

Texas Higher Education
Coordinating Board

Does “Anywhere Anytime” Learning Work ?

Online/Classroom Hybrid Computer Science Program: A Pilot Project

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Outline

- **Hybrid model and infrastructure at UH**
- **Status, Experience, Assessment**
- **Best practices, future work**

What is a Hybrid Course ?

- Full class lectures online as streaming video – access with any PC/Laptop/iPod
 - Recorded with Tablet PCs, Classroom Presenter, Camtasia
 - “VNET” for streaming and management
- Students must attend selected classes
 - Once per *module* of ~3-5 lectures
 - exams, quizzes, demos, tutorial, and hands-on sessions in class
- Hybrid sections of regular class / pure hybrid class / PC video as study material

But Why, Why Create More Work

- Reaching classroom a challenge for many
 - Houston is *very* spread out
 - Majority of students work
 - Full time professionals
 - Caretakers of small children

*Students may have time for coursework,
but not for coursework+commutes,
or not available at class time.*

But Why, Why Create More Work

- **Distance learning and Science/Engg**
 - DL Enrollment ~ 10,000 at UH
 - But... very small in Science/Engg

Key factors

- **MODEL:**
 - Student/Student/Instructor interaction
- **TECHNOLOGY**
 - Notes not sufficient
 - Camera based video cumbersome and poor quality

Where do we stand

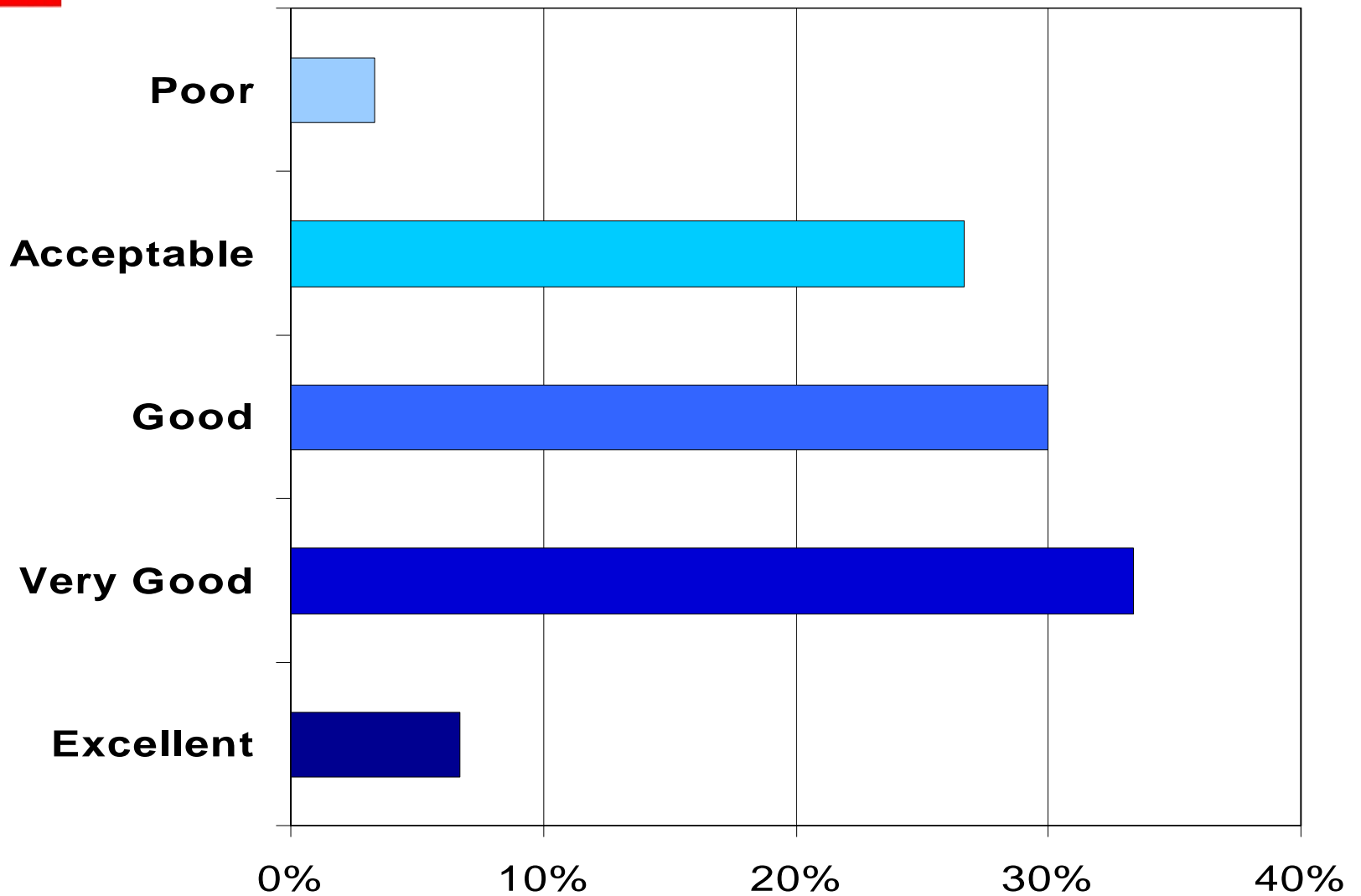
- **6 hybrid offerings of 4 senior-level courses**
 - **Graphics, Networks, Software Engg, Artificial Intelligence**
 - **2 hybrid only, 4 concurrent hybrid sections of in-class courses**
 - *Dozens more Science/Math courses deliver video as additional material in VNET framework*

