

## PAPER DETAILS

TITLE: Does Frequency of Online Support Use Have An Effect On Overall Grades?

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## **DOES FREQUENCY OF ONLINE SUPPORT USE HAVE AN EFFECT ON OVERALL GRADES?**

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### **ABSTRACT**

This study discusses online support in the Distance English Language Teaching (DELT) Program within the open education system at Anadolu University and whether the frequency of online support use has an effect on student grades. The DELT Program is a blended program in that it has both face-to-face and distance education components.

The first two years are face-to-face while the last two years are through distance education. The distance education component in the last two years consists of courses which provide students with methodological and theoretical background essential for language teachers. The main instructional materials are textbooks and study guides. As there are no instructors in the distance education component, students are provided with online support which is designed to supplement the course books. Studies show that interaction increases quality thus enhances student learning in distance education. The aim of this study is to determine whether there is a relationship between frequency of log-ins and student grades. Analysis of average overall grades and frequency of log-ins showed that as the frequency of log-ins increases the grades also increase.

**Keywords:** distance education; e-learning; online support; blended learning; distance English Language Teaching

## INTRODUCTION

As interest in distance learning in higher education continues to grow, the number of studies on providing effective learning environment for distance students increases. Drawing on learning theories which suggest that, for learning to take place students need to be actively involved in the learning process (Smart and Cappel, 2006), environments which enhance distance student involvement are explored.

Active involvement in the learning process refers to “instructional activities involving students in doing things and thinking about what they are doing” (Bonwell and Eisen, 1991:5).

Active involvement is achieved by providing students with interactive instruction. Studies have shown that interactive instruction enhances learning and learning outcomes (Picciano, 2002; Watkins, 2005). Thus, for distance education to be effective, it has to be interactive and provide environments in which students are actively involved in the learning process. The advances in technology enable distance education with opportunities to provide interactive instruction. Today, the medium used in distance education is web based/ online instruction which makes interactive content possible.

One definition of online learning is “the use of the internet to access learning material; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience” (Anderson and Eloumi, 2004:5). The most common forms of interaction in distance education are student-student, student-teacher, and student-content (Moore, 1989). Web-based activities create an environment in which students actively involve in activities (Smart and Cappel, 2006).

The Distance English Language Teaching Program at Anadolu University provides students with online support to enhance student learning by creating an environment in which students have opportunities to interact with the content, teacher, and fellow students. This study explores students’ use of online support to determine whether there is a relationship between frequency of log-ins and overall grades. The assumption is that the more students use the online support the more opportunities they have for interaction; the more they interact, the more actively involved they are in their learning process; the more involved they are in their learning process, the more enhanced their learning would be. All this would then result in more positive outcomes, thus higher grades. Therefore, this study examines if there is a relationship between frequency of log-ins and overall grades.

## DISTANCE ENGLISH LANGUAGE TEACHING PROGRAM (DELT)

The Distance Program in English Language Teaching was designed as a *blended program* whereby the first two years are face-to-face and the last two years are through distance education.

The first two years of the program are designed to increase students' proficiency levels and to improve their language skills such as reading, writing, and speaking. As White (2003) suggests there needs to be face-to-face component in language skill courses. Therefore, the first two years of the program are conducted face-to-face. The last two years of the program are through distance education. The aim of the 3<sup>rd</sup> and 4<sup>th</sup> years is to develop students' professional skills. Therefore, the last two years consist of courses which provide students with methodological and theoretical background essential for language teachers.

In the distance education component, the main course materials are textbooks and study guides which are designed to help students learn the material. To guide students through the course material and to provide students with interactive educational material, online support was designed for the 10 courses in the 3<sup>rd</sup> and 4<sup>th</sup> years. In designing and developing the online support, the following steps were followed. First, the project plan was prepared. There were a number of considerations in the preparation of the project plan. There were a total of 10 courses for which online support was necessary. Five of these courses were in the 3<sup>rd</sup> and the other five were in the 4<sup>th</sup> year. The content of the course material should be such that it should supplement the textbooks because not all students may have access to the internet and we should not put any of our students at a disadvantage. Second, the contents of the online support were determined.

