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How do Students Cope with Bad Audio Quality in Recorded Lectures?

CTHCI '25 Project Presentation, Group 05



Erik Østlyngen



Pascal Raabe



Julian Wallerius



RWTHAACHEN
UNIVERSITY

Motivation

- Students use recorded lectures (especially since COVID-19) [Lesser et al., IJAHS '24]
- Existing research on the influence of some aspects of recorded lectures
 - Instructor presence [Vatansever et al., JEMH '22]
 - Playback speed [Ahn et al., ACP '25]

What about bad audio quality?

- Benefit: improve learning management systems (e.g. Moodle)

Preliminary Study (1/2)

- Online survey: N = 50 (12 male, 35 female, 3 unspecified), 64% CS students

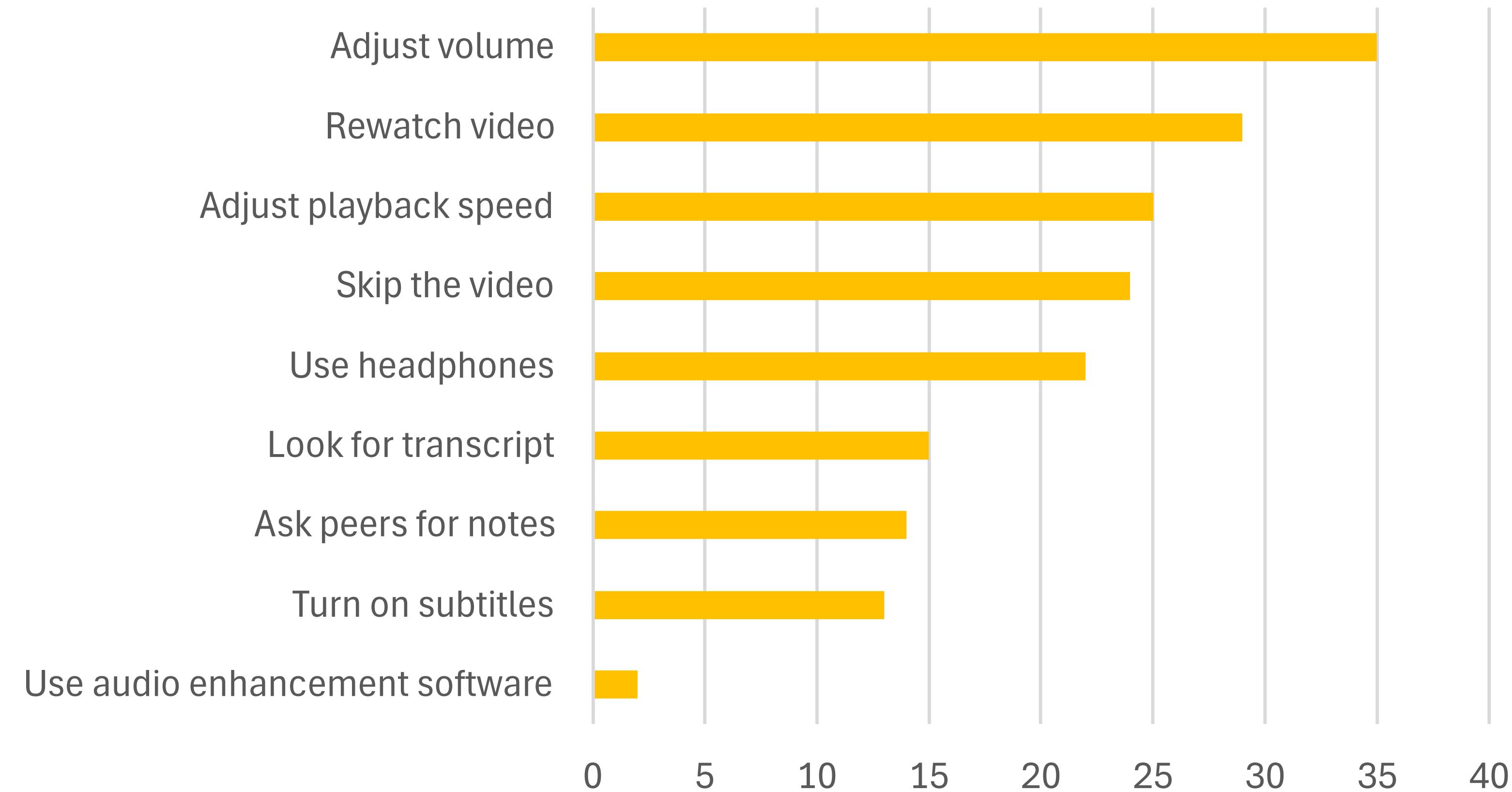
Is bad audio quality a problem when students watch recorded lectures?

- 52% watch recorded lectures at least once a week
- 66% encounter bad audio quality at least occasionally
- 50% remember having stopped watching a lecture because of bad audio quality
- *“[I] freak out because I never see beforehand that the audio quality is bad, and all the planning goes wrong because I usually don’t watch the lecture then.”* ~P33

[All quotes were translated from German to English by the authors]

Preliminary Study (2/2)

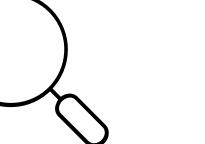
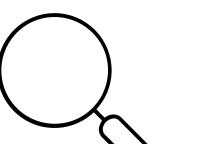
If so, what coping mechanisms do they use?



Main Study

- Semi-structured interview
- N=6 (4 male, 2 female), 66% CS students
- Method: Reflexive Thematic Analysis
 - Observation
 - Interpretation

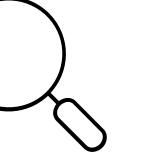
Audio Quality: Prerequisite for Engagement

- *“So if they're really that bad, I'll just skip them and then try to replace them with a set of slides.”* ~P3 
- *“It's too much of a headache to watch the videos.”* ~P3 
- Participants were generally accepting of minor imperfections in audio quality 
- There exists a threshold where acceptance turns to frustration 
- Can lead to complete disengagement 

What Tools Should Be Like

- “[...] if the captions are auto-generated and you don’t understand a word [...] they’re more likely to confuse you.” ~P2 
- Tools should be **reliable** 
- “[...] fine adjustment of speed [would be a great feature], [...] The speed of speech is different for many processes.” ~P6 
- Users should be able to **personalize** their tools 
- “Nah, it’s been too much effort for me so far to invest the time [into audio enhancement tools].” ~P3 
- Tools should be easily **accessible** to users 

Coping Strategies Have Limited Applicability

- *“Audio enhancement tools are tricky, [...] the videos that experience audio problems are so significantly bad that you can do little about it.”* ~P1 
- Sometimes audio problems become too severe to correct afterwards 
- Educators can provide **supplementary materials** if the audio is bad 
 - Video-related: subtitles, transcripts
 - Non-video-related: annotated slides, full-text scripts
- Educators should pay attention to providing recordings with good audio quality 

Summary

- Pre-study
 - Bad audio quality in recorded lectures is a notable problem
- Main study
 - Severe cases of bad audio quality substantially impact student engagement
 - Tools should be **reliable, personalizable** and **accessible**
 - Coping strategies have their limits

