



Use of OpenCourseWare from the Viewpoint of Undergraduate Students: Case of OER for Physics Laboratory Experiments

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METU OpenCourseWare (<http://ocw.metu.edu.tr>)

The screenshot shows the METU OpenCourseWare website. At the top, there is a red banner with the METU logo and the text "MIDDLE EAST TECHNICAL UNIVERSITY METU OpenCourseWare". To the right of the banner, there are social network icons for Facebook and YouTube, and the text "Social Networks". Below the banner, there is a red navigation bar with "METU OCW" on the left, a "Language" dropdown menu, and "You are not logged in. (Log in)" on the right.

The main content area is divided into two columns. The left column contains a box with the text "METU OpenCourseWare" and "METU OpenCourseWare is a free and open educational resource for faculty... [Read More](#)". Below this is a "COMMENTS ABOUT THIS SITE" section with a form containing fields for "Name:", "Surname:", "City:", "E-mail:", and "Message:", along with a submit button.

The right column features a large banner image of laboratory glassware with the text "METU OpenCourseWare General Chemistry Laboratory Experiments". Below the banner is a "Course categories" section with a "Collapse all" link and a list of categories: "Aerospace Engineering (2)", "Anthropology (1)", "Architecture (1)", "Chemistry (2)", and "Civil Engineering (1)".

METU OpenCourseWare (<http://ocw.metu.edu.tr>)

Member of International and National OCW Consortiums.

The pioneer and most comprehensive OCW portal in Turkey since 2008.

With the voluntary contribution of instructors, the number of courses published has reached to 110 by 2013.

Most of the courses are in English.

There are 12 courses in Turkish, most of which are translations of courses of prestigious universities.

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METU OpenCourseWare (<http://ocw.metu.edu.tr>)

~ 90 000 unique visitors each year.

Although the countries of visitors vary from United States to Philippines, the majority of them are from Turkey.



METU OpenCourseWare (<http://ocw.metu.edu.tr>)

Instructional Technology Support Office (ITS) provides assistance to academic staff for technology use and publishing of courses as OCW.

ITS sends OCW announcements each academic semester.

Instructors who are willing to share their course materials contact ITS.

The scope of course contents depends on the instructor's enthusiasm to share.

- At least syllabus and weekly schedule
- Not limited to lecture notes, assignments, additional resources and video lectures.

Video lectures are recorded by ITS.

After the approval of the instructor, courses are opened for public use.

General Physics Laboratory Experiments

General Physics Laboratory is a part of General Physics courses

- Two-semester courses
- Mandatory for majority of undergraduate students in METU

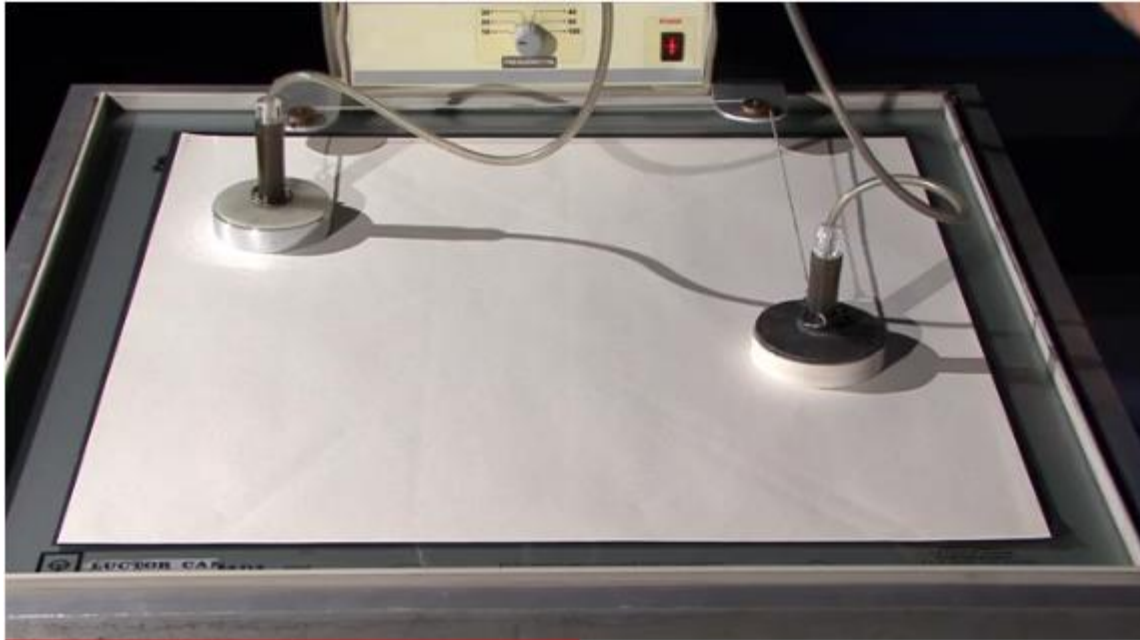
Students are obliged to attend laboratory sessions and conduct 5 experiments.