The online support consists of extra material on the topics in the book, additional exercises and trial exams to help students understand and learn the material better. As a third step, teams for each course were formed. Each team consisted of a course coordinator, field specialists/subject area experts, an educational designer, a producer, graphic specialist(s), audio specialist(s), computer programmers, and a project coordinator.

Thus, more than 100 people were involved. The next step was to develop a software that would allow the online support to be implemented. As each course may require different educational design, course coordinators and subject area experts decided on specific educational requirements such as animation and audio supplement for their courses.

To be able to launch the online support in the 2004-2005 academic year, regular meetings in the summer months were held to discuss all the issues discussed above. And at the beginning of 2004-2005 academic year, the online support was implemented.

### **Online Support**

The online support for the 10 courses has the same structure with three main components: Interactive course material, asynchronous discussion board, and synchronous technical support as seen in Figure 1.

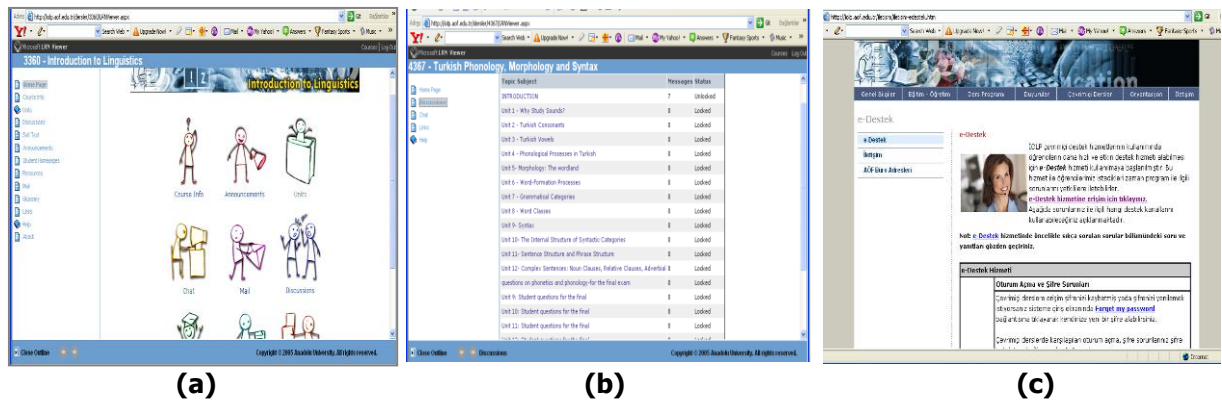


Figure: 1

(a) Interactive course material,  
(b) asynchronous discussion board,  
(c) synchronous technical support

### Interactive course material

The interactive course material comprises of 15 to 25 units for each course which are enriched with animation as well as audio supplements. Each unit consists of the objective(s) of that unit, a review of the reading assignment for that week, tasks related with that unit, additional readings, exercises, and trial tests. Sample units from different courses are shown in Figure 2.

