VidTailor:
Your Personalized AI Video Tutor

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Outline:

1. Introduction
2. Methodology
3. Implementation
4. Evaluation
5. Conclusion

Background:

With the development of technology, video-based learning has become the mainstream learning method for university students. Although video learning reduces learning costs, its rigid process limits the effectiveness of learning [1].

In recent years, Generative Artificial Intelligence (GAI) has gained attention due to its content generation capabilities. While there have been attempts to integrate AI with video learning platforms to provide personalized learning solutions, these attempts have been limited by the inability to precisely match students' needs [2]. Furthermore, existing video-based learning platforms still have limitations, particularly in terms of learning support. The main issues include:

Limitations:

Lack of Personalized Learning and Feedback Based on Video: Students are unable to receive personalized exercises and real-time feedback based on their learning behavior and grasp of the video content, making targeted improvement and adaptive learning difficult [1, 2].

Lack of Systematic Review and Knowledge Organization Based on Video: Students cannot quickly trace back relevant video segments or access recommended content based on their learning records, limiting the process of organizing errors and building a systematic understanding of knowledge, which affects review effectiveness [3].

Limited Peer Interaction and Collaborative Learning Based on Video: Students struggle to engage in discussions, interactions, and collaborative learning around specific video content, lacking effective communication and evaluation mechanisms, which diminishes learning motivation and participation [4].

1. How do you usually use platforms like Bilibili or YouTube to self-study? What has been the biggest difficulty or dissatisfaction in the process?

I watch videos of courses made by teachers or creators, but there are no corresponding practice questions. After watching, I can only try to summarize or take notes, which is not very efficient.

For some chapters, I'll rewatch them, but I'm still unsure how much I've actually mastered—there's no tool to test myself.

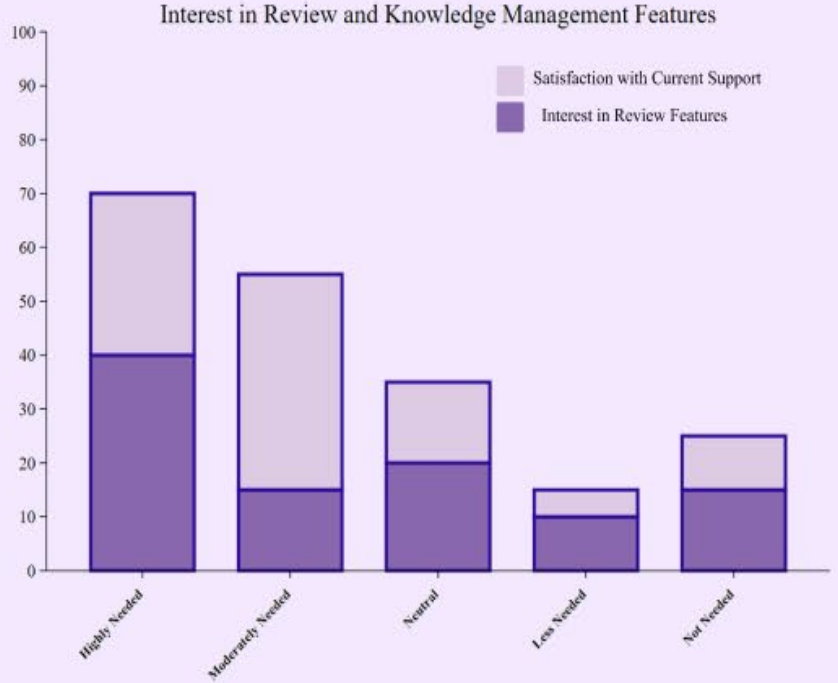
I discuss online with classmates, but there's no dedicated discussion forum. We can only talk in WeChat or QQ groups, where information easily gets lost and things are disorganized.

