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ANALYSIS OF APPLIED COURSES' EFFICIENCY IN VOCATIONAL AND TECHNICAL SCHOOL OF HIGHER EDUCATION: A CASE STUDY

ABSTRACT

Vocational school of higher education graduates can be regarded as "Primary Employee" which is called "Intermediate Employee" according to general viewpoint. Therefore, the importance and necessity of educating technical employees decently has become an incontrovertible truth. With this study, the viewpoints of lecturers in Karadeniz Technical University, Beşikdüzü Vocational School, Computer Technologies Department concerning efficiency of applied courses are tried to be demonstrated. In this context, interviews were made with three lecturers. In the study, suitable to the problem of research Case Study method is used and data was assessed with qualitative data analyses method. It is emerged with respect to the findings gathered from the study that there are factors which decreases efficiency. In accordance with this, reasons such as basic facilities and insufficiency of application course durations decrease the efficiency.

Keywords: Vocational and Technical Education, Applied Courses, Efficiency, Education of Technician, Basic Facilities

MESLEKİ VE TEKNİK EĞİTİMDE UYGULAMA DERSLERİNİN VERİMLİLİĞİNİN İNCELENMESİ: BİR DURUM ÇALIŞMASI

ÖZET

Meslek Yüksekokulu mezunları ara eleman olarak adlandırılmakla birlikte ana eleman olarak düşünülebilirler. Bu nedenle teknik eğitimin önemi ve gerekliliği yadsınamaz bir gerçek haline gelmiştir. Bu çalışma ile Karadeniz Teknik Üniversitesi, Beşikdüzü Meslek Yüksek okulu, Bilgisayar Teknolojileri Bölümünde uygulama derslerini yürüten öğretim elemanlarının bu derslerin verimliliğine ilişkin görüşleri ortaya konulmaya çalışılmıştır. Bu bağlamda üç öğretim elemanı ile görüşmeler yapılmıştır. Bu çalışmada araştırma problem durumuna uygun olarak durum çalışması yöntemi kullanılmış ve veriler nitel veri analizi yöntemine göre analiz edilmiştir. Elde edilen bulgular bazı faktörlerin verimliliği azalttığını göstermektedir. Bu bulgulara göre bazı temel olanaklar ve uygulama derslerinin süresinin azlığı bu verimliliğin azalmasına neden olmaktadır.

Anahtar Kelimeler: Mesleki ve Teknik Eğitim, Uygulama Dersleri, Verimlilik, Tekniker Eğitimi, Temel Olanaklar

1. INTRODUCTION (GİRİŞ)

Information, accomplishment, as the primary factor of industrialization and growing up qualified human power, which has work habits are important for development and progress of countries. Information and accomplishment of qualified employees which will be grown with vocational and technical education will be an important factor for our country which is flourishing in becoming an industrial society. From this aspect, the importance of vocational and technical education is being understood (Eşme, 2007; Öçal, 2008). Vocational and technical education is especially directed to two aims. On one hand, it is preparation for successful job ways to young people and on the other hand, it is growing qualified employees for business world. At present, the importance of vocational and technical education' being hyper in terms of quick technologic development, alteration and stepping to the innovations is a truth which is known and said by everybody (Şahin, Okay & Özdemir, 2007; Şahin & Fındık, 2008). General definition of a technician is as follows:

"A technician is someone who is educated in higher levels and who has to work generally with engineers, executives and technology users. He can be technician in small and medium level industry institutions, the highest technical employee in a firm and whereat can be in a position as a leader/executive. A technician should supervise craftsmen and roustabouts and should give necessary instructions to them. At the same time, he should accomplish high-quality technical works in the fields for which they were educated (Geren, 1996; Erdem & Uzal, 2001)".