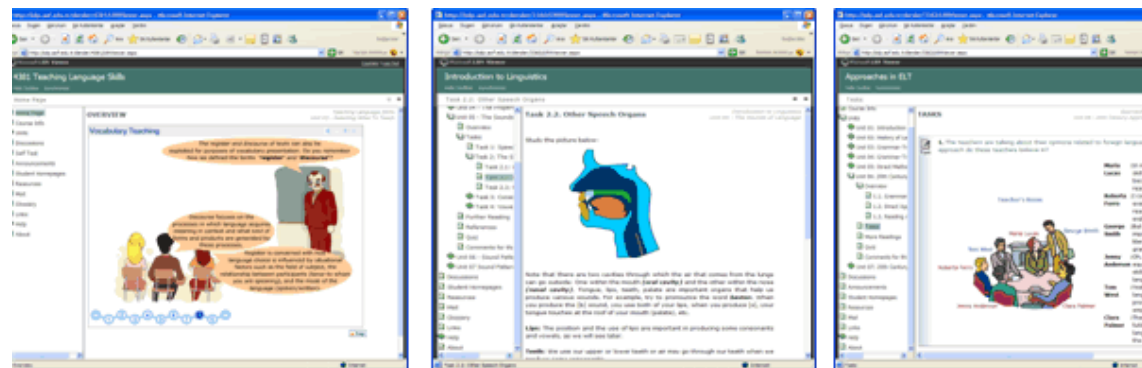


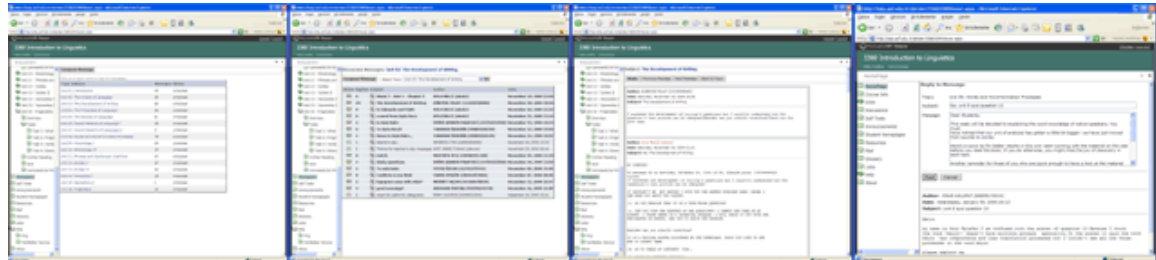
Figure: 2  
Sample units from different courses

Units are released weekly to enable students to work through the course material within a timetable. Students are able to go back to the released units any time they wish.

### Asynchronous discussion board

Asynchronous Discussion Board is designed to create a medium for students to discuss issues related to courses and interact with tutors and fellow students.

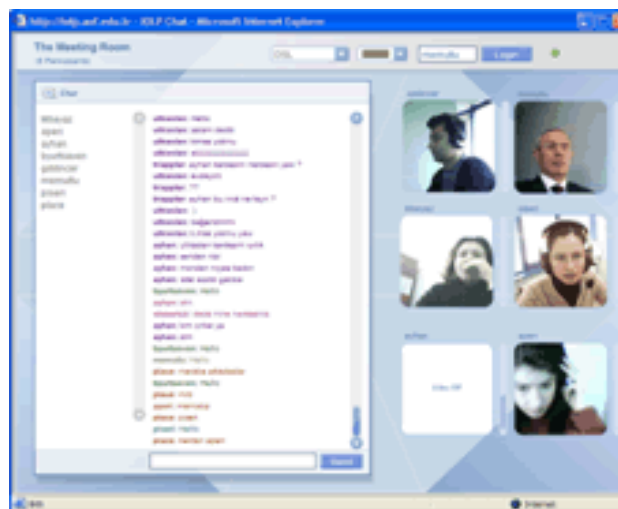
For each course, tutors are assigned to moderate discussions and answer student questions related to the course. Each tutor moderates and/or answers student questions 4 hours per week. The number of tutors assigned for each course depends on the number of students registered for that course. The asynchronous discussion board enables students to ask and answer questions, see the questions asked by other students and tutor's answers. Tutors answer student questions within 24 to 48 hours. In the case students answer each others' questions, tutors moderate the discussions to ensure that there is no misinformation and intervene when necessary.



**Figure: 3**  
**Discussion Boards**

### Synchronous technical support

The synchronous technical support is available for 16 hours daily to help those students who experience technical difficulties. As seen in Figure 4, students are given audio and visual online technical support. Students can also use this medium to socialize with other students.



**Figure: 4**  
**Synchronous technical support**

## **METHOD**

In the 2007-2008 academic years, there were a total of 4605 3<sup>rd</sup> and 4<sup>th</sup> year students all of whom were distance students. Of these students, 3303 students (71.7%) used online support at least once, and the remaining 1302 students (28.3%) did not use online support. Information regarding student access to online courses is stored in a database.

