)	Sig. Level	Mann Whitney U	Sig. Level
Question 22: I think I will learn better in a Project group								
Pre- appl.	26	3,80	0,63	50	5,630*	0,022	-1,912	0,056
Last- appl.	26	3,38	0,80					
Question 25: I can take over my responsibility for learning.								
Pre-appl..	26	3,73	0,82	50	6,008*	0,018	-1,322	0,186
Last-appl..	26	4,03	0,52					
Question 29: To share my information and findings gives me pleasure.								
Pre-appl..	26	4,50	0,50	50	10,208*	0,002	-3,235	0,001*
Last-appl..	26	4,00	0,48					
Question 41: I can realize the differences between the dilemmas.								
Pre-appl..	26	3,96	0,66	50	4,069*	0,049	-0,747	0,455
Last-appl..	26	4,07	0,39					

Question 45: I can prepare a report about what I have learned originally.

Pre-appl..	26	3,80	1,02	50	5,860*	0,019	-0,365	0,715
Last-appl..	26	3,80	0,63					

Question 53: I do not follow the working plan in my Project studies.

Pre-appl..	26	2,23	0,76	50	7,815*	0,007	-1,064	0,287
Last-appl..	26	2,57	1,06					

Question 59: I can not guess where the data I have will take me.

Pre-appl..	26	2,30	0,67	50	4,379*	0,041	-0,976	0,329
Last-appl..	26	2,53	0,90					

Question 73: I think the technology facilities preparing the Project/ solving the problems.

Pre-appl..	26	4,26	0,60	50	6,844*	0,012	-1,167	0,243
Last-appl..	26	4,11	0,43					

Question 75: I take advantage of the other people's experiments while solving a problem.

Pre-appl..	26	4,26	0,53	50	6,091*	0,017	-1,689	0,091
Last-appl..	26	4,03	0,44					

$p < 0,05$ meaningful

From the articles in the content of view determining survey, we found meaningful difference in the view of the students in articles 22, 25, 29, 39, 41, 45, 53, 59, 73 and 75 in the pre-application and the last application. For the rest of the articles, there is not a significant difference in the views of the students in the pre- application and the last application. According to this;

The view "I think I will learn better in a Project group" taking place in 22nd article is realized at the level of ($\overline{X}$ =3,80) in the pre-application and ($\overline{X}$ =3,38) in the last application. According to this it can be said that the students have lost their optimistic views at the end of the Project application. According to the pre-application, the topic taking place in 25th article "I can take over my responsibility for learning", it is seen that ($\overline{X}$ =3,73) think more positively. Thus, it can be said that the students have improved better attitudes in the direction of taking over their responsibilities for learning after the application. The view of the students "To share my information and findings gives me pleasure" taking place in 29th article has receded it is seen that the students have gained a more reluctant behavior. The view of the students "I can analyses and inquire while solving the problem" taking place in 39th article has receded a bit. The average view on "I can realize the difference between the dilemmas" taking place in 41st article has risen from($\overline{X}$ =3,96) to ($\overline{X}$ =4,07). So, it can be said that the thoughts of the students before the application have become stronger.

The Results and Discussion

The findings of the research are taken into considerations in two dimensions. while one of these is classified as collecting data using virtual learnings practice the other dimension is classified as collecting the data through the view determining survey.

Application of virtual learning and the studies made by the students during one term, communications were recorded through the learning environment prepared. One of the findings in this dimension is that the students tend to participate in this new learning approach without a clear prejudice. The anxiety experienced at the beginning has not realized at a level as to effect the learning activities negatively. As Yigit (2004) mentioned, the applications of virtual learning seem interesting and attractive to the students, and this makes the students participate in all activities continuously. Some of the students have had some anxieties due to the fact that their individual roles have increased in this new approach. Besides, not having to attend classes attracted the interest of the students quite a lot. As it is understood from the views of the students in the process of learning, the students have lost their beliefs in the teacher centered learning.

Internet takes the first place as a source of activities in getting information. However, the students agree that this source is not so safe. While getting information from Internet, the students judge the sources.

The other two first coming findings are the determinations about the responsibility and self- confidence of the students. The students are not shy in taking the responsibility of learning. In this subject, they are rather willing to, and they have not

experienced any anxiety to carry out the Project studies healthy. It can be said that this finding is parallel to the view suggested by Atıcı (2004) that the students' controls are the base in the applications of virtual learning.

Especially, there is a serious improvement sharing and co-ordination subjects. The students have helped both their friends in their Project group and the other project groups while carrying out the studies about their project. This assistance has realized rather in the direction of source, suggesting software. This assistance among the students is also the finding Ozmen (2005) attracted the attentions to.

It is seen that the findings obtained through the view determining survey and the findings mentioned above sometimes cover each other, sometimes challenge. One of the findings obtained through the view determining survey is that the belief of the students in learning in the Project group has retarded. Both ways of collecting data on taking the responsibility of learning are concordant to each other. The students are eager to take over the responsibility.

There is a challenge between sharing the information and findings in the view determining survey in the virtual environment. According to the findings obtained through the view determining survey, the first optimistic thoughts about sharing the information and finding have receded.

Another challenge is in the dimensions of solving and questioning the problem. According to the view determining survey, the students exhibit more pessimistic attitude at the point of solving and questioning the problem. While there is an agreement between the findings that Vernon and Blake (1993) found that the Project based learning increases the students' motivation and lets the students gain the skill of solving the problems at a high level it challenges with the findings recorded by the system. Korkmaz (2002) also reached the result that the applications of the Project based learning effected the skill of solving problems positively. In the point of being aware of the dilemma between the sources, the thoughts have gained strength after the application.

In general, it can be said that the applications of virtual learning have been accepted positively by the students. Besides, this teaching approach is found interesting. The students having got rid of their limited anxieties before application, they have not experienced a lose in their beliefs in the success. As Yigit (2004) mentioned, the attitudes of the students have been found positive after the application.

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