What did Student Pioneers of Hybrid Courses have to say?

- Detailed feedback through a questionnaire
 - Technology
 - How did they affect studying/exam preparation
 - What improvements would help
- Open discussion after each course
- Presentation at SIGCSE tomorrow/yesterday

Student Feedback

- **On Technology for recording and delivery of materials....**



Video quality of online lectures ?

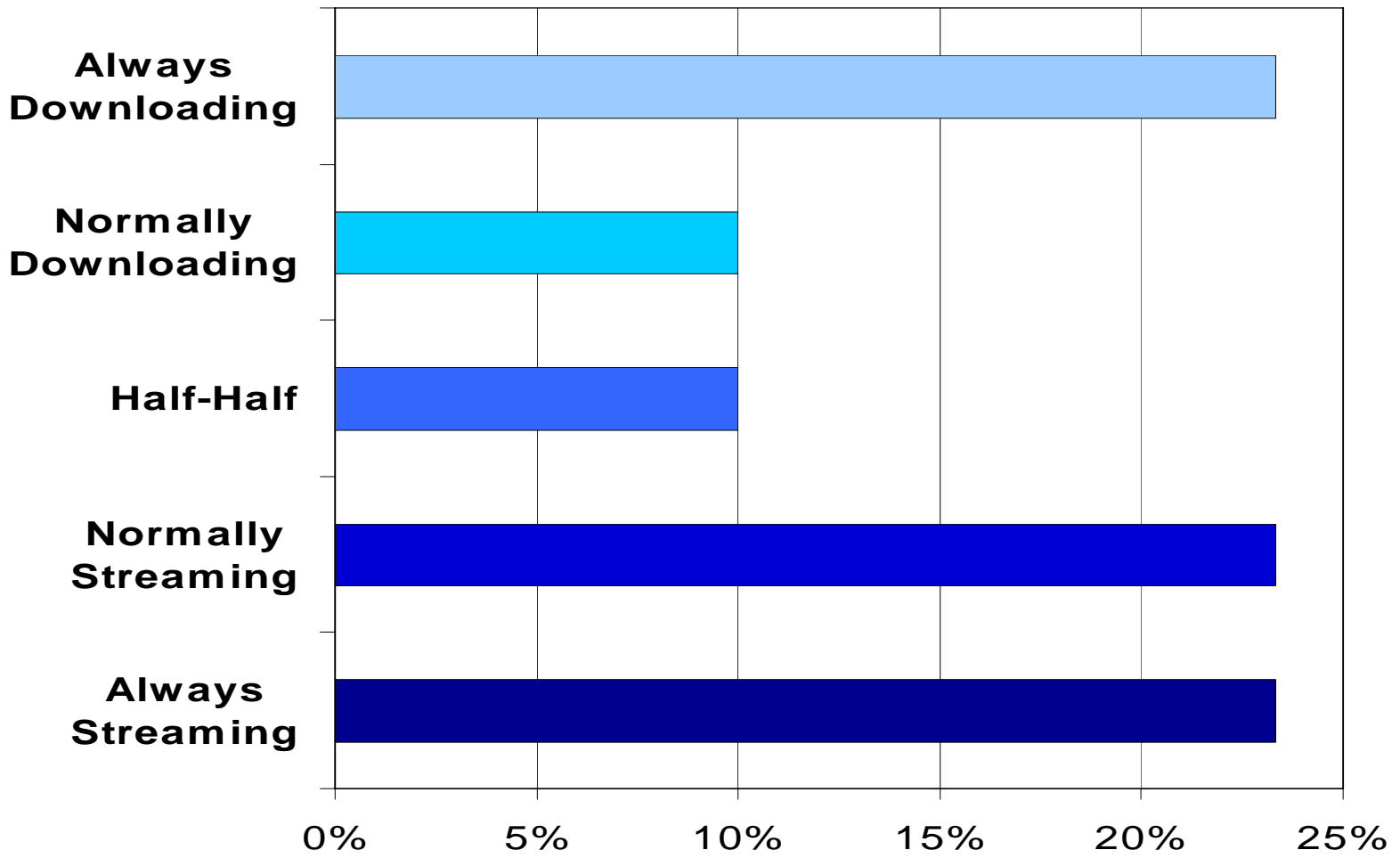
Streaming vs Downloading

Streaming directly from the server:

- Quick start of video
-But delivery depends on the internet connection

Downloading first onto a laptop:

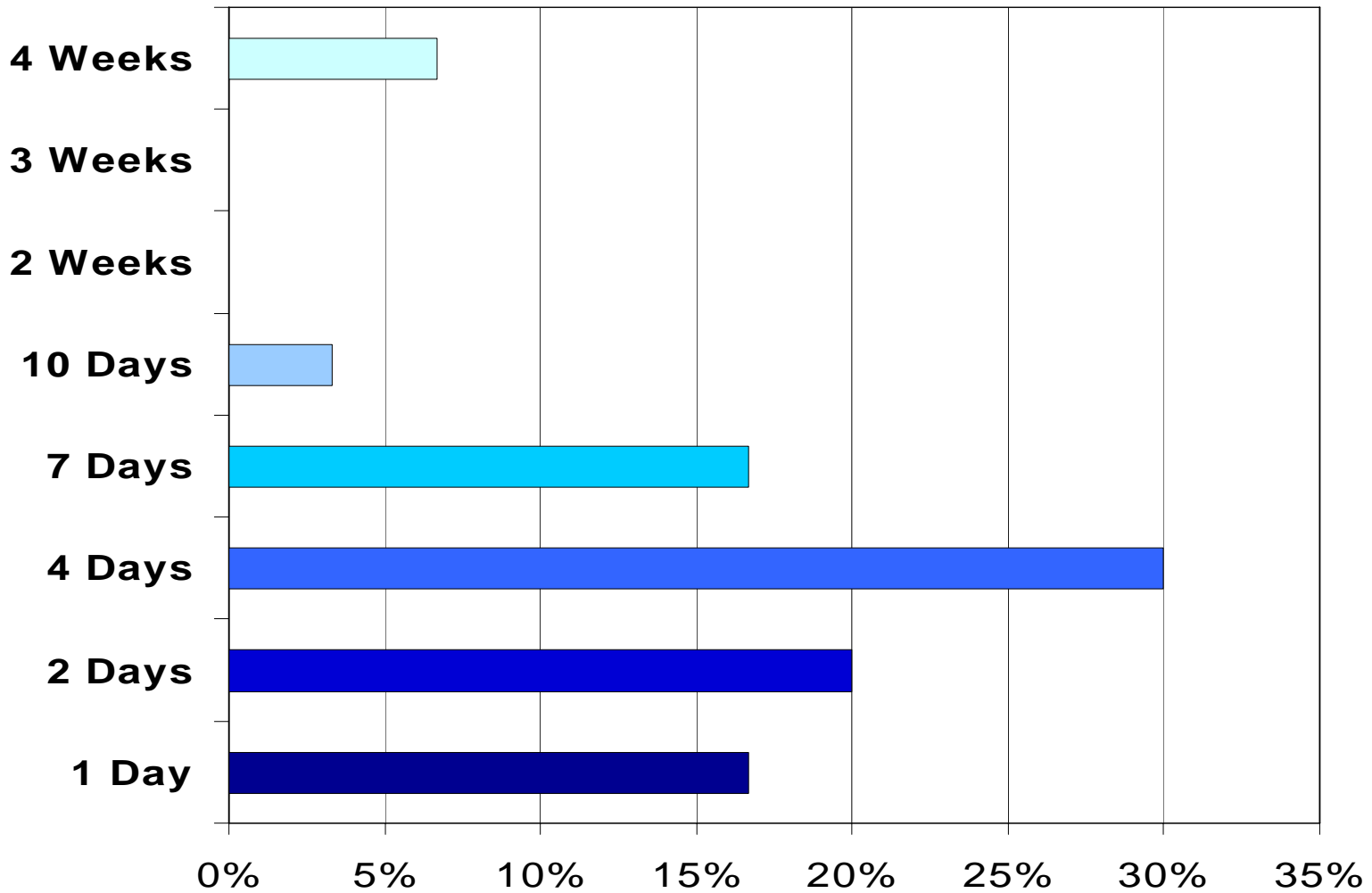
- Smooth playback independent of internet connection
- Works across OSes, e.g., Linux
- Easier to support
- But slower start and more IP issues



