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The Effects of “Live Online Course” on Students’
Achievement at Distance Education

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Abstract

This study was performed to investigate the effects of live online course on students’ achievement at distance learning. 63 second-year Distance Computer Education & Instructional Technology students enrolled in this study. At the live online course, the instructor presented physics lessons. Midterm, final and make-up scores were examined after the LOC instruction. Students who are LOCFE (n=32), joined over 50 % percent and they had significantly higher scores than students who are LOCFR (n=31), joined below 50 % percent to the lessons. According to t-test result, LOCFE group more successfully than LOCFR group (p=.006*).

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Keywords: Distance education; Live online course; Web-based instruction.

1. Introduction

Distance education is a field of education that focuses on, technology and incorporated in delivering education to students who are not physically “on site” to receive their education (Potashnik & Capper, 1998). Distance education is going to become more popular and accepted approach for education in the modern age. Several considerations have led to wide acceptance and sustained growth of distance education in all over the world. First, it is recognized that education is a key factor in economic development and social change (Rashid & Elahi, 2012). Distance education activities are designed to fit the specific context for learning, the nature of the subject matter; need and goals of the learner, the learner’s environment and instructional technologies methods.

Use of the web based instruction for educational purposes is widespread and rapidly growing. Thousands of university courses have been developed for delivery entirely via the web. This approach accelerates more colleges and universities urge faculty to create online versions of their courses (Dutton et al., 2002). Online course is one of the most dynamic and enriching forms of distance learning that exist

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today. Online course is a subcategory of distance education, which has been defined as the formal delivery of instruction in which time and geographic location separate students and instructors (Holmberg, 1989; McIsaac & Gunawardena, 1996; Verduin & Clark, 1991).

The Online course overcomes the time and place constraints that restrict access to instruction in traditional educational settings. In addition it includes the relatively low cost and availability of computer technologies, increased pressures relating to employment, financial and family responsibilities, as well as the high cost of higher education and the limited availability of scholarships. Online course offers appealing educational alternatives and provides lifelong learning opportunities for those whom a traditional university setting does not work.

The online course consists of computer oriented communication for the instruction. There are interactions which are learner-content, learner-instructor, and learner-learner in the online environment (Riel & Harasim, 1994; Hillman et al., 1994; Moore, 1989; Miltiadou & Savenye, 2003). Many researchers have indicated that interaction in the distance course and considered it as an important factor that can influence the success or failure of a course (Moore, 1989; Miltiadou & Savenye, 2003; Kearsley, 1995; Keegan, 1988; Ross, 1996; Tsui, 1996; Vrasidas & McIsaac, 1999). Kearsley (1995) find out that a high level of interaction has positive effects at distance learning courses. Moore (1989) examined distance course's interaction types. Tsui and Ki (1996) indicated that students interacted more frequently over the course of the semester, as they became more comfortable using technology and more successfully.

In the light of these findings this study was aimed to investigate the effects of live online physics course on students' achievement at distance learning.

2. Methods

2.1. Purpose of the research

The purpose of this study is to investigate the effects of live online physics course on students' achievement at distance learning. In the context of this study, "Is live online course effective in terms of student achievement at distance instruction?" research question was investigated and examined.

2.2. Participant and procedure

The participant of this study was 63 second-year Distance Department of Computer Education & Instructional Technology students. At the live online course, the instructor presented one-dimensional motion, Newton mechanic, force, two-dimensional motion, energy conservation and momentum subjects in each week. Students were able to ask questions to instructor at the misunderstanding points and the instructor had solved physics problems in detailed online with students. In addition, students could follow the recorded lessons whenever they want.

In this study, midterm, final and make-up exam scores of students were examined after the Live Online Course (LOC) education.

3. Findings

In order to investigate the effects of live online physics course on students' achievement at distance learning, students' midterm exam, final exam and make-up scores were examined in detailed and the results were presented for *Live Online Course Followers Rarely* (LOCFR) and *Live Online Course Followers Frequently* (LOCFF) groups under the 3.1. and 3.2. sub-headings as follows.

3.1. Live Online Course Followers Rarely (LOCFR) Findings

In the analysis of live online course data, *Live Online Course Followers Rarely* (LOCFR) group's content following numbers, live online course following numbers, scores and grades frequencies according to months during the semester were determined and graphs were presented.

Table 1. LOCFR group's numbers of content following, numbers of live online course following, scores and grades frequencies.