A technician is defined as follows within the MEB-YOK vocational schools programme development project:

"A technician is an intermediate technical employee who has more theoretical information than the technician who is between senior executive and/or engineer in terms of his task in working field and who has more application skills than an engineer. The employee of these qualifications can bear the leadership and stewardship in some small and middle level management (National Education Ministry [MEB], 2002, p.7)".

In the study conducted in this context, it is consulted to lecturers who lecture applied lesson/lessons at Karadeniz Technical University, Beşikdüzü Vocational Higher School, Computer Technologies Department about applied lessons' efficiency so as to reveal these courses' efficiency and the factors decreasing the efficiency if any.

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

In educating technicians, content and intensity of weekly course duration of theoretical and applied lessons which they learn during their educations in vocational schools and theoretical and practical information they gathered during their education are extremely important. Students' obtaining these information, skills, experiences and achievements in respect of industry and business world's needs will contribute much to the enlargement of procuring employment fields, to escalation of employee number which is conformable and self confidant (Ünal, 1996, Eşme 2007). This is an important fact for both seeker employee and employer. Business world's finding the employee it needed having the qualifications they want, in time they need it is important as much as an employee's, which is educated well enough, finding an employment and winning recognition in job market. In this context, with the increase in quality of vocational and technical education, qualified employees according to expectations of business world will be educated and they will be ready for market.

In the light of the foregoing, the importance of people who graduate from vocational schools and get title of "technician" is understood in a better way. An employee who has good education in his field and educates himself well can be employed anytime and he has the qualification to seek. When our present-day system is taken into consideration, many people

educated in vocational schools are incompetent in terms of technical and vocational means. In other words, most of the graduated students could not have the necessary skills and basic facilities. Applied lessons, which students take in vocational schools and these lessons' efficiency is one of the important steps in their education according to the business world's expectations. Students get ready to the work life with the applications they experience and the information they learn in applied lessons. Additionally, they become technicians equipped with information and necessary skills. The course time of applied lessons' contribution to students is much when these courses' applicability is considered. Students put their theoretical information into practice with the aid of applied lessons and can improve themselves. Therefore, efficiency of applied lessons becomes an important factor.

3. PROBLEM STATEMENT (PROBLEM CÜMLESİ)

What are the opinions of lecturers who teach in Karadeniz Technical University, Beşikdüzü Vocational School, Computer Technologies Department about efficiency of these courses? Sub-problems:

- What do lecturers think about the course duration allocated for the applied lessons they lecture?
- What do the lecturers think who give more than one applied lesson about if there is an alteration in efficiency from course to course?
- What do lecturers think about the physical sufficiency of the places where applied lessons are taught?
- What do the lecturers think about how the students' successes in applied lessons affect the efficiency of the course?
- What do the lecturers think about the efficiency of applied lessons which they lecture for students?

3. MATERIAL AND METHOD (MATERYAL VE YÖNTEM)

3.1. Research Design (Araştırma Tasarımı)

Qualitative research methods are used in this study considering suitability of topic to research. In qualitative research, the situation or event which is the topic of research should be examined in its natural environment (Patton, 1987). Besides, for social events are shaped according to the environment it is bounded, research results have a meaning only in this environment and it is impossible to make generalization to other environments directly (Yıldırım & Şimşek, 2000).

More than one method is used as far as possible in qualitative research in order for the problem being searched, defined, and explained in the most detailed and clearest way. Different method being used jointly is important in the aspect of reliability and validity of gathered data and explanations. With respect to Yıldırım and Şimşek (2000), main aim of the qualitative research is to present a descriptive and realistic picture concerning the topic searched and therefore gathered data's being detailed and inward, opinions and experiences' of individuals who become topic to research being presented directly as far as possible is important. It is thought that the most suitable research figuration that can be used in accordance with the aim and problem of the study is Case Study that manifests all the qualities mentioned above.