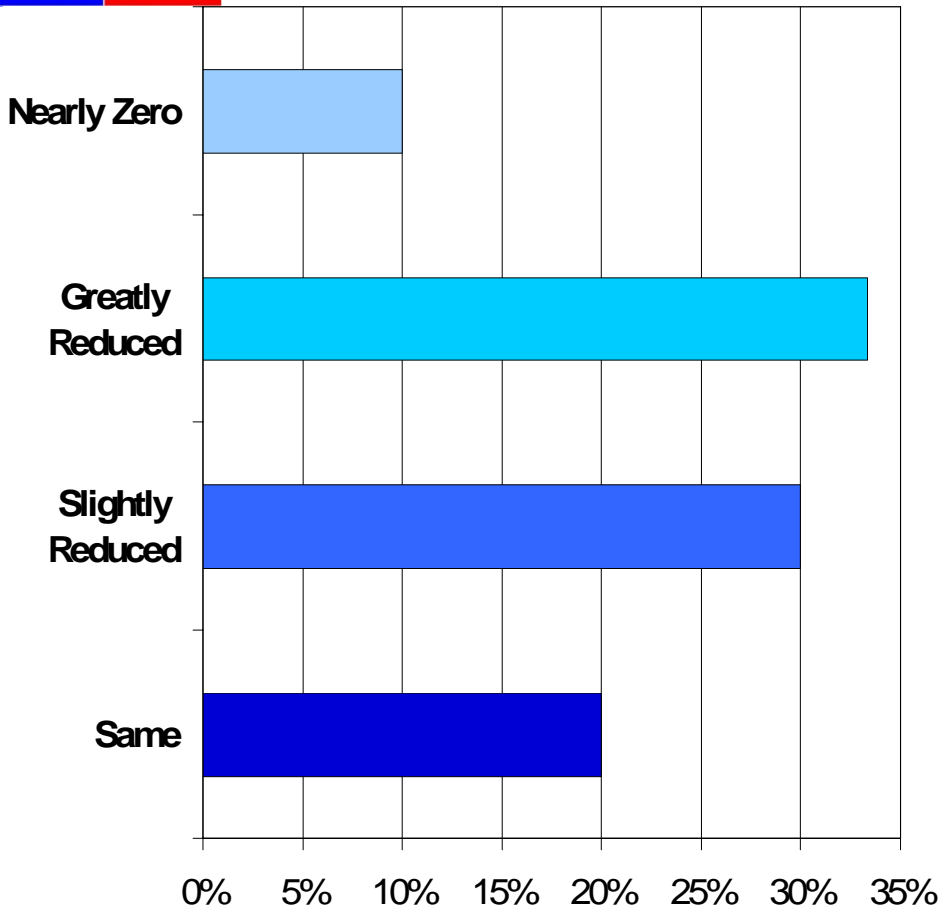
Streaming or Downloading ?