Line	Student Group (LOCFR)	Student Score and Grade					Number of Content Following					Number of Live Online Course Following								
		Midterm Score	Final Score	Make-Up Score	Average Score**	Letter Grade (Final)	Letter Grade (Make-Up)	Result	September	October	November	December	January	Total	September	October	November	December	January	Total
1	R1	65	25	40	48	FF	FF	FF	0	0	2	0	10	12	0	0	1	0	4	5
2	R2	70	40	50	56	FF	BB	BB	9	8	7	0	0	24	0	1	0	0	0	1
3	R3	50	45	70	64	FF	BA	BA	3	13	8	0	12	36	0	0	0	0	0	0
4	R4	60	45	NE*	50	FF	-	FF	0	1	18	1	9	29	0	0	0	0	0	0
5	R5	50	47	67	64	FF	BA	BA	0	8	15	2	10	35	0	0	0	0	1	1
6	R6	45	30	35	38	FF	FF	FF	5	19	7	2	4	37	0	2	0	0	2	4
7	R7	75	60	NE*	65	BA	-	BA	1	5	19	2	6	33	0	0	0	0	0	0
8	R8	55	50	NE*	52	CB	-	CB	0	8	25	0	12	45	0	0	4	0	0	4
9	R9	45	30	NE*	35	FF	-	FF	0	8	11	0	1	20	0	1	1	0	0	2
10	R10	20	25	40	34	FF	FF	FF	0	18	6	0	0	24	0	0	0	0	0	0
11	R11	80	45	60	66	FF	BA	BA	4	1	3	15	2	25	0	0	0	0	0	0
12	R12	35	40	45	42	FF	FF	FF	3	0	3	0	0	6	0	0	0	0	0	0
13	R13	50	75	NE*	68	BA	-	BA	0	3	16	0	19	38	0	1	0	0	0	1
14	R14	70	40	45	53	FF	FF	FF	0	10	25	0	3	38	0	0	0	0	0	0
15	R15	50	67	NE*	69	BA	-	BA	2	17	4	18	3	44	0	7	0	0	0	7
16	R16	45	45	45	45	FF	FF	FF	0	2	9	0	0	11	0	2	0	0	0	2
17	R17	95	20	55	67	FF	BA	BA	2	6	18	6	5	37	0	0	4	1	0	5
18	R18	50	55	NE*	54	CB	-	CB	0	0	2	0	0	2	0	0	0	0	0	0
19	R19	45	35	40	42	FF	FF	FF	4	14	7	2	3	30	0	3	1	2	2	8
20	R20	70	65	NE*	67	BA	-	BA	0	0	39	1	9	49	0	0	9	0	0	9
21	R21	83	20	57	65	FF	BA	BA	4	12	13	0	2	31	0	2	2	0	0	4
22	R22	35	40	50	46	FF	CC	CC	0	0	11	1	0	12	0	0	0	0	0	0
23	R23	40	45	50	47	FF	CC	CC	0	0	9	0	0	9	0	0	1	0	0	1
24	R24	95	52	NE*	64	BA	-	BA	2	14	5	4	0	25	0	0	0	0	0	0
25	R25	82	58	NE*	66	BA	-	BA	0	11	24	3	7	45	0	0	0	1	0	1
26	R26	85	55	NE*	64	BA	-	BA	4	23	15	5	1	48	0	2	2	2	0	6
27	R27	65	30	25	41	FF	FF	FF	2	9	4	0	0	15	0	1	0	0	0	1
28	R28	75	25	45	54	FF	FF	FF	3	4	6	1	5	19	0	1	0	0	0	1
29	R29	75	35	45	54	FF	FF	FF	2	12	3	11	1	29	0	1	1	0	0	2

Table 1. LOCFR group’s numbers of content following, numbers of live online course following, scores and grades frequencies. (Continue)

Student Score and Grade						Number of Content Following					Number of Live Online Course Following									
Line	Student Group (LOCFR)	Midterm Score	Final Score	Make-Up Score	Average Score**	Letter Grade (Final)	Letter Grade (Make-Up)	Result	September	October	November	December	January	Total	September	October	November	December	January	Total
30	R30	65	20	35	44	FF	FF	FF	0	18	16	3	6	43	0	5	3	2	1	11
31	R31	85	20	57	69	FF	BA	BA	3	5	6	1	0	15	0	1	2	0	0	3
32	R32	60	40	40	46	FF	FF	FF	0	10	9	3	9	31	0	0	0	0	4	4

NE*: Not Entered
 Average Score**: 30% Midterm + 70% Final / Make-Up Score
 LOCFR: Live Online Course Followers Rarely

As seen in Table 1.; when examined LOCFR group’s the lowest and the highest scores were determined. Student who was numbered as 14 followed content and Live Online Course, 38 and 0 respectively. Student numbered as 30 followed content and Live Online Course, 43 and 11 respectively. The both of students failed at the distance physics course.