First, the number of log-ins for the 3303 students who used online support was determined. Second, the average of the grades received from all the courses were calculated for each student. The grades are based on 100 points. In the case a student did not take the final and resit exams of one or more courses, that student was not included in the analysis as the grade for the course(s) would not reflect the student's real performance. Finally, student grades were matched with the frequency of log-ins. The number of log-ins does not correspond to the number of courses accessed. Students are able to access all the online courses as well as all their components in one log-in.

Given that the academic year comprises 25 weeks, a student who logged-in 25 times may mean s/he went through all the courses regularly. One way ANOVA was performed to determine whether frequency of log-ins had an effect on overall grades.

## **RESULTS**

To determine whether frequency of log-ins has an effect on grades, number of log-ins were divided into intervals of 25. Intervals of 25 log-ins were chosen because one academic year consists of 25 weeks.

A student who logged in 25 times would mean that the student logged in, on the average, only once a week. Table 1 presents the distribution of students for each log-in interval and the means of overall grades for each log-in frequency interval. As seen in the table, the average overall grade increases as the frequency of log-ins increase.

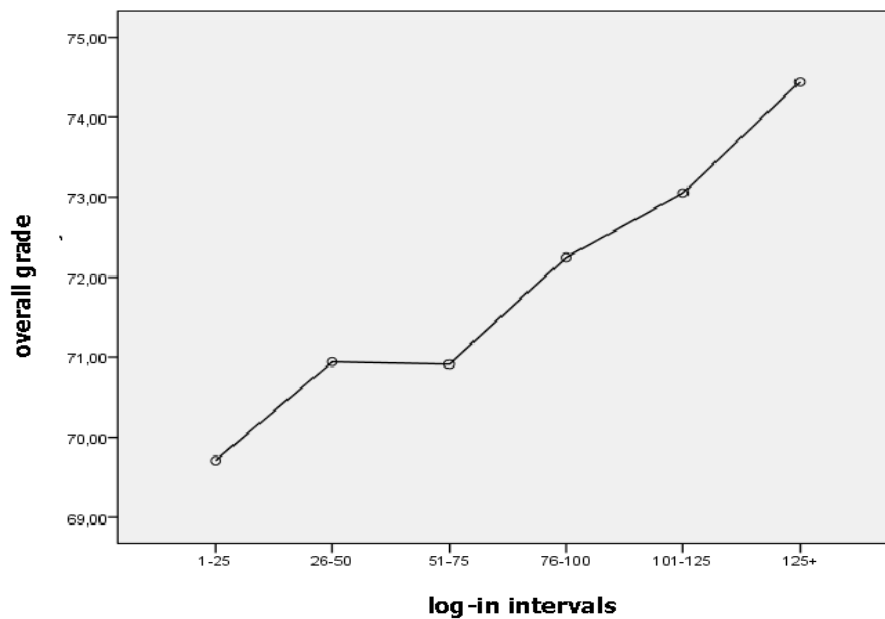
As seen in Table: 1, of the 3303 students 1166 (35%) logged in 25 times or less. The number of students who logged in between 26-50 times is 598 or 18%. Those who logged in between 51-75 times is 423 or 13%. The number of students who logged in between 76-100 times and 101-125 times are less than other intervals with 277 students (8%) and 189 students (5%), respectively. 659 students (20%) logged in 126 times or more.

Although the number of students for each frequency interval is variable with most in 1-25 range followed by 126 or more, the overall grades generally increase as the frequency of log-ins increase as seen in Table 1, except for the 26-50 and 51-75 intervals in which the averages of the overall grades are the same.

**Table: 1**  
**Number of students and average grades**  
**for each log-in frequency interval**

Log-in frequency	# of students	Mean (grade)	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1-25	1166	69,7	14,19746	,41578	68,8926	70,5241	8,00	94,00
26-50	598	70,9	12,55289	,51333	69,9333	71,9496	9,60	92,50
51-75	423	70,9	12,05566	,58617	69,7603	72,0647	14,67	92,00
76-100	277	72,2	10,81379	,64974	70,9704	73,5285	29,80	93,00
101-125	180	73,1	11,37232	,84764	71,3807	74,7260	23,75	93,00
126+	659	74,4	9,13468	,35584	73,7478	75,1452	15,00	92,25
Total	3303	71,4	12,43921	,21644	71,0022	71,8509	8,00	94,00

The average of overall grades for each interval is shown in Figure: 5.