Student Feedback

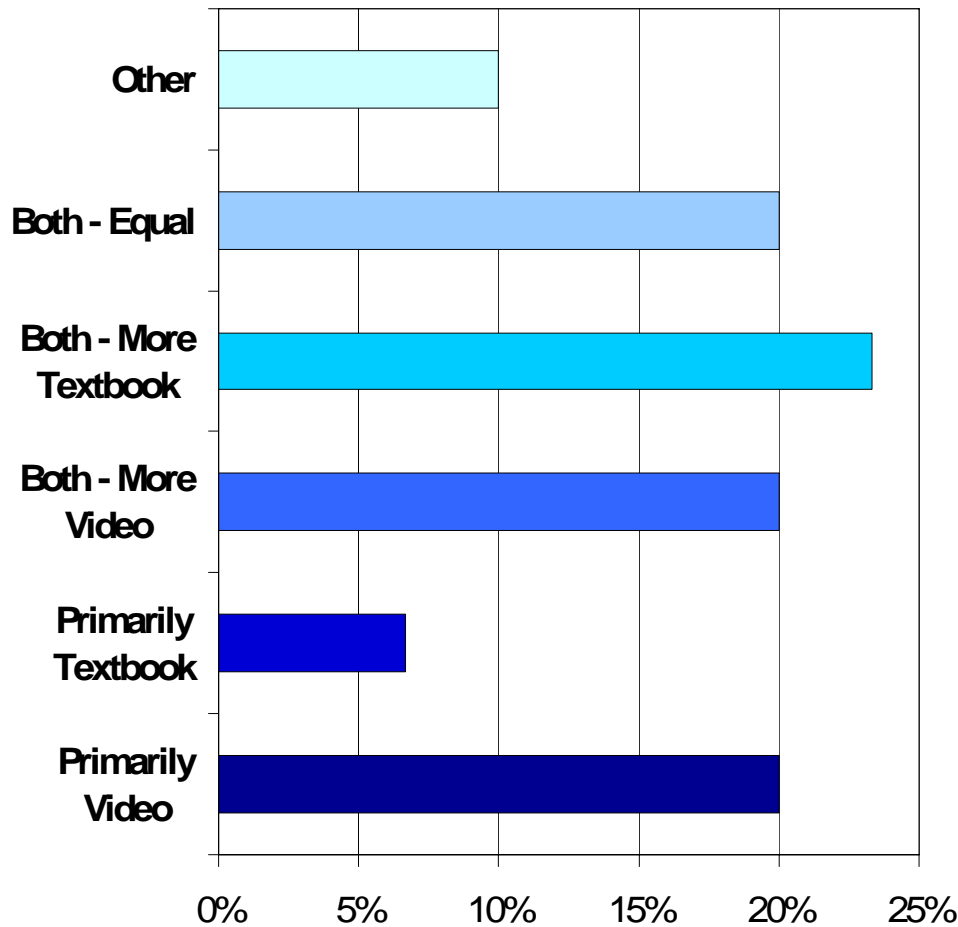
- **On How the study habits were affected....**
 - Was there too much procrastination ?
Instructors tried to ensure regular progress with homeworks, quizzes etc.
 - How were they studying ? From books, notes or videos ?



First look at a Lecture Video after Release?