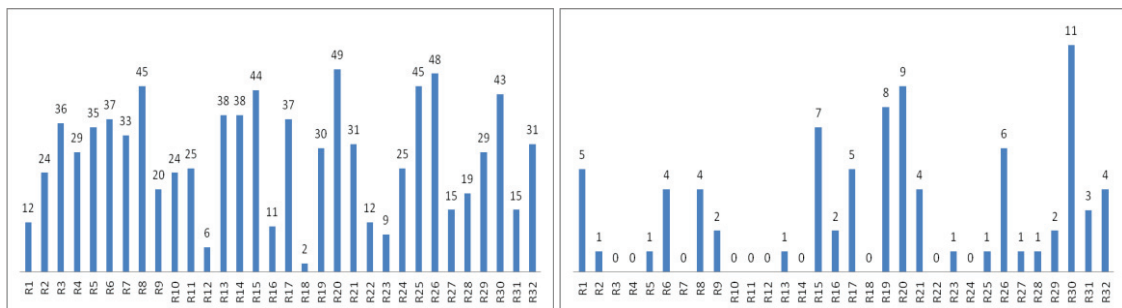


Fig. 1. LOCFR group’s content following (total) and live online course following (total) frequencies during the semester as scale.

It was shown in Fig 1., general frequency distributions of LOCFR Group’s Content Following (Total) and Live Online Course Following (Total) during the semester.

3.2. Live Online Course Followers Frequently (LOCF) Findings

In the analysis of live online course data, *Live Online Course Followers Frequently (LOCF)* group’s content following numbers, live online course following numbers, scores and grades frequencies according to months during the semester were determined and graphs were presented.

Table 2. Live online course followers frequently group’s numbers of content following, numbers of live online course following, scores and grades frequencies.

Line	Student Score and Grade					Number of Content Following					Number of Live Online Course Following									
	Student Group (LOCF)	Midterm Score	Final Score	Make-Up Score	Average Score**	Letter Grade (Final)	Letter Grade (Make-Up)	Result	September	October	November	December	January	Total	September	October	November	December	January	Total
1	F1	65	50	NE*	55	CB	-	CB	0	17	12	18	3	50	0	4	4	20	0	28
2	F2	45	25	35	38	FF	FF	FF	0	1	27	0	24	52	0	0	0	0	1	1
3	F3	60	60	NE*	60	BB	-	BB	11	26	45	16	4	102	0	0	1	3	0	4
4	F4	55	30	50	52	FF	CB	CB	2	19	28	4	21	74	0	7	7	1	0	15
5	F5	80	75	NE*	77	AA	-	AA	2	19	19	15	9	64	0	11	5	2	0	18
6	F6	90	40	75	80	FF	AA	AA	3	19	22	23	15	82	0	3	7	5	3	18
7	F7	70	45	55	60	FF	BB	BB	1	2	47	10	34	94	0	1	5	11	4	21
8	F8	70	55	NE*	60	BB	-	BB	7	28	35	13	15	98	0	3	10	3	0	16
9	F9	91	42	74	83	FF	AA	AA	13	30	16	26	0	85	0	4	0	13	0	17
10	F10	70	40	30	49	FF	FF	FF	12	20	26	14	1	73	0	4	0	10	0	14
11	F11	60	60	NE*	60	BB	-	BB	9	28	9	9	7	62	0	0	0	2	1	3
12	F12	75	65	NE*	68	AA	-	AA	12	27	36	15	4	94	0	16	9	13	0	38
13	F13	90	30	35	52	FF	FF	FF	17	20	34	3	4	78	0	5	0	0	1	6
14	F14	89	42	73	84	FF	AA	AA	8	8	25	29	12	82	0	2	4	2	4	12
15	F15	90	40	73	79	FF	AA	AA	10	31	4	4	3	52	0	10	0	3	0	13
16	F16	90	38	75	80	AA	AA	AA	0	2	15	47	1	65	0	0	5	1	0	6
17	F17	50	40	40	43	FF	FF	FF	3	21	18	9	0	51	0	4	3	6	0	13
18	F18	45	25	30	35	FF	FF	FF	6	7	17	7	18	55	0	1	5	0	13	19
19	F19	60	25	30	39	FF	FF	FF	15	19	28	0	4	66	0	0	0	0	2	2
20	F20	60	50	NE*	53	CB	-	CB	16	8	27	2	8	61	0	0	0	5	7	12
21	F21	60	40	50	53	FF	CB	CB	0	2	24	11	27	64	0	0	2	4	1	7
22	F22	65	50	NE*	55	CB	-	CB	0	55	9	0	17	81	0	21	0	0	2	23
23	F23	60	45	NE*	50	FF	-	FF	0	33	13	12	8	66	0	6	3	6	0	15
24	F24	65	40	50	55	FF	CB	CB	19	16	28	6	6	75	0	8	12	0	2	22
25	F25	60	55	NE*	57	BB	-	BB	0	14	32	13	23	82	0	1	5	1	1	8
26	F26	50	25	50	50	FF	CB	CB	8	18	21	8	20	75	0	1	7	3	5	16
27	F27	78	80	NE*	81	AA	-	AA	6	21	19	4	2	52	0	4	8	1	0	13
28	F28	82	74	NE*	77	AA	-	AA	9	15	18	15	11	68	0	0	1	5	0	6
29	F29	30	25	30	30	FF	FF	FF	2	16	20	12	5	55	0	0	9	5	4	18
30	F30	90	72	NE*	79	AA	-	AA	14	26	24	17	16	97	0	9	4	9	6	28
31	F31	60	55	NE*	57	BB	-	BB	5	10	13	15	17	60	0	1	0	1	6	8