For the effectiveness, preparedness of students is the key factor.

Department of Physics and ITS collaborated to design and develop video recordings of experiments

- To encourage students to review experiments before laboratory sessions

General Physics Laboratory Experiments



Registered students of General Physics courses were informed by teaching assistants and flyers.

OER are suggested as complementary materials.

The usage is not a requirement of course completion rather.

General Physics Laboratory Experiments

To increase the number audiences who may benefit, videos were dubbed in Turkish and English.

Turkish version:

- has been online since October 2011
- 41193 activities of guest users were logged between March 2012 and November 2013

English version:

- has been available since February 2012
- 23675 activities of guest users were logged between March 2012 and November 2013

Aim of the Study

The research on OER and OCW has focused on benefits and challenges for using the resources as well as preparing them.

This study aims to determine:

- the attitudes of undergraduate students toward using General Physics Laboratory resources
- how they perceive the contribution of using the resources on the outcomes of the course.

In addition, suggestions of students for improvement of the resources are introduced.

Methods: Participants

This study was conducted in spring semester of 2012 – 2013 academic year.

710 undergraduate students enrolled in General Physics course replied to a paper-based survey.

- 296 female and 411 male

Nearly all (97.7%) of the participants were freshmen

- General Physics is a must course in first-year curriculum.

Majority (74.5%) of the participants were students of Faculty of Engineering.

Methods:

Data Collection and Analysis

A printed survey administered at the end of the spring semester.

The survey consisted of 18 questions:

- 8 questions: descriptive information about students
- 10 questions: usage and perceptions of students

15 multiple choice questions were quantitatively analyzed.

3 open-ended questions qualitatively analyzed.

Results:

OCW Awareness and Source of Awareness

76.2% of participants were aware of OCW

Others have not heard of OCW.

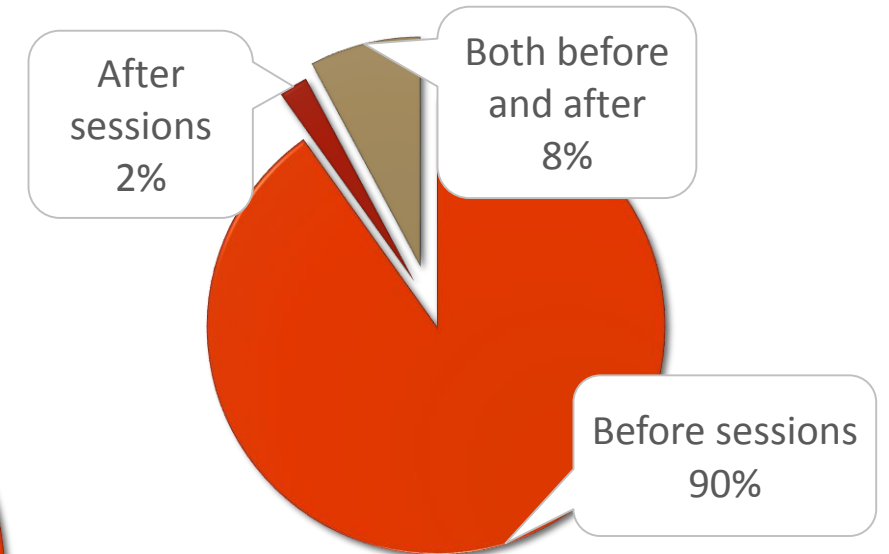
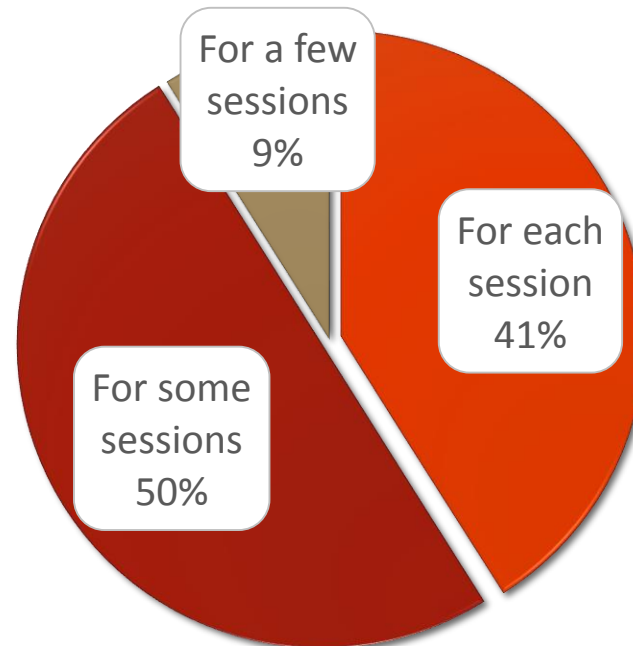
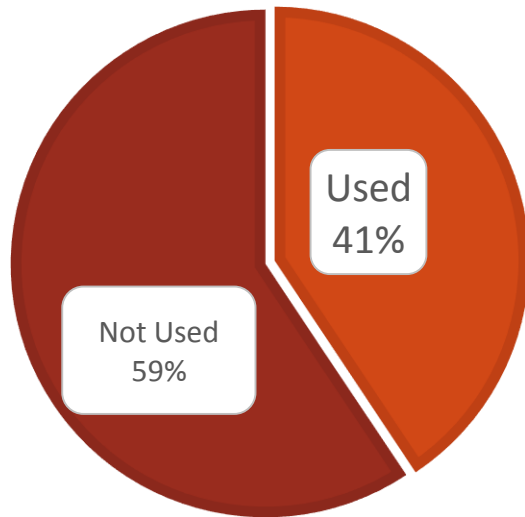
Teaching assistants, flyers and peers were the most frequent sources of information.