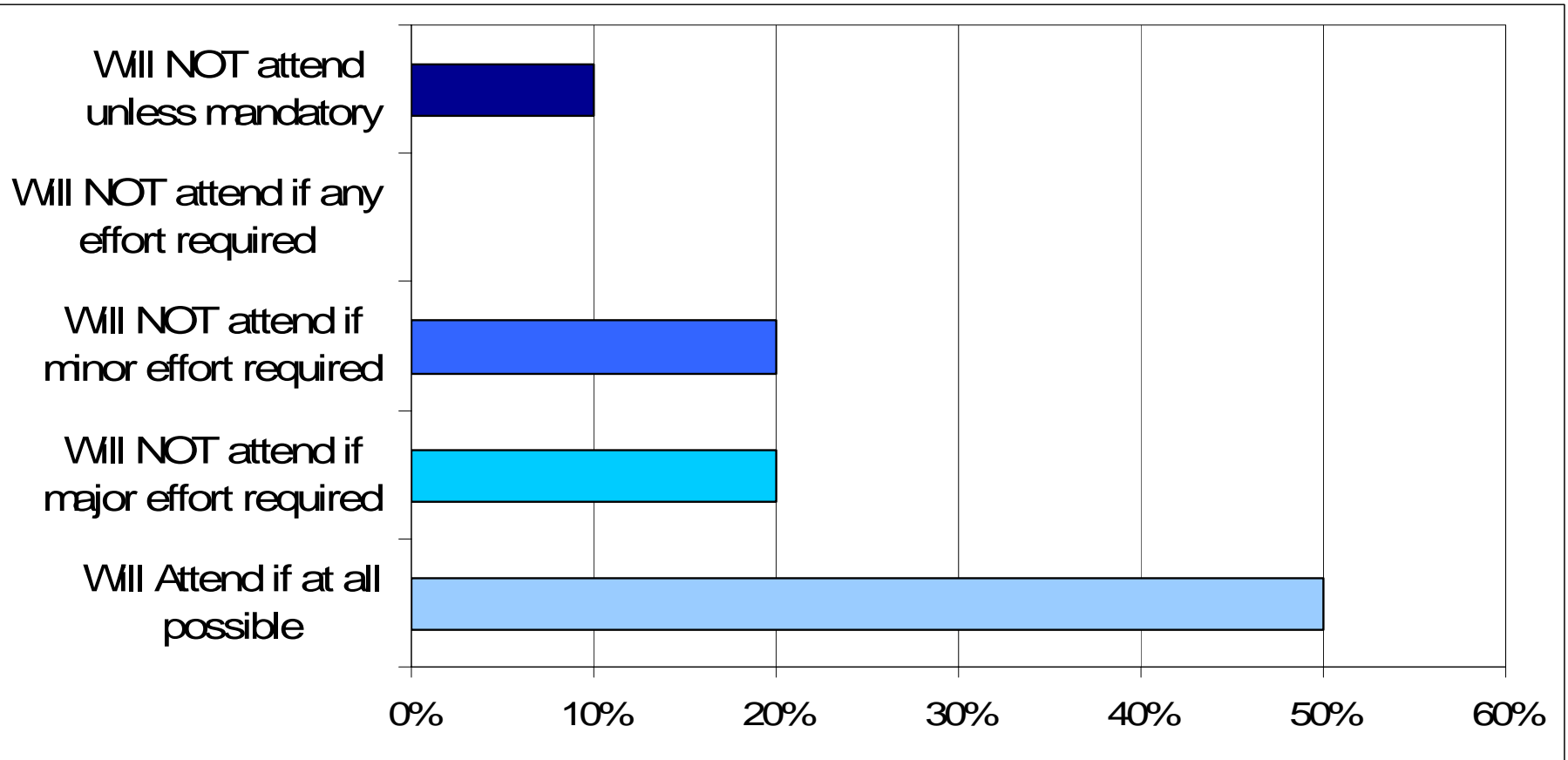
**Time spent on
textbook because of
notes and video
lectures ?**