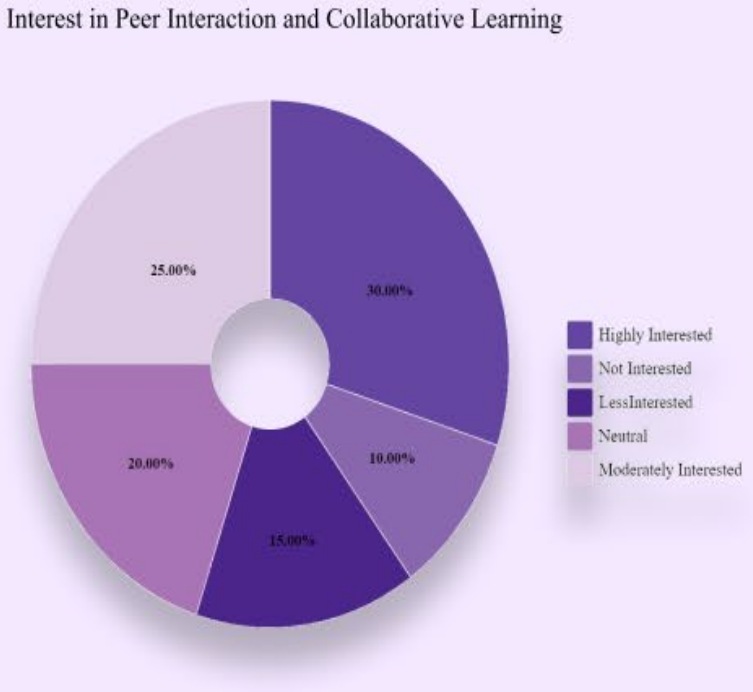
2. When you face these difficulties—like wanting to do more practice or have in-depth discussions—what do you usually do? How effective is it?

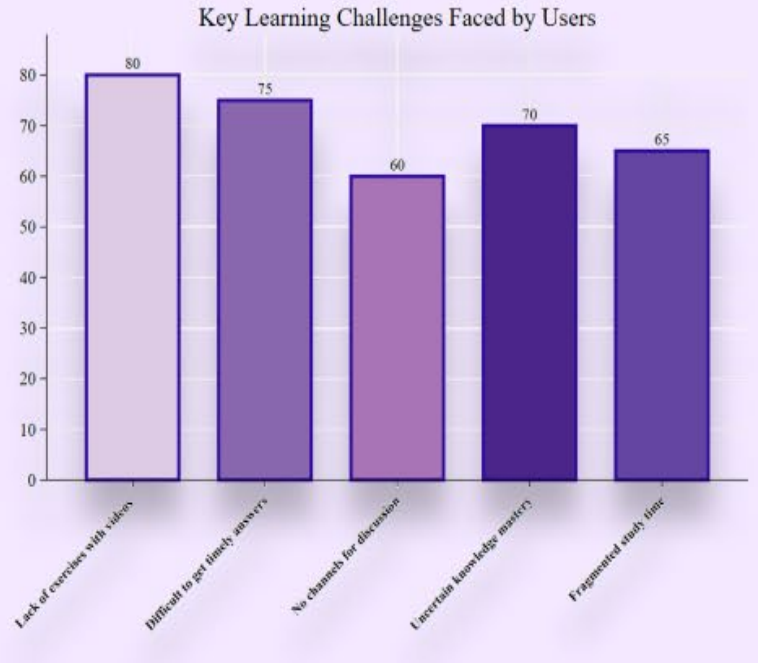
I usually search for practice questions online, but it takes a long time to find suitable ones, and they're not always relevant.

Sometimes I ask classmates, but it's hard to find someone in the same major; it's time-consuming and discussions often end up being too late or too brief.

I try to manage with Excel or note-taking apps, but it's quite manual and doesn't help much with fragmented learning.