23 participants discovered the resources by themselves by

- online search
- social network sites
- during surfing OCW portal.

Source of Information	Frequency	Percent
Teaching Assistants	263	37.0
Flyers	165	23.2
Peers	141	19.9
Instructor	49	6.9
Other	28	3.9
Media	9	1.3

Results: OCW Usage, Frequency and Purpose of Usage



Results:

OCW Usage, Frequency and Purpose of Usage

Reasons of Usage	Frequency	Percent	Valid Percent
Readiness for experiments	244	34.4	90.4
Both readiness and review	14	2.0	5.2
Review of experiments	9	1.3	3.3
Other	3	.4	1.1
Total	270	38.0	100.0

Results:

Contribution of OCW

272 participants responded educational contribution of OCW.

91.9% of them affirmed the positive contribution.

Contribution of OCW	Frequency	Percent
Assisted for effective experiments	155	21.8
Enabled comprehension	151	21.3
Reduced the time required	117	16.5
Reduced number of questions	75	10.6
Improved grade	41	5.8
Other	3	.4

Results:

Advantages of OCW

109 participants noted advantages of OCW.

The most common theme mentioned by participants was that OCW resources enabled the preparedness to experiments.

Advantage of OCW	Frequency
Enabled the preparedness to experiments	64
Enabled comprehension	39
Reduced the time required	21
Increased effectiveness	17
Enabled safer experiments	3
Improved grade	2
Increased memorability	1

Results:

Reasons of OCW Not Being Effective

16 participants responded.

The common topic was the content of video materials:

- superficial
- focusing on how to conduct experiment without pointing the aim of it
- not informative enough

The narration of the experiments is thought to be fast, fuzzy, ineffective and insignificant.

Supportive materials are not needed.

Results:

Reasons for Not to Use OCW

288 participants responded.

The most common topic was lack of need for the resources.

Reasons for Neglect	Frequency	Percent
Lack of need	103	14.5
Not being informed	88	12.4
Shortness of time	45	6.3
Satisfactory resources	19	2.7
Indifference to course	13	1.8
Unattractiveness	13	1.8
Other	4	.6
Use of other resources	2	.3
Did not come to mind	1	.1

Results: Improvement Suggestions

43 participants responded.

The main theme was about the content of the resources:

- include more details such as the goals and results of experiments

More resources need to be added explaining laboratory reports and calculations.

Examples of quizzes could be provided.

Interactive resources like report preparing could help improvement of OCW.

Enhancement of audio and visual quality.

Resources should be up to date.

Discussion

Students who used OCW as a complementary material of a traditional course, observed the benefits and pointed out contributions to their learning process.

OCW facilitates preparedness for the course.

To increase the benefit of OCW providing only video recordings seems insufficient:

- other course materials covered in the curriculum of the course should also be presented.

It is important to enrich the available educational materials included in OCW.

To fulfill the user expectations, high quality audio and visual representations needs to be provided.

In case of the students who did not used OCW, the main problem was the sense of lack of need:

- benefits of usage needs to be more observable.

Limitations and Future Study

This study will be replicated after implementation of suggestions in order to examine the change in the attitudes of the students.

Moreover, the observations provided by educators would be valuable.

Though reaching the target population would be troublesome, to understand the contributions of OCW, self-learners and students who utilize the materials for educational purpose could be also considered as potential participants.

