

# Guideline-Based Evaluation and

# Design Opportunities for Mobile Video-Based Learning



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## Motivation

Most video lectures are not digestible in small mobile displays due to small font sizes and content-heavy lecture slides.

**Institutional Review Board (IRB)**

- Research with people is subject to scrutiny
  - Most research institutions have an IRB that approves research-related user tests
- IRB oversight is confined to research
  - Research if it work leading to generalizable knowledge
  - Practical clinical medicine, product development, class projects does not require IRB approval
  - But all work with human beings should follow the IRB ethical guidelines, even if it doesn't need IRB approval
- Main report
  - Objective
  - Descriptions of the system being tested
  - Task environment & material
  - Participants (number, distribution)
  - Methodology (observation study)
  - Tasks (cognitive, physical, emotional/verbal)
  - Test measures (personal entry)

**Institutional Review Board (IRB)**

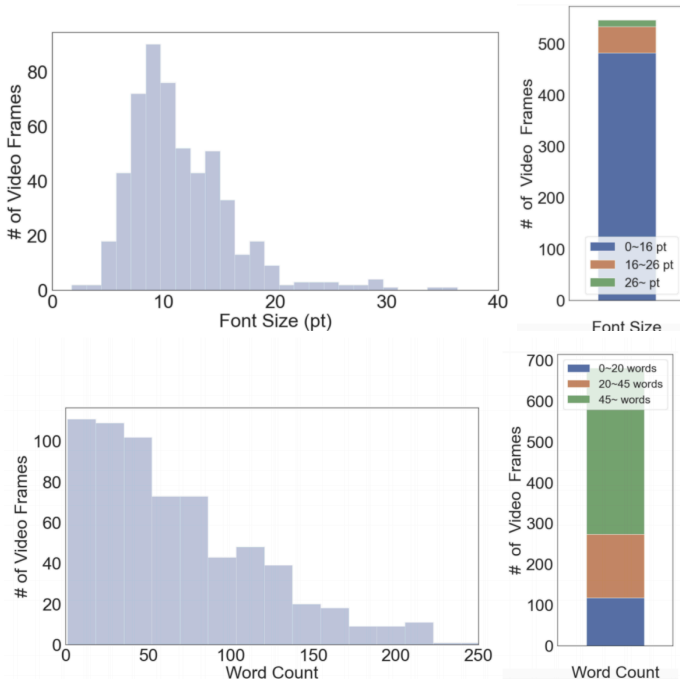
An institutional review board (IRB), also known as an independent ethics committee (IEC), ethical review board (ERB), or research ethics board (REB), is a type of committee that applies research ethics by reviewing the methods proposed for research to ensure that they are ethical. Such boards are formally designated to approve (or reject, modify, and review biomedical and behavioral research involving humans). They often conduct some form of risk-benefit analysis in an attempt to determine whether or not research should be conducted. The main purpose of IRBs is to ensure that appropriate steps are taken to protect the rights and welfare of humans participating as subjects in a research study. Along with developed countries, many developing countries have established national, regional or local Institutional Review Boards in order to safeguard ethical conduct of research concerning both national and international norms, regulations or codes (2).

## Methods

- A **content analysis** that enables an automated inspection for design guideline compliance rates
- An exploration of current practices of the video design process for mobile learning through **interviews**
- A **prototype system** that supports computer-guided video content design for mobile environments

## Content Analysis

- Sampled Videos**
  - ✓ 681 video frames from 108 lectures
- Design Guideline Compliance Rate**
  - ✓ Font size: 12%
  - ✓ Amount of Text: 40%
  - ✓ Number of Images: 92%



### Design Guidelines And Compliance Rate

Design Element		Design Guidelines in Literature	Proportion of Inappropriate Design
Text Element	Avg Font Size	above 16-17 pt (mobile)[19, 26] above 24-26 pt (presentation)[12, 23, 36]	86-98 % (all text) 88-98 % (body text)
	Avg Number of Words	below 20-45 words[5, 9, 42]	60-82 %
Image Element	Avg Proportional Area of Images	as large as possible especially for complex images[14, 29]	-
	Avg Number of Images	maximum 2 images[14, 29]	8 % (talking heads not included)

## Interviews

"We always test our content in mobile environments with small screens such as smartphones." (P1)

"We make sure that the fonts and graphics are large enough to be seen in small screen size." (P2)

"I always need to segment a provided lecture slide into multiple slides with less information in them and that is a very tedious task." (P1).



Video Production Engineers (n = 6)

## System

The system interface is divided into two parts:

- (a) Original Slide:** Shows a slide titled "What is a 'concept'?" with a diagram and text. A red circle 'a' highlights the slide.
- (b) Design Analysis:** Shows a table of statistics and a gauge chart.
 

	Stats	Analysis
Font Size	9 pt	☹️
Word Count	101 words	☹️
Image Count	1 image	😊

 The gauge chart shows a score of approximately 65% on a scale from 0% to 100%.

(a)Original Slide: slide provided by instructors  
(b)Design Analysis: analysis result based on guidelines