3.2. Sample of Research (Araştırma Örneklemi)

In the research, purposeful sample selection is made suitable to research figuration. The basis of this sample is to draw sample one or several bottom segments in direction of an aim rather than drawing one sample as representative of a universe in the direction of research's aims. In other words, aimed sampling is to make the most suitable part of the universe to problem as observation topic (Sencer, 1989). In the aimed

sampling, criterions which are thought to be important for research topic are determined and it is thought that this sample which chosen in respect of these criterions can represent research universe with its all qualities (Tavşancıl & Aslan, 2001).

Thus, in order to manifest opinions of lecturers who teach applied lessons in Beşikdüzü Vocational School, Computer Technologies Department concerning efficiency of applied lessons and state the factors decreasing the efficiency if there is any, all lecturers who teach applied lessons were included in sample, additionally, interviews were made with three of lecturers. In the research, as part of ethic rules, lecturers who were interviewed were encoded as Participant A, Participant B, Participant C. Demographical information of participants were given in Table 1.

Table 1. Participants
(Tablo 1. Katılımcılar)

	Gender	Age	Employment period	The applied lessons he/she teaches
Participant A	Male	29	6 years	Internet Programming, Visual Programming, Computer Graphics and Animation
Participant B	Male	30	8 years	Data Base Management Systems I - II, Delphi Programming I - II, Visual Basic Programming I -II, Integrated Office
Participant C	Male	29	4 years	C Programming, Data Structures and Programming, Computer 1,2

3.3. Data Collection Instruments (Veri Toplama Araçları)

In the research, configured interview is used as data gathering tool and it is tried to get answers to research questions. In Table 2 quasi-configured interview is demonstrated.

Table 2. Quasi-configured interview
(Tablo 2. Yarı yapılandırılmış mülakat)

1	What is your opinion about applied lessons generally?
2	How do you think the basic facilities of the classes in which applied lessons are taught affect the course?
3	Do you think that time allocated for the applied lesson or lessons you lecture is sufficient for students?
4	Is there any different applied lessons you lecture? If there is, do you think that there is difference between productivities of these courses?
5	Do the skills, attentions of students who take applied lessons affect the efficiency of applied lessons?
6	Do you think that applied lessons you lecture are efficient for students? Why?

The researcher tried to make a deeply examination in the direction of research's topic by adding "would you need an arrangement if an authority would have been given to you concerning applied lessons' arrangements? If you wanted an arrangement, what kind of arrangements would they have been?" questions so as to fasten down if there is any other opinions of participants except from the answers they gave to questions in the first interview.

3.4. Validity and Reliability (Geçerlik ve Güvenirlik)

According to Yıldırım and Şimşek (2000), validity in qualitative research is closely connected with measurement tool's measuring the aimed fact. Gathered data' being reported detailed and researchers' explaining

how his reaching to results exist among the important criterions of validity in a qualitative research. As for Kirk and Miller (1986) they state the validity in qualitative research as researcher's observing the fact he searched on an "as-is" basis and neutral as far as possible.

Yıldırım and Şimşek (2000) emphasize that truths are in a continuous alteration tied to the individuals and the environment and that it should be accepted from the start that it is not possible to reach same results by repeating research within the similar groups which means there cannot be mentioned about external validity. In the same way it is emphasized that internal validity also contradicts to one of the primary qualities of qualitative research which is accepting the fact that each researchers' interpreting ad comprehending the events can be different.

When all these situations are taken into consideration it becomes inevitable to use different strategies so as to provide validity and reliability. Lincoln and Guba (1985) display several strategies which can increase the qualification of qualitative researches. These are credibility, transferability, dependability and confirmable.

In the conducted study, aimed sample path is chosen in order to provide transferability of research and research process was tried to be explained in detail as much as possible. So as to provide credibility of research, data assessment was made by different researchers, too and common themes were deduced from these assessments. Additionally, the recorded data's being examined by participants was provided and thence participant confirmation was performed. In the study, so as to provide confirmation of research, raw data, findings, comments and recommendations were recorded, and they were checked again and again paying attention to different researchers' assessments.