**Figure: 5**  
**Overall grades for each log-in interval**

One-way ANOVA was performed to determine whether overall grades differ as the frequency of log-ins increases. Table: 2 present the results of the ANOVA.

**Table: 2**  
**Result of one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	<b>10369,138</b>	<b>5</b>	<b>2073,828</b>	<b>13,659</b>	<b>,000</b>
<b>Within Groups</b>	<b>500562,040</b>	<b>3297</b>	<b>151,823</b>		
<b>Total</b>	<b>510931,178</b>	<b>3302</b>			

As seen in Table 2, the difference in the average grades among log-in frequency intervals is significant ( $p < .000$ ).

To determine the effect of frequency of log-ins on grades, post hoc tests were performed. The results of the post hoc tests are shown in Table 3.

**Table: 3**  
**Results of the post hoc tests (Tukey HSD)**

frequency intervals (A)	frequency intervals (B)	Mean Difference (A-B)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1-25	26-50	-1,23318	,61975	,348	-3,0003	,5340
	51-75	-1,20419	,69938	,517	-3,1984	,7900
	76-100	-2,54114*	,82359	,025	-4,8895	-,1928
	101-125	-3,34506*	,98675	,009	-6,1587	-,5315
	126+	-4,73822*	,60049	,000	-6,4505	-3,0260
26-50	1-25	1,23318	,61975	,348	-,5340	3,0003
	51-75	,02898	,78282	1,000	-2,2031	2,2611
	76-100	-1,30796	,89554	,690	-3,8615	1,2456
	101-125	-2,11188	1,04754	,333	-5,0988	,8751
	126+	-3,50505*	,69590	,000	-5,4893	-1,5208
51-75	1-25	1,20419	,69938	,517	-,7900	3,1984
	26-50	-,02898	,78282	1,000	-2,2611	2,2031
	76-100	-1,33695	,95238	,725	-4,0525	1,3786

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	101-125	-2,14087	1,09653	,370	-5,2675	,9858
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	125+	-3,53403*	,76766	,000	-5,7229	-1,3451
76-100	1-25	2,54114*	,82359	,025	,1928	4,8895
	26-50	1,30796	,89554	,690	-1,2456	3,8615
	51-75	1,33695	,95238	,725	-1,3786	4,0525
	101-125	-,80392	1,1796 5	,984	-4,1675	2,5597
	126+	-2,19708	,88232	,127	-4,7129	,3187
101-125	1-25	3,34506*	,98675	,009	,5315	6,1587
	26-50	2,11188	1,0475 4	,333	-,8751	5,0988
	51-75	2,14087	1,0965 3	,370	-,9858	5,2675
	76-100	-,80392	1,1796 5	,984	-2,5597	4,1675
	126+	-1,39316	1,0362 7	,760	-4,3480	1,5616
126+	1-25	4,73822*	,60049	,000	3,0260	6,4505
	26-50	3,50505*	,69590	,000	1,5208	5,4893
	51-75	3,53403*	,76766	,000	1,3451	5,7229
	76-100	2,19708	,88232	,127	-,3187	4,7129
	101-125	1,39316	1,0362 7	,760	-1,5616	4,3480
*. The mean difference is significant at the 0.05 level.						

As seen in Table 3, the overall grades in the first interval (1-25) are significantly different from those of intervals 76-100, 101-125, and 126+. The overall grades in the second (26-50) and the third (51-75) intervals are significantly different from that of interval 126+. The overall grades in the fourth (76-100) and the fifth (101-125) intervals are significantly different from that of interval 1-25.