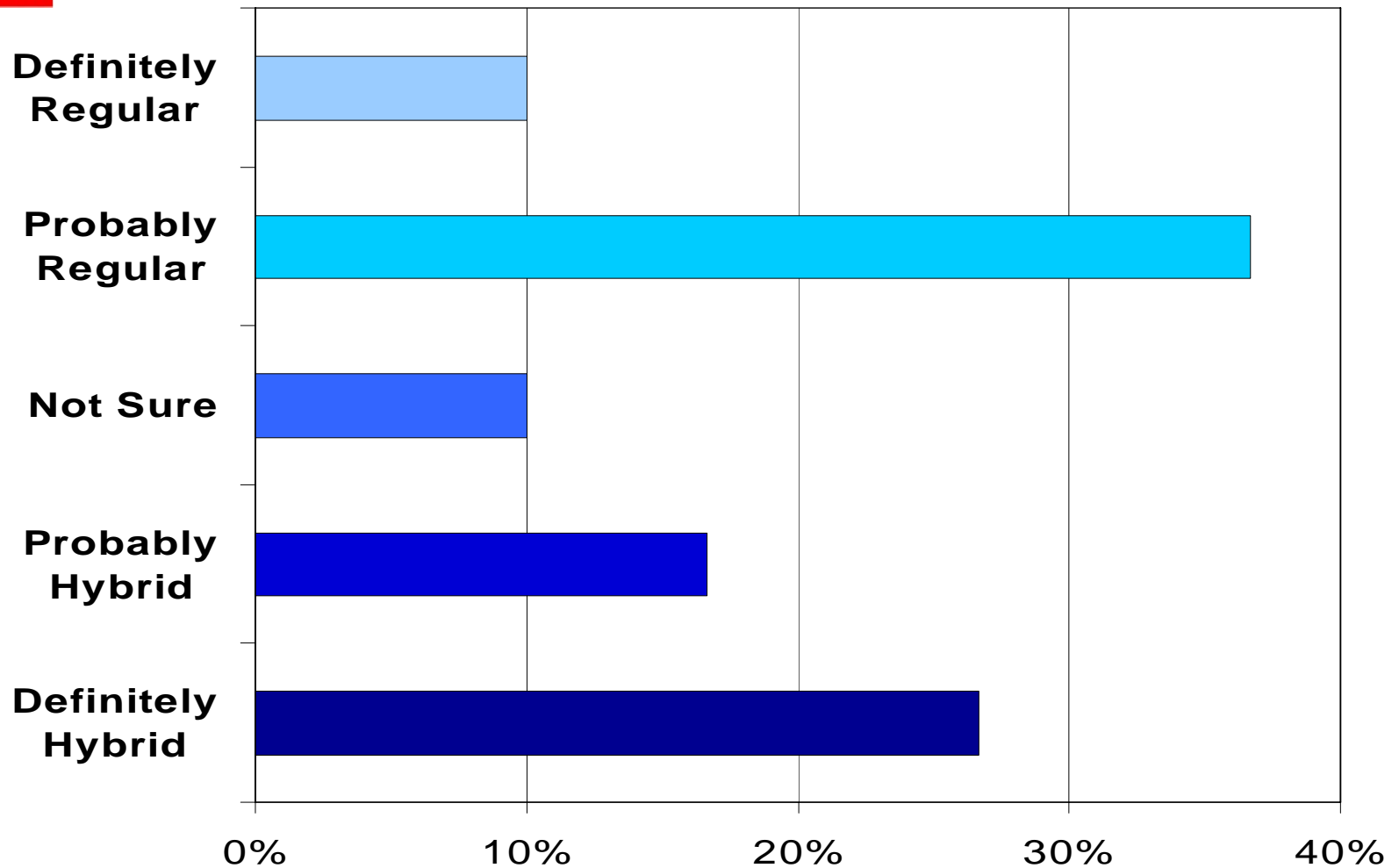
**How did you prepare
for exams ?**

Student Feedback

What value do students attach to PC video lectures versus classroom?



What is your criteria to attend live class vs. video



CHOOSE:

**Strictly Regular (no online lectures) OR
Strictly Hybrid (no classroom access)**

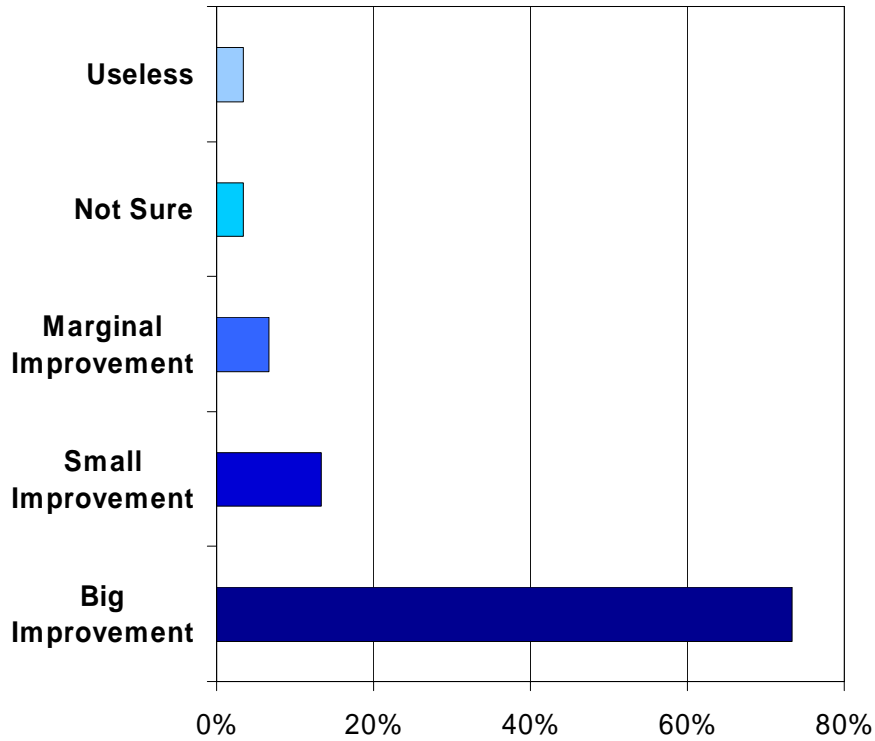
Student Feedback

How to improve the technology ?