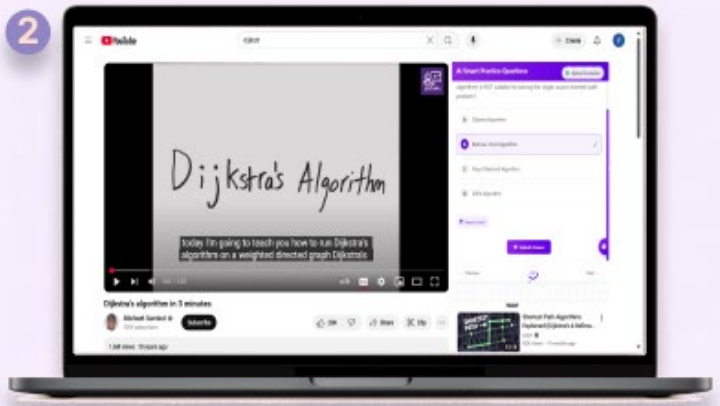

Interest in Review and Knowledge Management Features
Satisfaction with Current Support
Interest in Review Features
100
90
80
70
60
50
40
30
20
10
0
Highly Needed
Moderately Needed
Neutral
Less Needed
Not Needed


Interest in Peer Interaction and Collaborative Learning
25.00%
30.00%
20.00%
10.00%
15.00%
Highly Interested
Not Interested
LessInterested
Neutral
Moderately Interested

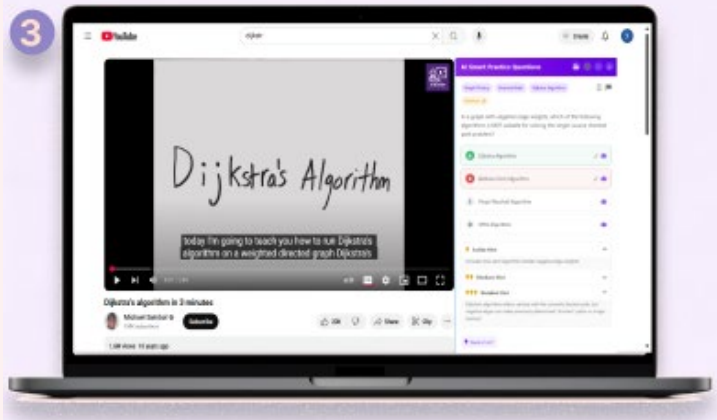

Key Learning Challenges Faced by Users
80
75
60
70
65
80
70
60
50
40
30
20
10
0
Lack of exercises with videos
Difficult to get timely answers
No channels for discussion
Uncertain knowledge mastery
Fragmented study time

Plugin

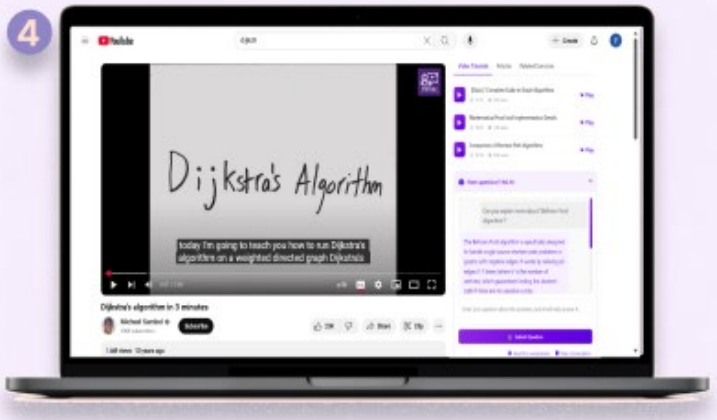
VidTailor detects a key knowledge point, and the logo changes to orange-red. (Refer to Requirement 1)



The user chooses to practice, and VidTailor presents a related question. (Refer to Requirement 1)

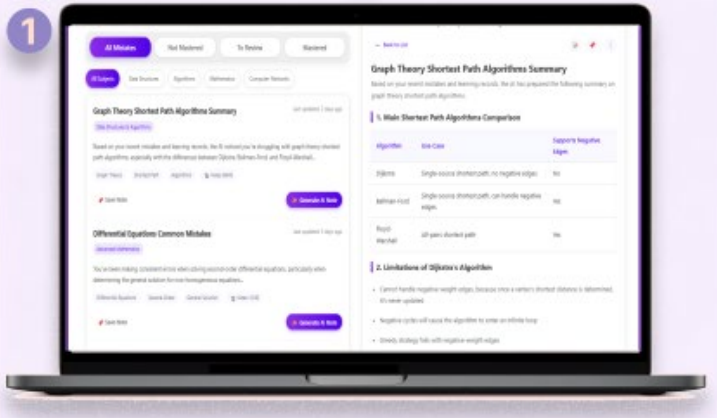


VidTailor checks the answer and gives helpful hints or corrections. (Refer to Requirement 1)