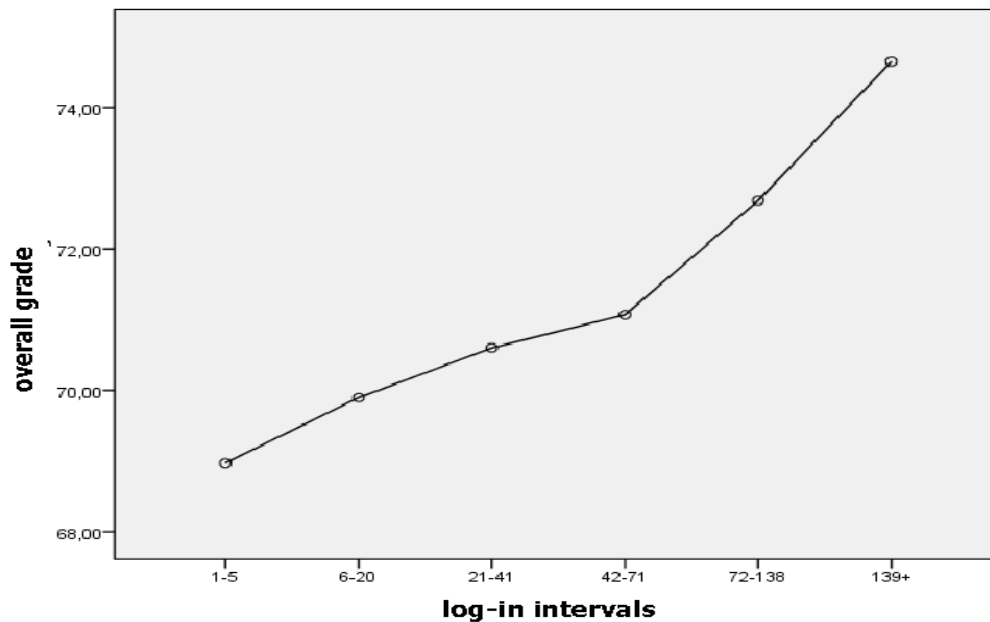
The overall grades in the sixth interval (126+) are significantly different from those of intervals 1-25, 26-50, and 51-75. These results show that as the frequencies of log-ins differ from each other, the difference in overall grades is significant. When the intervals were based on 25 log-ins, the number of students was not comparable. For example, while 35% of the students logged-in between 1 and 25 times, only 5% of the students logged-in between 101 and 125 times.

To determine whether the same pattern holds when the numbers of students are more comparable, another ANOVA was performed. This time, the distribution of log-in intervals were determined by the statistics program to approximate the number of students in each interval. Therefore, the number of log-ins in each interval is not constant. As seen in Table 4, 12% (400 students) logged-in between 1-5 times. 18% (595 students) logged-in 6-20. Similarly, 18% (590 students) logged-in between 21 and 41 times. 17% of the students (565, 576, 577 students) logged-in between 42-71 times, between 72-138 times, and 139 or more times, respectively.

**Table: 4**  
**Number of students and average grades for each log-in frequency interval**

Log-in frequency	# of students	Mean (grade)	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1-5	400	69,0	15,07397	,75370	67,4883	70,4517	8,00	94,00
6-20	595	69,9	14,28923	,58580	68,7464	71,0474	9,00	92,00
21-41	590	70,6	12,48868	,51415	69,5904	71,6100	9,60	92,50
42-71	565	71,1	11,99644	,50469	70,0756	72,0582	14,67	92,00
72-138	576	72,7	11,03739	,45989	71,7803	73,5868	15,00	93,00
139+	577	74,6	8,81117	,36681	73,9287	75,3696	21,33	91,67
Total	3303	71,4	12,43921	,21644	71,0022	71,8509	8,00	94,00

The average overall grades for each log-in interval are shown in Figure 6. As seen in Figure: 6 and Table: 4, the overall grades increase as the frequency of log-ins increase.



**Figure: 6**  
**Overall grades for each log-in interval**

One-way ANOVA was performed to determine whether overall grades differ for the frequency of log-in intervals. Table 5 presents the results of the ANOVA.

