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Overcoming challenges with e-assessment implementation in developing countries: a case study from South Africa

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Presentation layout

- The scenario
- The problem
- The intervention
- Successes
- Challenges
- The way forward

The scenario

Background

- Pressure to increase student intake
- But students lack fundamental math skills
  - Legacy of poor education

Apartheid education

- “Bantu” education for black children

- “Model C” education for white children

Background

- Pressure to increase student intake
- But students lack fundamental math skills
  - Legacy of poor education
  - New government is not improving the situation

Education in recent years

- Euclidean geometry made optional
- Textbook shortages
- Teacher strikes
- School burnings

Background

- Pressure to increase student intake
- But students lack fundamental math skills
  - Legacy of poor education
  - New government is not improving the situation

- To add to injury to insult
  - Resource constraints
  - Budget constraints
  - Frequent protest action on campus

Protests at SA universities

- Colonialism
- Fees
- Language policy
- Employee outsourcing

The problem

All this has led to…

Frequent disruptions

+

1800, ill-prepared students

Only 4 lecturers

=

Significant failure rate

Failed intervention

- System of forced attendance

- Administrative nightmare
- Student observation:

"People attend tutorials just to write the test. Very few people go there to learn and then the others disturb them"

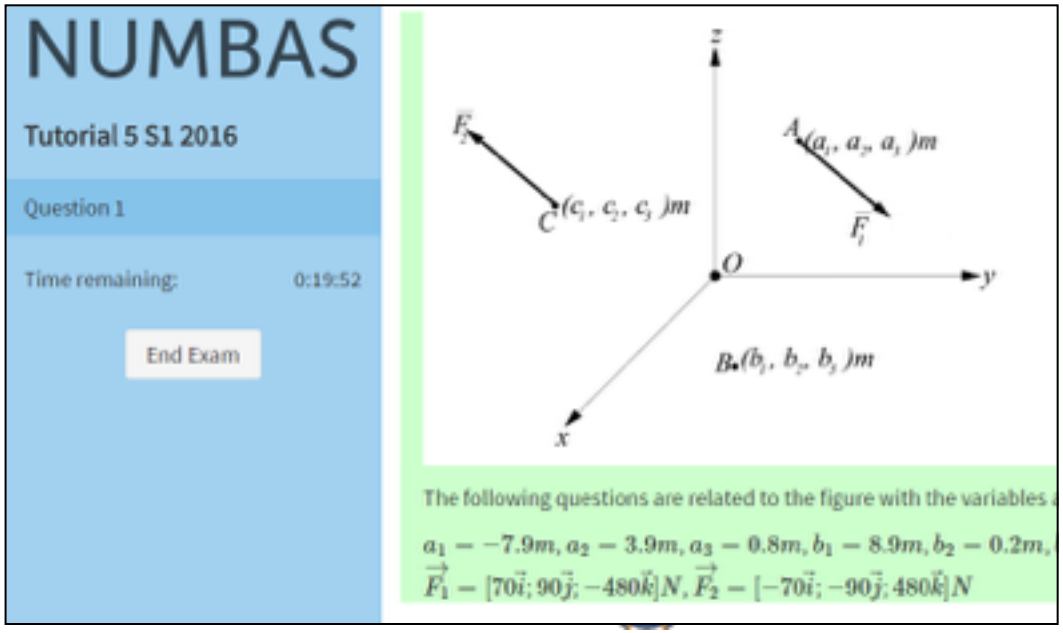
Previous systems

- Weekly handwritten tests
  - 7 to 9 tests set up per week
  - 10 weeks per semester
  - 1800 weekly tests to be marked, checked, entered
- Various e-assessment options
  - One did not allow randomisation of sub-questions
  - Another did not allow any authoring
- No weekly tests; only summative testing

The intervention

Piloting a new system

- E-assessment system
- Flexible authoring:
  - Allows collaboration of multiple authors
  - Allows randomisation of sub-questions
  - Open source software
  - Developer support