3.5. Data Analyses (Veri Analizi)

One to one interviews were made with participants in the study and these interviews were recorded with sound recording device. Then, these recordings were converted into text in electronic medium. Data gathered from interviews were analysed in accordance with content analyse technique. According to Yıldırım and Şimşek (2000), primary aim of the content analyse is to reach concepts and connections which can explain the gathered data. Considering this, in the content analyse, concepts similar to each other are commented and understandably organized by combining as part of specific concepts and themes. Gathered data are firstly conceptualized then, they are arranged reasonably with respect to concepts that arose and according to this themes explaining data are betrayed.

Data gathered in interviews were firstly filtered and the conversations beside the point were extracted from data. Gathered data were read repeatedly and codifications were made. Besides, data were also examined and encoded by a different researcher. Consequently, common codes were extracted by examining both separate codes. Themes were formed as a consequence of researchers' implications from these common codes. Matrixes were constituted in respect of the participants' answers to each question from the gathered themes. Thence, tables, in which all opinions of all participants concerning the research problem can be seen, are gained.

4. FINDINGS (BULGULAR)

In this part research questions were analysed by examined as a part of participants' viewpoints. Lecturers' who teach applied lesson/lessons in Beşikdüzü Vocational School, within Computer Technologies Department opinions concerning these courses are demonstrated. Each answer of participants was fussily examined and data were encoded. Afterwards, benefiting from these codes themes and sub-themes were formed. These themes and related sub-themes were prepared for each question and they were presented with the aid of Role-Ordered (Miles & Huberman, 1994) matrixes.

Data related to themes and sub-themes gathered from the answers of participants to "***Do you think that time allocated for the applied lessons you lecture is sufficient for students?***" question and this question's answers were presented in Table 3.

In the table 3, participants stated that time allocated for applied lessons would be sufficient if basic facilities (computer number) are sufficient however, basic facilities are insufficient thus course durations are also insufficient. There it can be seen that basic facilities of classes in which applied lessons are lectured is directly related to the time allocated for applied lessons additionally this situation affects the efficiency of the applied lessons. Besides this, the opinion that students' repeating the applications in the applied lessons in their houses and continuing their projects will redouble efficiency of applied lessons is appeared.

Table 3. Participants' opinions concerning the time allocated for applied lessons
(Tablo 3. Katılımcıların uygulama derslerine ayrılan zamana ilişkin görüşleri)

		Participant A	Participant B	Participant C
Applied lesson	Duration	*Course duration is insufficient*	*It would be better if course duration is redoubled when the more application the more benefit bear in mind*	
Basic Facilities	Computer number	*There are 20 computers and 40 students thus we divide them into two groups which is insufficient*		*When basic facilities are sufficient duration will be sufficient*
Student	Application at home	*It can be seen sufficient as long as student can continue his project if he has computer at his house*		

The data related to answers given by participants to "***Is there any other different applied lesson you lecture? If there is, do you think that there is difference between the productivities of these courses?***" questions are demonstrated in Table 4.

All three of the participants lecture different applied lessons. With respect to Table 4, the most important factor affects the efficiency in the courses is the student itself. Since students are more eager when they are learning up-to-date programming languages which help them in their business lives the efficiency of the course is redoubles in the same rate. Besides this, students can display different successes in different applied lessons considering their talents.