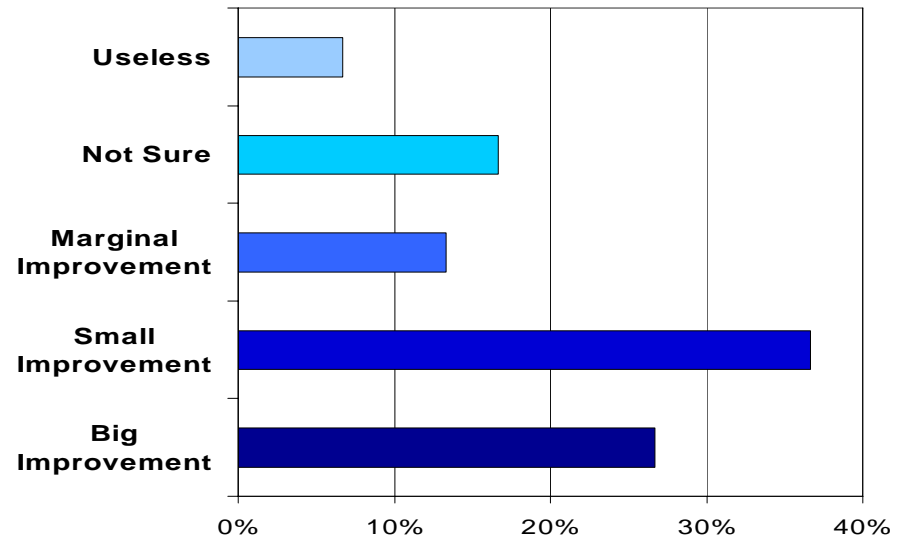
Students were queried on the value of 3 possible new features:

1. Live Webcast: Students can lecture live and even send questions
2. Instructor in Video: A video camera will show the instructor also
3. Indexed video: Add index points where a new topic starts

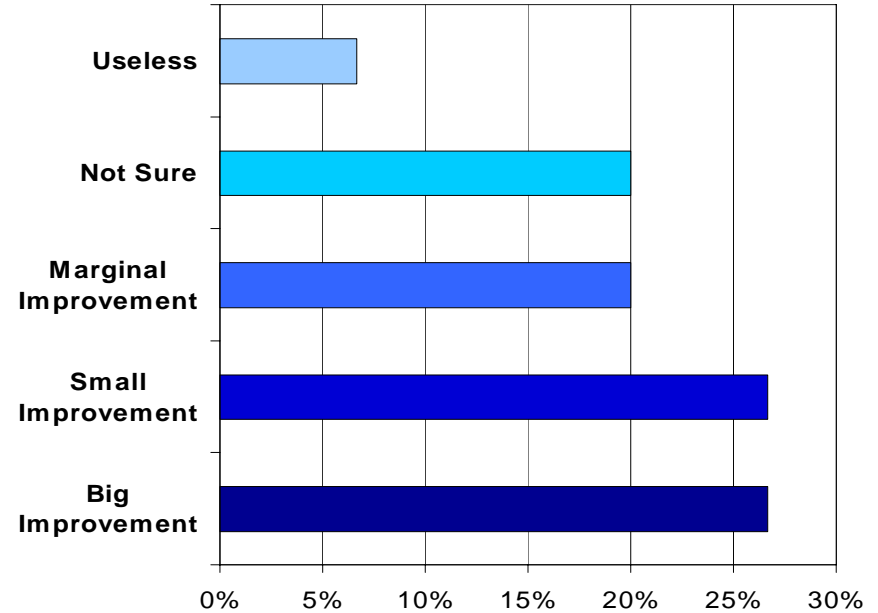
POSSIBLE IMPROVEMENTS



Indexed Video



Live webcast



Instructor in Video

Where do we go from here ?

- **Expand hybrid offerings**
 - **Specific commitment to students, MS program**
- **More feedback and improvements**
 - **Technology development ongoing**
 - **Frequency and content of required classes?**
- **Measure the impact on enrollments, retention, and graduation time**

Best Practices/What is learnt ?

- **Tablet PC video lectures are a great resource**
 - Hybrid classes a good fit for many
- **Current technology can effectively deliver classroom experience**
 - Convenience allows wide adoption
 - Can be improved in many ways

Who does What in the Project

- **Subhlok (PI), Johnson, Vilalta, Subramaniam (co-PIs)** offered hybrid courses
- **Dr. Chapman, Shah, Zheng, and others** developing courses, employing video.
- **Chang Yun and Joanna Li** graduate students working on the project
- **Mr. Salvador and VNET team** provides content management and server support

http://www.cs.uh.edu/~jsteach/start/hybrid_main.html

Or via: www.cs.uh.edu/~jaspal