Piloting a new system

- Weekly tests
- Open for a number of days
- Completed before or after tutorial
- Tests basic concepts
- Provides detailed feedback

Students were encouraged to…

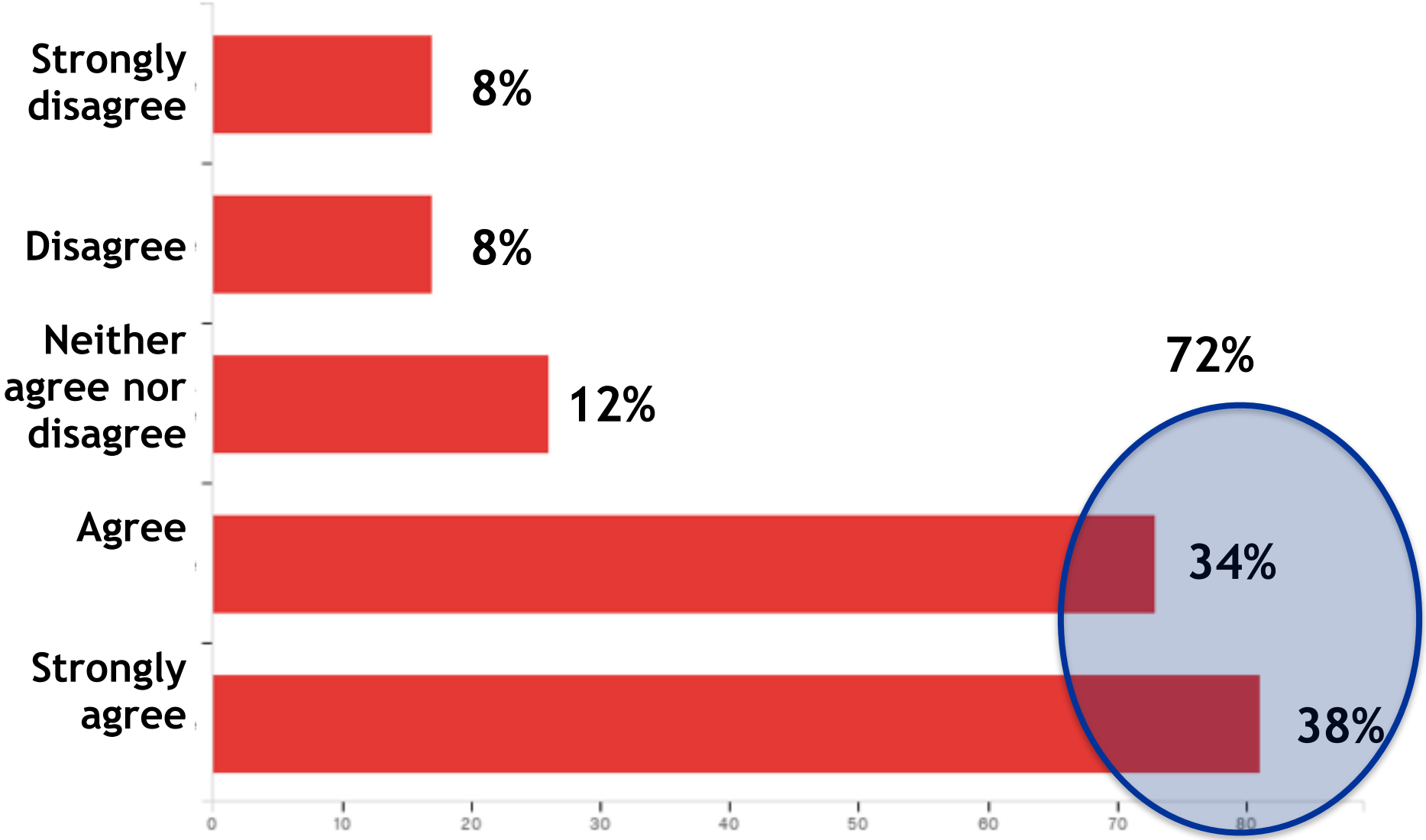
- attempt the test before the tutorial
- ask questions about the test during the tutorial
- collaborate with friends when attempting tests
- complete the test at the time and place that suited them best