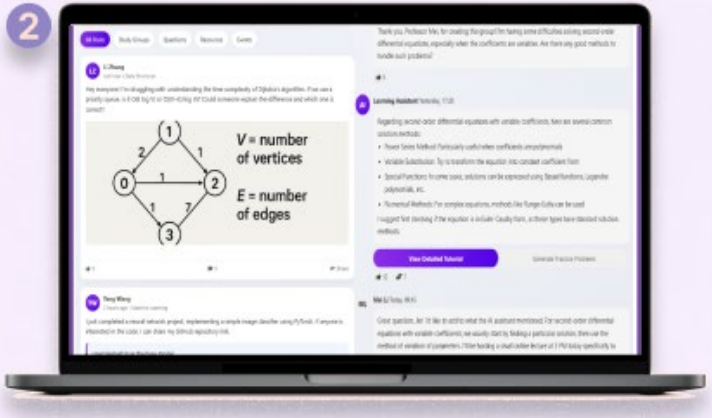


VidTailor provides AI-powered explanations to answer any follow-up questions. (Refer to Requirement 1)

Web



AI-powered mistake book and study notes. (Refer to Requirement 2)



Learning forum and smart group chat connect students with similar questions. (Refer to Requirement 3)

4. Evaluation

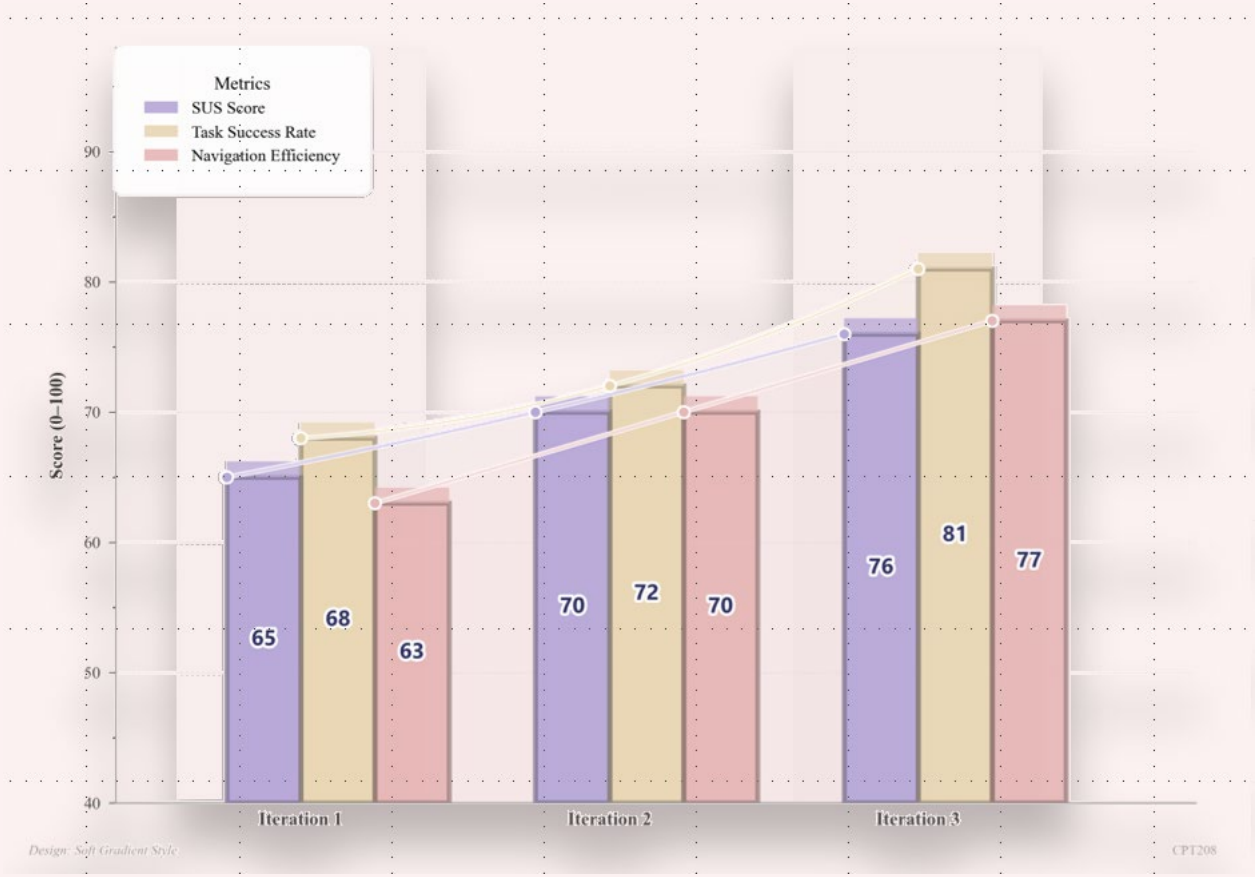


Fig.1 User Evaluation Metrics Overview

