

How do students use lecture recordings?

A cluster analysis of evaluation data

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Lecture recording at the University of Münster

Started recording in 2016

Evaluated the service in the first three semesters

Winter term 2016/17, summer term 2017 and winter term 2017/18

Questions from lecturers:

Is the students attendance going to decrease?

Are the students using the lecture recordings?

When are the students using the lecture recordings?

How are the students using the lecture recordings?

Are there any patterns in the usage of lecture recordings by students?

Usage variables

Usage of lecture recordings differs along the following variables:

- Frequency of usage (Elliott & Neal, 2016)

- Repetitive watching (De Boer & Tolboom, 2008)

- Selectivity in watching (Mark & Vrijmoed, 2017)

- Lecture attendance (Edwards & Clinton, 2018)

- Access time within the semester (Bacro, Gebregziabher, & Fitzharris, 2010)

Data & Participants

Combined data from three semesters

Winter semester 2016/17

Summer semester 2017

Winter semester 2017/18

1079 students participated

1023 students used the lecture recordings

Mean age = 22.32, SD = 6.38

From 47 different lecture series

Method

The chosen method is a cluster analysis. The cluster analysis was done with:

Portioning Around Medoids (Kaufman & Rousseeuw, 1990)

Gower distance (Gower, 1971)

Number of clusters:

Determined by plotting the average silhouette coefficient for $k = 2$ till $k = 10$

Highest at $k = 3$ and $k = 5$ (0.48)

Five cluster solution was more differentiated

Results

We found a clear and meaningful cluster structure.

Clusters

The 5 clusters are:

1. Frequent repetition (N = 291)
2. Selective repetition (N = 296)
3. Frequent consultation (N = 107)
4. Selective consultation (N = 158)
5. Increased absenteeism (N = 171)

Cluster 1 - Frequent repetition

Watched most the lecture recordings

Watched lecture recordings multiple times

Usually watched the lecture recordings completely

Missed only a few lectures

Cluster 2 - Selective repetition

Watched about half of the lecture recordings

Watched lecture recordings only once

Usually watched the lecture recordings completely

Missed only a few lectures

Cluster 3 - Frequent consultation

Watched most the lecture recordings

Watched lecture recordings multiple times

Usually watched only parts of the lecture recordings

Missed only a few lectures

Cluster 4 - Selective consultation

Watched about half of the lecture recordings

Watched lecture recordings only once

Usually watched only parts of the lecture recordings

Missed only a few lectures

Cluster 5 - Increased absenteeism

Watched almost all of the lecture recordings

Watched lecture recordings only once

Usually watched the lecture recordings completely

Missed most of the lectures

Limitations

The following limitations apply:

- Data was not gathered for the purpose of analyzing the usage patterns

- Possible overlap between lecture series

- Self reported usage data

Discussion

Available research on lecture recording usage and learning approaches:

Vajoczki, Watt, Marquis, Liao, and Vine (2011)

Deep learning approach - More likely to use recordings to review a lecture

Clusters: Frequent repetition and frequent consultation

Surface learning approach - More likely to substitute the lectures with the recordings

Clusters: Increased absenteeism

Wiese and Newton (2013)

Deep learning approach - Likely to watch many recordings and watch these completely

Clusters: Frequent repetition and increased absenteeism

Surface learning approach - Likely to watch fewer recordings and to only watch these in parts

Clusters: Selective consultation

Future research perspectives

Are the clusters of students stable over the course of the semester?
Which study behaviour corresponds to which usage pattern?

Questions?
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Data & Materials

Data: <https://doi.org/10.17605/OSF.IO/TFSM8>

R code: <https://doi.org/10.17605/OSF.IO/9HZS2>

References

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