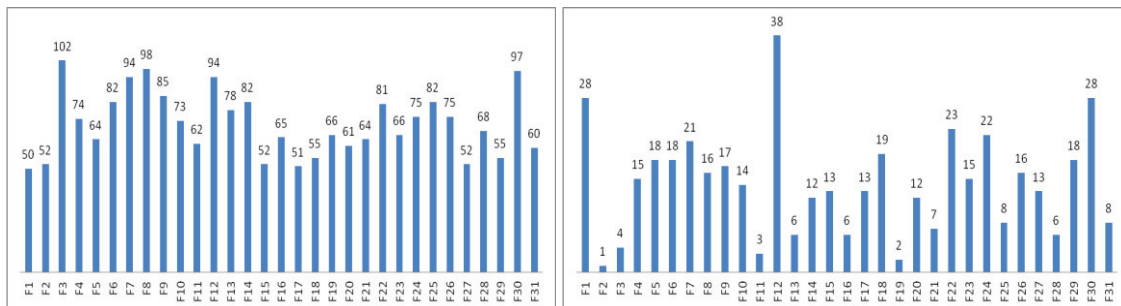
NE*: Not Entered

Average Score**: 30% Midterm + 70% Final / Make-Up Score

LOCF: Live Online Course Followers Frequently

As seen in Table 2.; when examined LOCFF group’s the lowest and the highest scores were determined. The student who was numbered as 2 followed content and Live Online Course, 52 and 1 respectively. The student numbered as 12 followed content and Live Online Course, 94 and 38 respectively. While student 2 failed at distance physics course, student 12 finished physics course with the highest score.

Fig. 2. LOCFF Group’s content following (total) and live online course following (total) frequencies during the semester as scale.



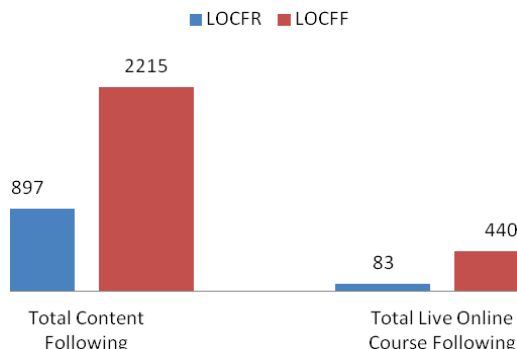
It was shown in Fig 2., general frequency distributions of LOCFF Group’s Content Following (Total) and Live Online Course Following (Total) during the semester.

Table 3. Comparison of LOCFR and LOCFF groups’ scores of students’ according to independent group t-test results.

Groups	Mean	N	Std. Deviation	Std. Error Mean	Independent group t test		
					t	SD	p
LOCFR	49,12	31	17,006	3,006	-2,859	61	,006*
LOCFF	65,74	32	27,980	5,025			

As shown in Table 3.; LOCFF group had significantly higher mean score (65,74) than LOCFR group’s mean score (49,12) during the online physics course and independent group t-test results showed that there was statistically significant difference between LOCFR and LOCFF groups’ scores (p= ,006*).

Fig. 3. The comparison between the LOCFR and LOCFF groups were presented according to general frequency distributions of content following (total) and live online course following (total) during the semester.



In addition, the comparison between the LOCFR and LOCFE groups were presented according to general frequency distributions of Content Following (Total) and Live Online Course Following (Total) during the semester in Fig 3.

5. Conclusion

The purpose of this study is to investigate the effects of live online physics course on students' achievement at distance learning. In order to investigate the effects of live online physics course on students' achievement at distance physics course, students' midterm exam, final exam and make-up scores were examined in detailed. According to data analysis, it was found that LOCFE group had significantly higher mean score (65,74) than LOCFR group's mean score (49,12) during the online physics course and independent group t-test results showed that there was statistically significant difference between LOCFR and LOCFE groups' scores ($p = ,006^*$). According to the findings, it was seen that LOCFE group more successful than LOCFR group. This result supports previous works (Miltiadou & Savenye, 2003; Potashnik & Capper, 1998; Riel & Harasim, 1994; Verduin & Clark, 1991; Vrasidas & McIsaac, 1999) and implicates the importance of the live online course on students' achievement at distance learning.

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