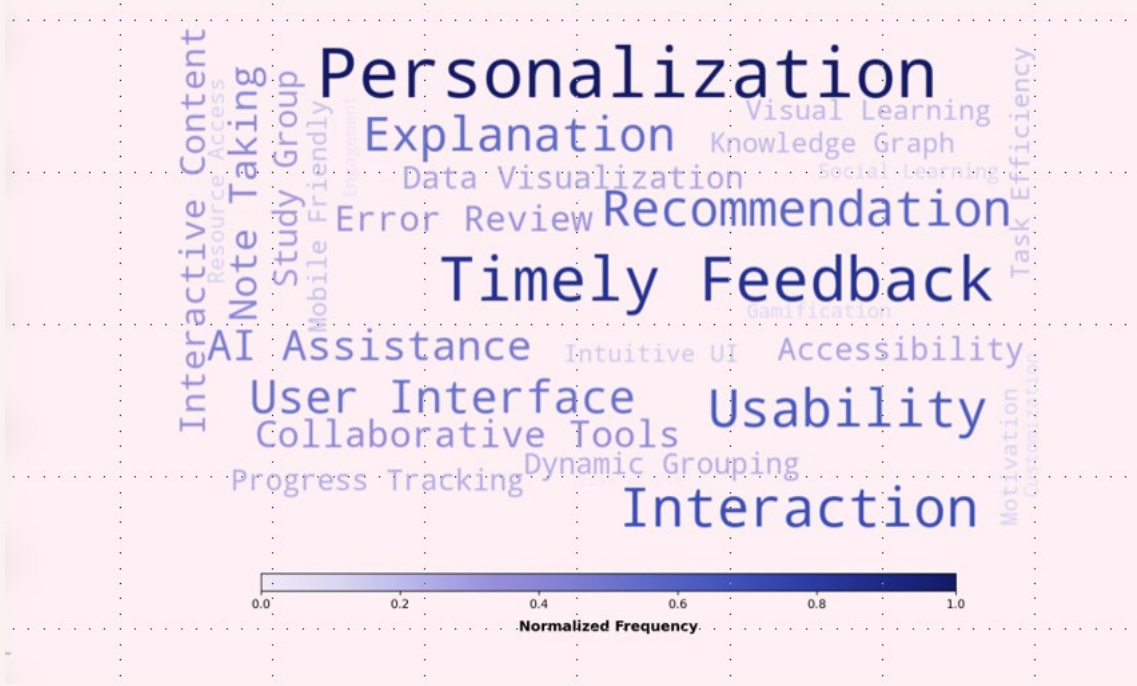
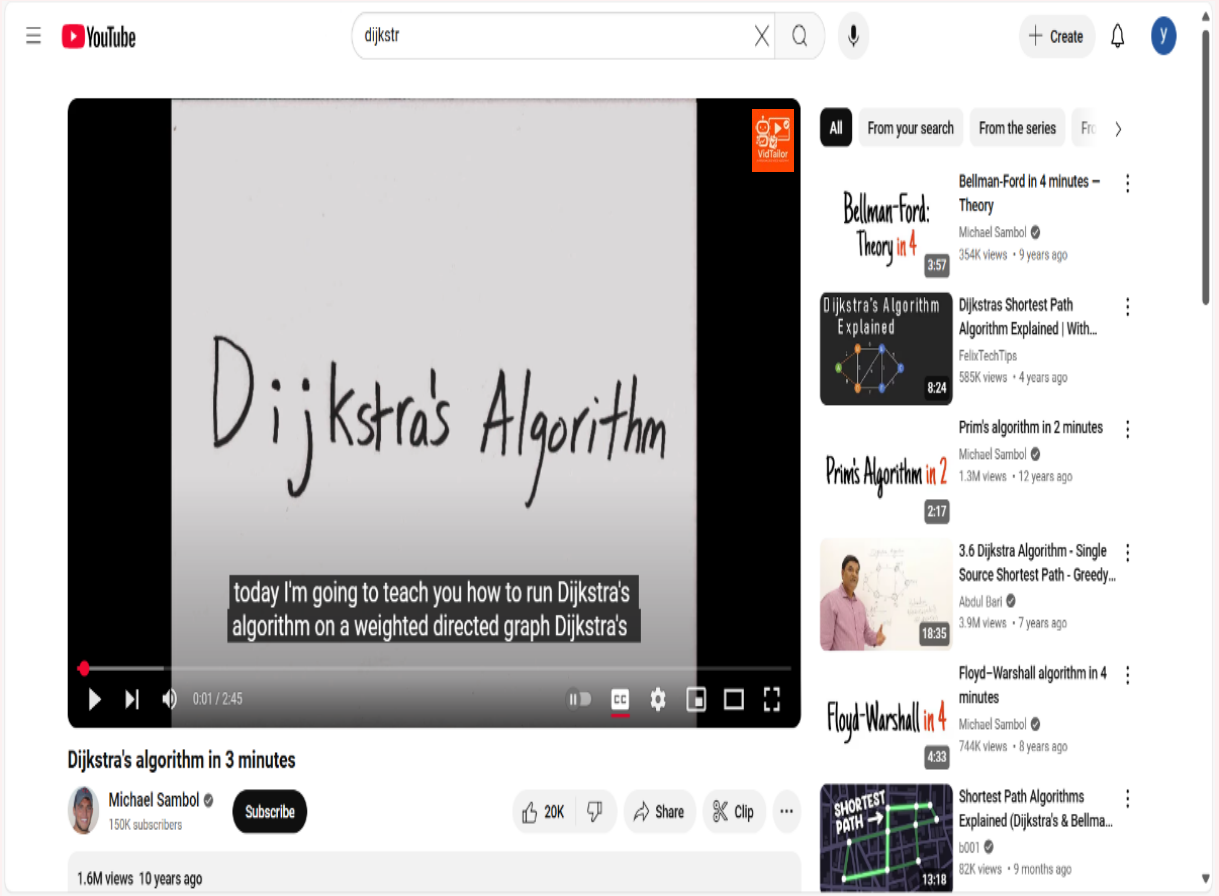
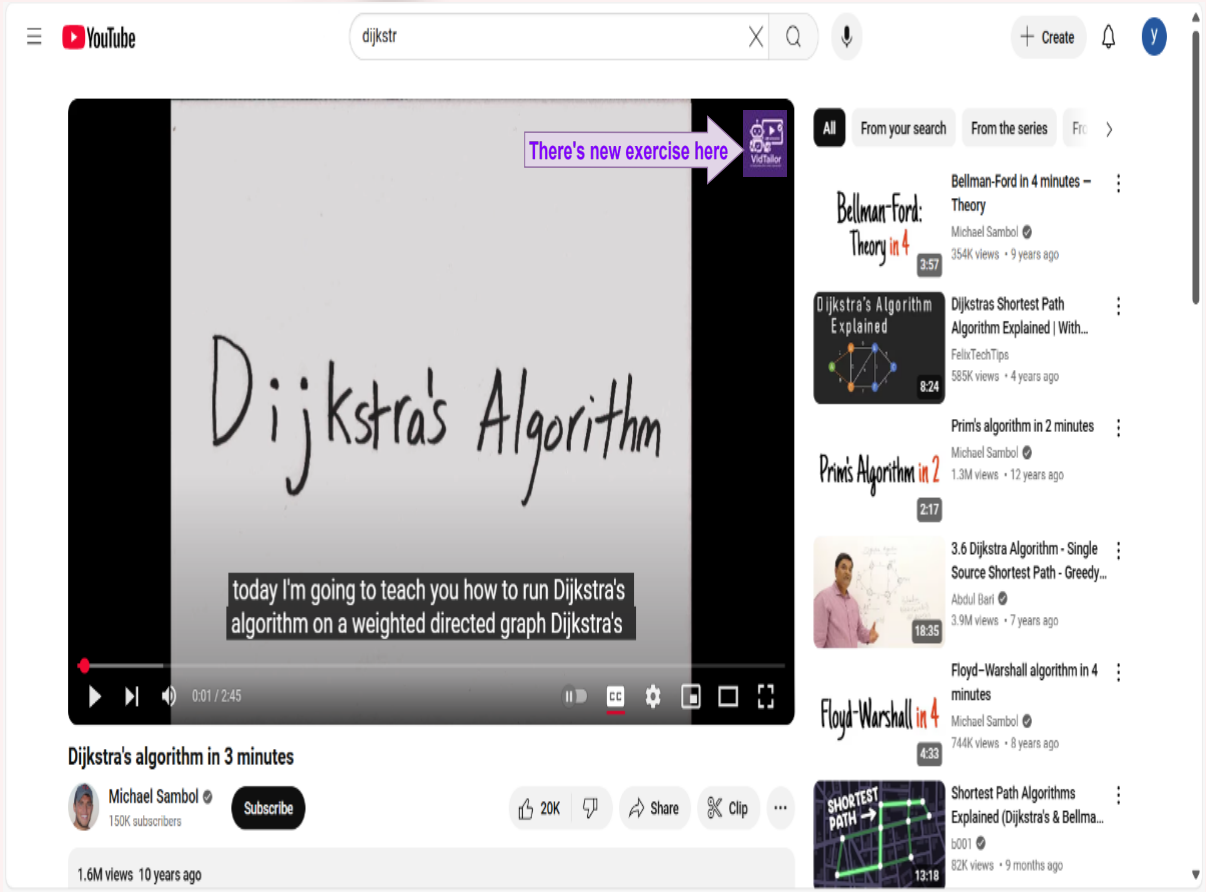