The successes

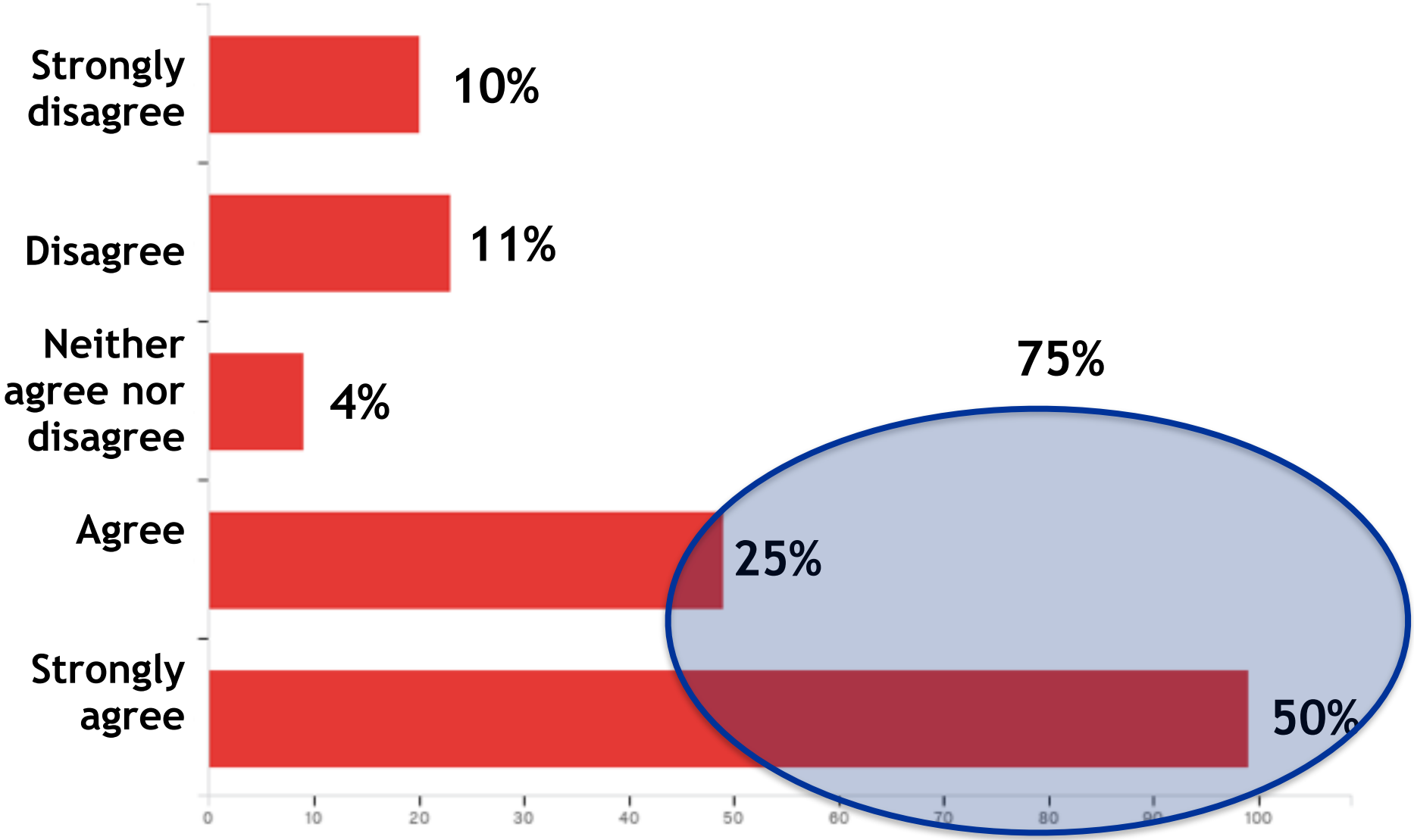
The pilot study

- Previous semester
- 500 subject repeaters
- System was tested on this “small” group
- Survey given at end of semester
- Overwhelmingly positive feedback