**Table: 5**  
**Result of one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	<b>11184,357</b>	<b>5</b>	<b>2236,871</b>	<b>14,757</b>	<b>,000</b>
<b>Within Groups</b>	<b>499746,821</b>	<b>3297</b>	<b>151,576</b>		
<b>Total</b>	<b>510931,178</b>	<b>3302</b>			

As seen in Table 5, the difference in the average grades among log-in frequency intervals is significant ( $p<,000$ ). To determine the effect of frequency of log-ins on grades, post hoc tests were performed. The results of the post hoc tests are shown in Table 6.

**Table: 6**  
**Results of the post hoc tests (Tukey HSD)**

frequency intervals (A)	frequency intervals (B)	Mean Difference (A-B)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
<b>1-5</b>	<b>6-20</b>	<b>-,92696</b>	<b>,79605</b>	<b>,854</b>	<b>-3,1968</b>	<b>1,3429</b>
	<b>21-41</b>	<b>-1,63020</b>	<b>,79740</b>	<b>,317</b>	<b>-3,9039</b>	<b>,6435</b>
	<b>42-71</b>	<b>-2,09695</b>	<b>,80450</b>	<b>,096</b>	<b>-4,3909</b>	<b>,1970</b>
	<b>72-138</b>	<b>-3,71357*</b>	<b>,80131</b>	<b>,000</b>	<b>-5,9984</b>	<b>-1,4287</b>
	<b>139+</b>	<b>-5,67918*</b>	<b>,80102</b>	<b>,000</b>	<b>-7,9632</b>	<b>-3,3952</b>
<b>6-20</b>	<b>1-5</b>	<b>,92696</b>	<b>,79605</b>	<b>,854</b>	<b>-1,3429</b>	<b>3,1968</b>
	<b>21-41</b>	<b>-,70324</b>	<b>,71530</b>	<b>,923</b>	<b>-2,7428</b>	<b>1,3364</b>
	<b>42-71</b>	<b>-1,16999</b>	<b>,72321</b>	<b>,587</b>	<b>-3,2321</b>	<b>,8922</b>
	<b>72-138</b>	<b>-2,78660*</b>	<b>,71965</b>	<b>,002</b>	<b>-4,8386</b>	<b>-,7346</b>
	<b>139+</b>	<b>-4,75222*</b>	<b>,71934</b>	<b>,000</b>	<b>-6,8033</b>	<b>-2,7011</b>
<b>21-41</b>	<b>1-5</b>	<b>1,63020</b>	<b>,79740</b>	<b>,317</b>	<b>-,6435</b>	<b>3,9039</b>
	<b>6-20</b>	<b>,70324</b>	<b>,71530</b>	<b>,923</b>	<b>-1,3364</b>	<b>2,7428</b>
	<b>42-71</b>	<b>-,46675</b>	<b>,72470</b>	<b>,988</b>	<b>-2,5331</b>	<b>1,5996</b>

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	<b>72-138</b>	<b>-2,08336*</b>	<b>,72115</b>	<b>,045</b>	<b>-4,1396</b>	<b>-,0271</b>
	<b>139+</b>	<b>-4,04898*</b>	<b>,72084</b>	<b>,000</b>	<b>-6,1044</b>	<b>-1,9936</b>