Table 4. Participants' opinions concerning if there is difference between the productivities of different applied lessons
(Tablo 4. Katılımcıların farklı uygulama derslerinin verimliğinin farklı olup olmadığı yönündeki görüşleri)

			Participant A	**Participant B**	**Participant C**
Student	**Attention**	**Business life**	*The students are more eager and more enthusiastic when they are trying to learn up-to-date programming languages and they are doing the applications more conscious.*		*Differences can be observed related to the substructures and enthusiasm of students in the class.*
	Skill				*We get better efficiency from the courses of which students' substructures are better.*
	Success			*The students who stand out with specific courses generally stand out with applied lessons, too.*	

The data related to the answers of participants given to "***How do you think that basic facilities of the classes in which applied lessons are lectured affect the efficiency of the course?***" question demonstrated in Table 5. With respect to Table 5, both of the participants think that basic facilities of the classes in which applied lessons are lectured are sufficiently strong from the aspect of hardware however insufficient in number. Other participant stated that he assessed the basic facilities from all aspects however students cannot repeat the applications in their houses or they cannot find the opportunity of continuing the applications which causes not getting efficiency sufficiently.

Table 5. Participants' opinions concerning basic facilities of classes in which applied lessons are lectured
(Tablo 5. Katılımcıların uygulama derslerinin okutulduğu derslerin temel olanaklarına ilişkin görüşleri)

		Participant A	Participant B	Participant C
Applied lesson	Duration			*A student may not conduct application while the other student is conducting application.*
Basic Facilities	Computer number		*We cannot get sufficient efficiency fort the number of student for per computer is more than one*	*We cannot get sufficient efficiency at times when the number of students fro per computer increases in an environment where computers are less than students.*
	Hardware	*In the laboratory there are more twenty computers, network available and all the necessary software is installed.*	*The basic facility of our laboratory is good from the aspect of hardware however it is insufficient in number.*	

The data related to answer given to "***Do the talents and enthusiasm of the students towards applied lessons of students who take these applied lessons affect the efficiency of the course?***" question are demonstrated in Table 6.

In respect of Table 6, while tow of the participants stated that talents and attentions of students redouble the efficiency, the other participant took up the students' successes' effect on efficiency of course from another angle. In accordance with this participant, the students' who comprehend the topic well in applied lessons and who make the application well teaching the topic and application to their friends is more beneficial, additionally, this redoubles the efficiency of the course.

Table 6. Participants' opinions concerning if students' talents and enthusiasm affect the efficiency of applied lesson or not
(Tablo 6. Katılımcıların öğrencilerin istek ve coşkularının uygulama derslerinin verimliliğini etkileyip etkilemediği yönündeki görüşleri)

		Participant A	**Participant B**	**Participant C**
Student	**Attention**		*It definitely will be more efficient if students have some information and talent, if his attitude towards computer is good, his practice is good and if we managed to add some other things to him.*	
	Success			*Students' being who can make good applications affects their friends.*
	Coequal learning			*Sometimes it can be more efficient listening applications from students not only from teachers.*
	Talent	*In our field some of students are good at modelling net, some good at data base, and some good at programming, some of them good at design.*		

Data related to answers given to "**Do you think that the applied lessons you lecture are efficient for students?**" question addressed to participants are demonstrated in Table 7.

With respect to Table 7, all three of the participants stated that applied lessons they lecture are efficient for students. Two of the participants stated this situation in these words that their students graduate equipped with theoretical and practical from many angles which helps them in their business lives while the other participant stated that teaching something even only to several students demonstrates that it was a efficient course from his point of view.

Table 7. Participants' opinions concerning if applied lessons are efficient for students or not
(Tablo 7. Katılımcıların uygulama derslerinin öğrenciler için verimli olup olmadığına ilişkin görüşleri)

		Participant A	Participant B	Participant C
Student	Success			*I became happy when I see successful students even though they are few in number*
	Information level		*Our students graduate equipped in many fields either theoretical or practical*	
	Business Life	*I can say that our courses are efficient since they help students in their business lives*		

Data related to the answers given by participants to "***What is your general ideas concerning applied lessons?***" question are presented in Table 8.