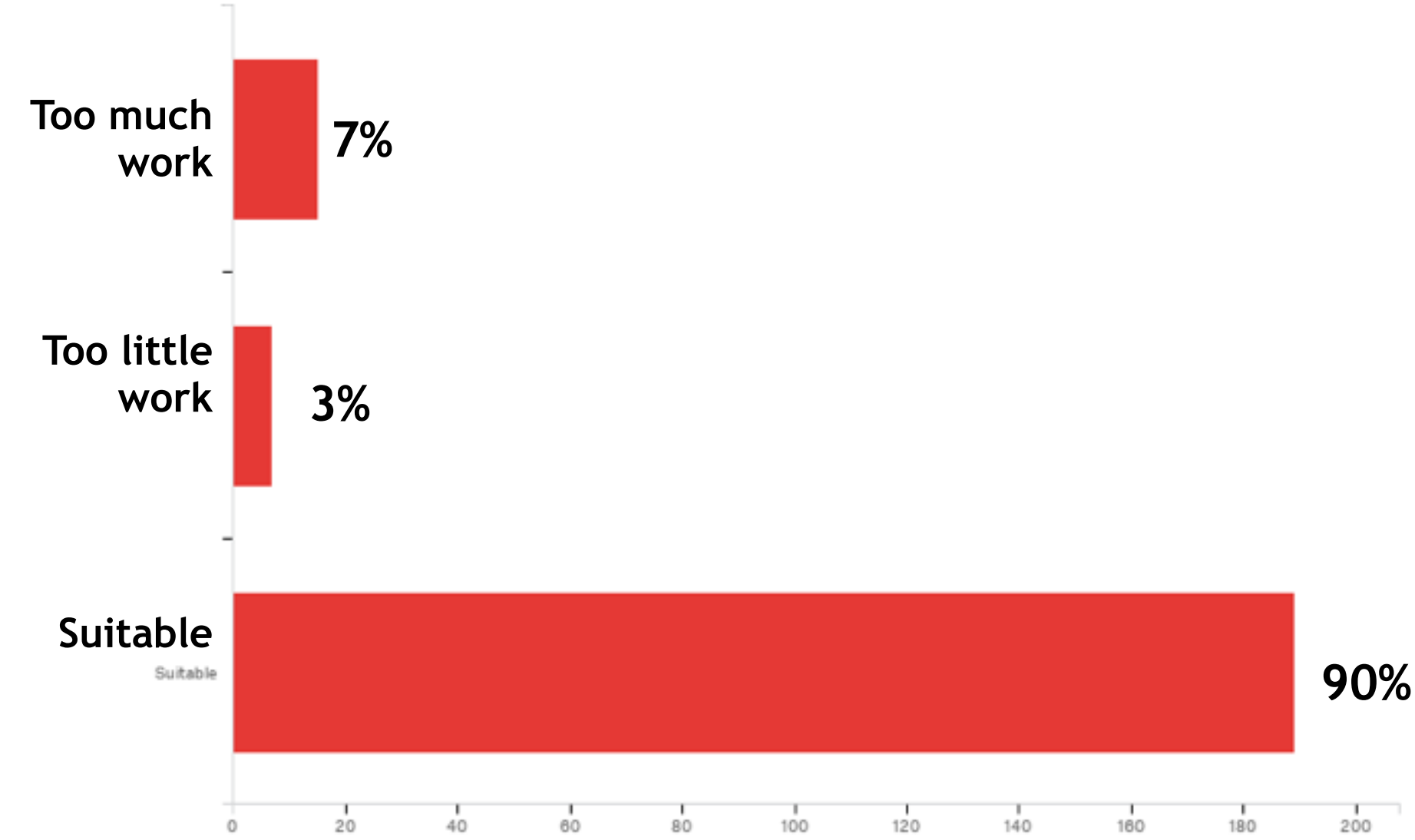
I benefit from the online tests



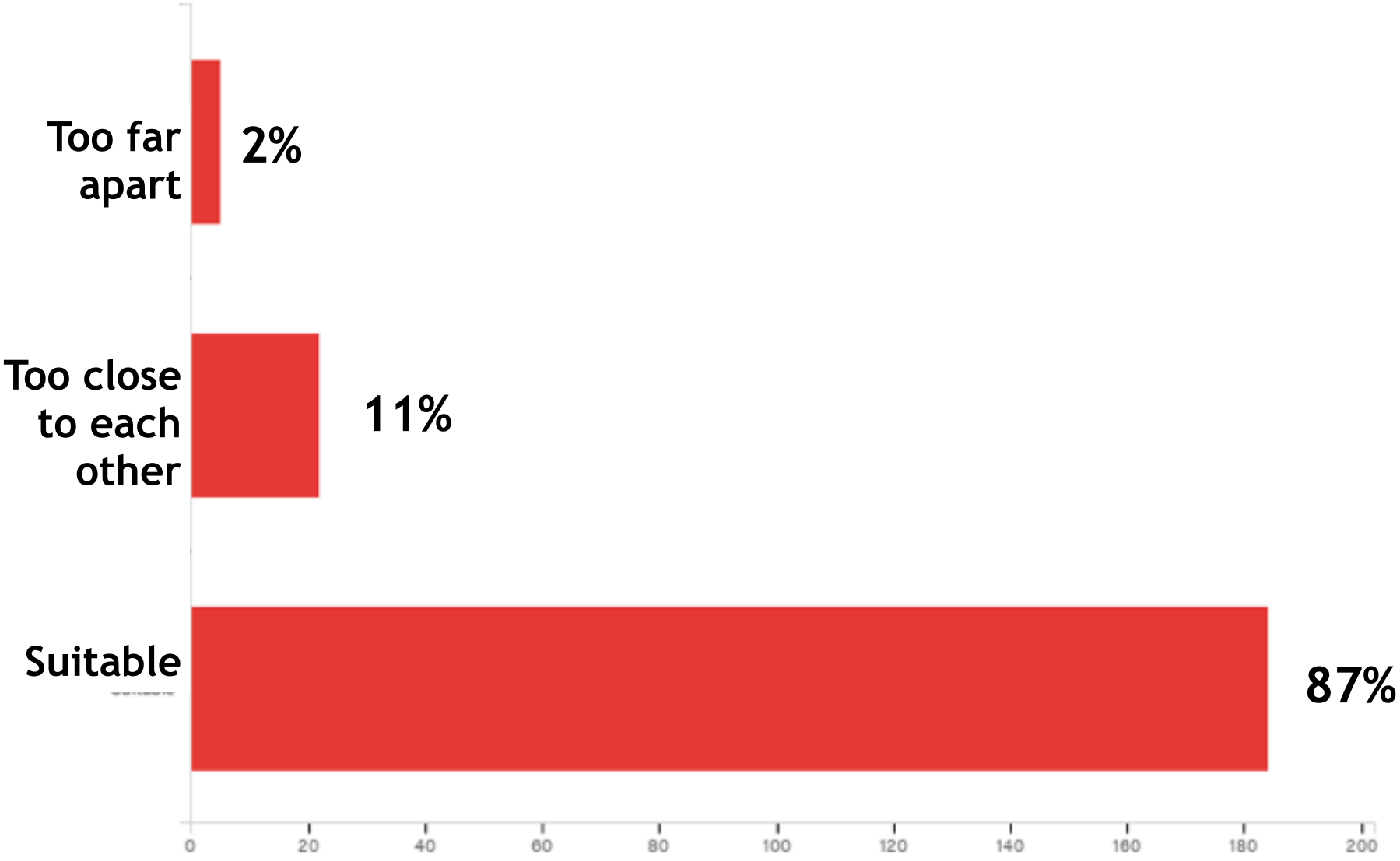
I prefer the new tests



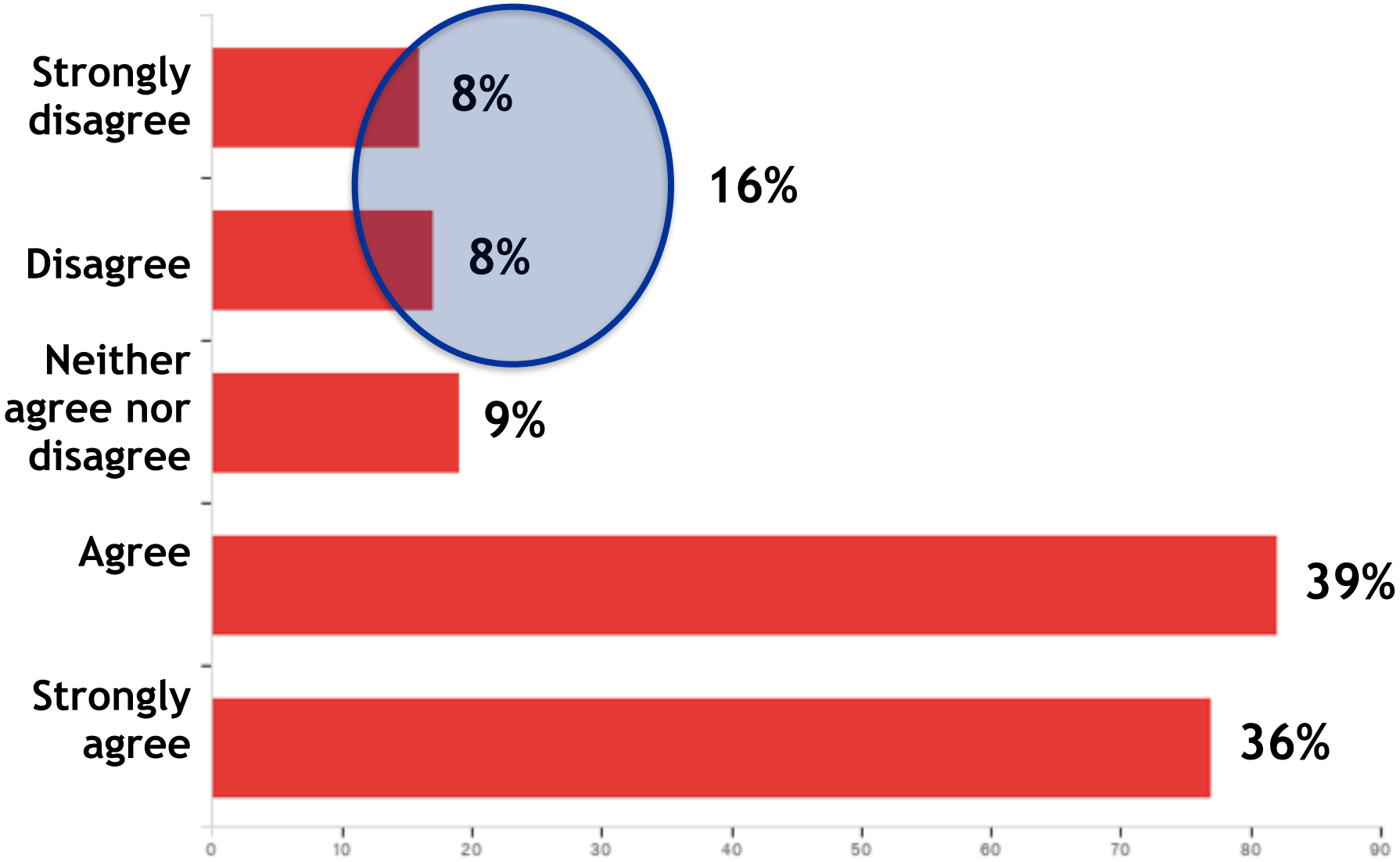
The scope of every week's test is



The frequency of online tests is



I can easily access and complete online tests



The challenges

Some interesting complaints

- “My roster did not allow for a lot of time to sit and study and then also write the tests”
- “tests were inconvenient and did not aid studying”
- “the tests took a lot of time”
- “classes clashed with other subjects”
- “The workload I had was overwhelming so I didn’t get a chance to properly prepare”