<b>42-71</b>	<b>1-5</b>	<b>2,09695</b>	<b>,80450</b>	<b>,096</b>	<b>-,1970</b>	<b>4,3909</b>
	<b>6-20</b>	<b>1,16999</b>	<b>,72321</b>	<b>,587</b>	<b>-,8922</b>	<b>3,2321</b>
	<b>21-41</b>	<b>,46675</b>	<b>,72470</b>	<b>,988</b>	<b>-1,5996</b>	<b>2,5331</b>
	<b>72-138</b>	<b>-1,61662</b>	<b>,72899</b>	<b>,230</b>	<b>-3,6953</b>	<b>,4620</b>
	<b>139+</b>	<b>-3,58223*</b>	<b>,72868</b>	<b>,000</b>	<b>-5,6600</b>	<b>-1,5045</b>
<b>72-138</b>	<b>1-5</b>	<b>3,71357*</b>	<b>,80131</b>	<b>,000</b>	<b>1,4287</b>	<b>5,9984</b>
	<b>6-20</b>	<b>2,78660*</b>	<b>,71965</b>	<b>,002</b>	<b>,7346</b>	<b>4,8386</b>
	<b>21-41</b>	<b>2,08336*</b>	<b>,72115</b>	<b>,045</b>	<b>,0271</b>	<b>4,1396</b>
	<b>42-71</b>	<b>1,61662</b>	<b>,72899</b>	<b>,230</b>	<b>-,4620</b>	<b>3,6953</b>
	<b>139+</b>	<b>-1,96561</b>	<b>,72516</b>	<b>,073</b>	<b>-4,0333</b>	<b>,1021</b>
<b>139+</b>	<b>1-5</b>	<b>5,67918*</b>	<b>,80102</b>	<b>,000</b>	<b>3,3952</b>	<b>7,9632</b>
	<b>6-20</b>	<b>4,75222*</b>	<b>,71934</b>	<b>,000</b>	<b>2,7011</b>	<b>6,8033</b>
	<b>21-41</b>	<b>4,04898*</b>	<b>,72084</b>	<b>,000</b>	<b>1,9936</b>	<b>6,1044</b>
	<b>42-71</b>	<b>3,58223*</b>	<b>,72868</b>	<b>,000</b>	<b>1,5045</b>	<b>5,6600</b>
	<b>72-138</b>	<b>1,96561</b>	<b>,72516</b>	<b>,073</b>	<b>-,1021</b>	<b>4,0333</b>
*. The mean difference is significant at the 0.05 level.						

As seen in Table: 6, the overall grades in the first (1-5), second (6-20) and third (21-41) intervals are significantly different from those of intervals 72-138 and 139+. The overall grades in the fourth (42-71) interval are significantly different from that of interval 139+. The overall grades in the fifth (72-138) interval are significantly different from those of intervals 1-5, 6-20, and 21-41. The overall grades in the sixth interval (139+) are significantly different from those of intervals 1-5, 6-20, 21-41 and 42-71. These results show that as the frequencies of log-ins differ from each other, the difference in overall grades is significant.

## DISCUSSION AND CONCLUSION

The results of the study show that as the overall grades increase the frequency of log-ins increase suggesting that online support helps students' learning process. Similar results were reported for the 2004-2005 academic year in which overall grades increased as the number of log-ins increased (Kopkalli-Yavuz and Mutlu, 2006). Although the frequency of log-ins is not very high for all of the students who use online support, the results show that the more students interact with the course content, teachers, and peers, the higher their grades are. One reason that the frequency of log-ins is not very high may be because students cannot access the internet conveniently.

Another reason may be that some students take private lessons or attend private courses. Internet access is not a requirement of the program, thus not all students have access. Despite the fact that internet access is not required, the number of students who use the online support is increasing. While 63% of the students used online support in the 2004-2005 academic year (Kopkalli-Yavuz and Mutlu, 2006), this percentage has increased to 72% in the 2007-2008 academic year.

Studies have shown that interaction enhances learning and has an effect on student achievement (Zirkin and Sumler, 1995). There is a growing interest in effective learning environments as the number of online courses offered increases. Anderson (2004), for example, relates the ways in which adults learn to online learning contexts and suggests ways in which students can interact in online courses. Roblyer and Ekhaml (2000) propose a rubric which determines how interactive a distance course is. Thus, one focus in distance education is to provide students with an interactive learning environment since in distance education, an environment in which students interact with the content, instructors and other students play an important role in students' learning process (Valentine, 2002).

In the Distance English Language Teaching program, the main course materials are textbooks and study guides. Although not mandatory, 72% of students use the online support which suggests that students feel that online support enhances their learning. Other studies also suggest that online support enhances student learning. Gupta et al. (2004) explored dental students' attitude to electronic learning and found that students considered the website which supplements traditional learning as a positive method of enhancing their learning.

The results of this study then suggest that the more students use the online support, the more they interact with the course contents, instructors, and peers, thus achieve higher grades. Distance students therefore, should be encouraged to use online support and all its components to increase their opportunity to interact.

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