Fig.2 Key Factors Users Value Most in the Product

4.1 A/B testing



Prototype A



Prototype B

4.1 A/B testing

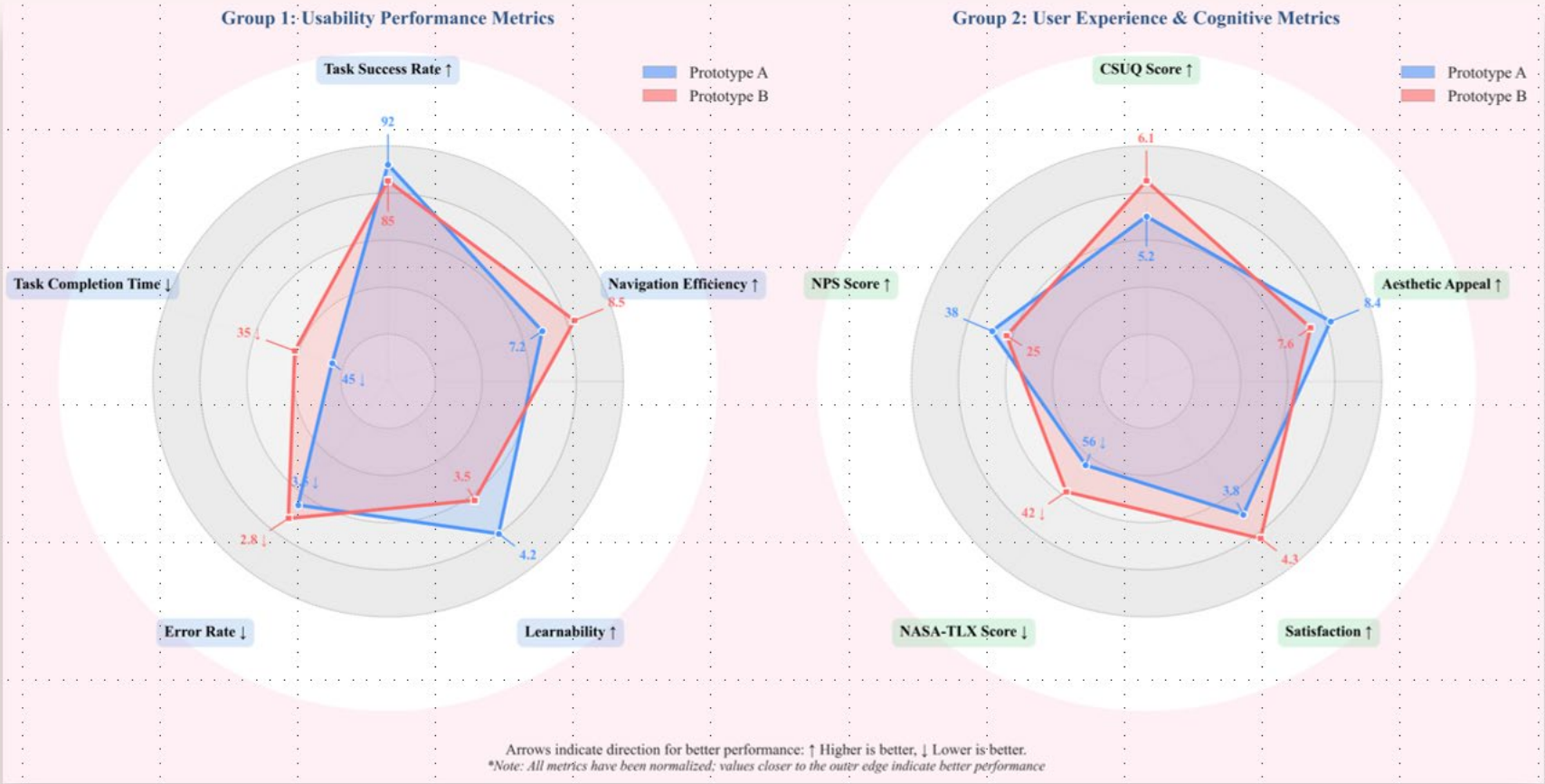


Fig.3 Multi-dimensional Performance and Experience Evaluation Comparison Chart (Prototype A vs B)

4.2 Design-Heuristic evaluation

Consistency

Same color system

Same design language

Search...

Home | Study Map | Mistake Book | Community | Profile

Reduce memory load

Home

2/5

Feedback

on click

on click

Affordances

The button content is mapped to the real object

Completed | Save Note | In progress | Print Now | To Do | Submit Answer

Error Handling

Help users prevent errors and recover from mistakes easily

Search results: “course”

No Results Found

Try checking your spelling or using different keywords

Back to Home

Project Overview:

- **Core Functions:**
  - Video-based personalized learning
  - Systematic review
  - Social interaction
- **Current System Challenges:**
  - Accuracy of personalized recommendations
  - Long-term incentive mechanisms for social learning
  - Reliability of AI-generated content
- **Future Focus:**
  - Optimize AI algorithms for personalized recommendations and feedback
  - Design effective learning incentive mechanisms
  - Enhance social interaction and collaborative learning
  - Explore practical applications for intelligent transformation in education

Next is **Demo** Time