Table 8. Participants' general opinions concerning applied lessons
(Tablo 8. Katılımcıların uygulama derslerine ilişkin genel görüşleri)

			Participant A	Participant B	Participant C
Student	Application				For the comprehension of a topic, application's existence at that point is very effective.
	Memorizing	Not to be able to transfer information	Students do not know how and when to use information.	In the applications, most of the students ask questions like "where this came from", "how did we do this".	
Applied lessons	Duration			There are problems like the insufficiency of applied lessons duration, efficiency of applied lessons	

According to Table 8, participants stated that applied lessons are of the essence and they think that these courses contribute much to students' developments. However, they stated that besides this, students perceive the information of applied lessons as memorized info and they could not use this info afterwards which is that they cannot transfer their info and this

is a problem which contradicts with the aim of applied lessons and decreases the efficiency of these courses.

Data related to the answers given to "***Would you need any alteration in the arrangement of applied lessons if you were to given an authority? If you wanted an alteration, what kind of alteration or alterations would you make?***" questions are presented in Table 9.

Table 9. Participants' opinions concerning the authority related to arrangement of applied lessons
(Tablo 9. Katılımcıların uygulama derslerinin düzenlenmesine ilişkin görüşleri)

			Participant A	Participant B	Participant C
Applied lesson	Course programme				*It would be better for students if theoretical courses are given in the morning while applied lessons afternoon*
	Curriculum	*Number*		*Course number can be decreased so as to eliminate the curriculum's intensity*	
		Duration		*It is necessary to redouble durations of applied lessons*	
		Qualities	*Lecturers should direct the applied lessons with respect to courses qualities*		
Basic facilities	Computer number			*The number of computer should be redoubled.*	

According to Table 9 which prepared with data concerning the question added to interview so as to learn deeply participants' opinions related to applied lessons, participants suggested these advices.

- The arrangements of the applied lessons should be left to lecturer who gives the course in order to increase efficiency for qualities of applied lessons are different.
- Sufficient duration cannot be allocated for applied lessons since the curriculum is intense. Therefore, course durations can be decreased and applied lesson durations can be redoubled.
- The basic facilities of the classes in which applied lessons lectured should be restored, computer number should be redoubled.

- The time in which applied lessons are lectured in the course programme can be altered. While theoretical courses are given in the morning, applied lessons can be lectured afternoon.

5. DISCUSSION, RESULTS AND RECOMMENDATIONS (TARTIŞMA, SONUÇ VE ÖNERİLER)

In this study, it is tried to be given the opinions of lecturers who give applied lesson/lessons in Beşikdüzü Vocational School, Computer Technologies Department concerning the efficiency of these courses. It is reached to consequences below, by organizing the themes deduced from the findings gathered from the study.

The basic facilities of the classes in which applied lessons are lectured are strong in the aspect of hardware however the number of computer is not sufficient, therefore while a student is making application the other cannot make which causes efficiency to be insufficient. Whereat, the classes' in which applied lessons are lectured being satisfactory both from the aspect of hardware and computer number is an important factor for efficiency.

The durations allocated for applied lessons can be seen as sufficient when the basic facilities of the classes are strong and satisfactory. However, since the basic facilities are insufficient, the duration is also insufficient. Besides, for the durations' being increased for each student on applications is important for their development to be equipped practically, the durations allocated for these courses should be redoubled.

It is seen that the information given in the applied lessons and the conducted applications are seen as memorized info and students' not being able to use them in different cases, turned out to be an effect which decreases the efficiency.

It is seen that students' attentions and talents redouble the efficiency of the applied lessons. Thus, giving place to up-to-date programming language which can help them in their business lives can increase the efficiency of applied lessons.

Since there is a week of time between an applied lesson and the other, students can forget the info and applications. Therefore, the opinion that students should repeat these applications in their houses, which means they should have strong computers in their houses also revealed out. However each student's financial possibilities cannot be sufficient for this. So as to eliminate this problem, basic facilities of the laboratories should be bettered (the number of computers' being increased, to supply all the up-to-date software and the ones which students can need) which enable students to make and continue their applications during the week. In this wise, students can find the opportunity of repeating the applications they learnt in courses and continuing their project assignments.

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