The new system challenges

- For students
  - Access to computers
  - Access to fast internet
  - Test errors
  - Time limits

- Administrative challenges
  - Disruptions on campus
  - All lecturers not at same point in work
  - Lecturers all falling behind schedule
  - Resource shortages

Overcoming challenges

Access to computers

- The challenge:
  - There are computers on campus and in dormitories
  - But demand outstrips supply

- The solution:
  - Open tests for a longer period (7 days min)
  - Include a weekend
  - Smartphones (not always possible)

Access to fast internet

- The challenge:
  - Internet speed on campus is acceptable
  - But demand outstrips supply

- The solution:
  - Open tests for a longer period (7 days min)
  - Include a weekend
  - Encourage students to check connection
  - Encourage students to complete tests in off-peak times

Test errors

- The challenge:
  - Lost internet connections
  - System errors
  - Question errors

- The solution:
  - Dedicated email address
  - Strict times for query handling
  - Team that checks email at max 24hr intervals
  - Weekly consultation session
  - Appointment of more team members for testing

Time limits

- The challenge:
  - Pilot study imposed strict time limits
  - (similar to semester tests)
  - Students felt that this defeated purpose

- The solution:
  - Increase time limits of tests
  - Encourage studying before test
  - Communicate to students that time limits are lenient

Disruptions on campus

- The challenge:
  - Frequent protest action
  - Campus closed for students and staff
  - Students lose computer access

- The solution:
  - Extend test availability
  - Make test optional
  - Encourage students to find WiFi elsewhere

Lecturers behind schedule

- The challenge:
  - Frequent protest action
  - Large classes = many questions
  - Lecturers sometimes fall behind schedule
  - Bigger problem than you might think
  - Tests are set well in advance, to allow for testing

- The solution:
  - Short term: set questions for conservative progress
  - Long term: set questions to cover all lecture units

Resource shortages

- The challenge:
  - Many students
  - 4 lecturers
  - Limited budget for teaching assistants

- The solution:
  - Obtain funding for problem modules
  - Properly train assistants
  - Set “repeatable” questions

Some interesting remarks

Student remarks re. online tests

- “Give me a chance to work without too much pressure like when we write exams”
- “Keeps one invested in subject”
- “See if I understand the work or if I need more practice”
- “They let you prepare in your own time an do it when you feel ready so you are better prepared”
- “Motivates me to study throughout the semester instead of just around test times”

Student experience

- “They helped me prepare for tutorials and I felt it helped me break the work up into sections and focus on key concepts”
- “I can easily fit the tests in my timetable and therefore study more for them”
- “it helped me to gauge if I actually knew the work or not and it forced me to work before the tutorial”
- “It positively compels me to study parts of the work over time”
- “I get to do good questions in the comfort of my home, I get to practice and therefore understand”

The way forward

Student comments

- “A sufficient amount of homework questions can be given in an online format, so students can see exactly what they are struggling with and lecturers will be able to see if the students do their homework and whether or not in has an impact on the marks of tutorial tests, semester tests and ultimately the exams.”
- “More online tests that do not count for marks for practice.”
- “Have an infinite number of mini tests to help students practice”

Planned improvements

- Larger question bank
  - Question bank for background knowledge
  - More lecture units covered
  - More questions per unit
  - Inclusion of “practice” questions
- More comprehensive feedback
- Better software integration
  - Better integration between SCORM and Blackboard
  - Implementation of alternative option

Some interesting remarks

- “The online tests gives me the opportunity to see mistakes other students make, when working in a group. I then learn from their mistakes. I also learn from students that got the answers right, where I in turn may have made a mistake.”
- “Online tests are a great initiative that should have been implemented long time ago”

Questions?