

Psychometrics of Online Learning

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MOOCs in HSE

1 million enrolments —> big amounts of data

big amounts of data + **psychometrics** = big amount of **useful** data

Focus of Psychometrics in MOOCs

- Learner (describe, explain, predict, & help)
- Content (describe, explain, & improve)
- Professor (inform & help)

In this presentation

- Measuring Quality of Assessments in MOOCs
- Measuring Student's Interest in MOOCs
- Measuring Impact of Content in MOOCs
- Measuring Quality of Peer-Assessments in MOOCs

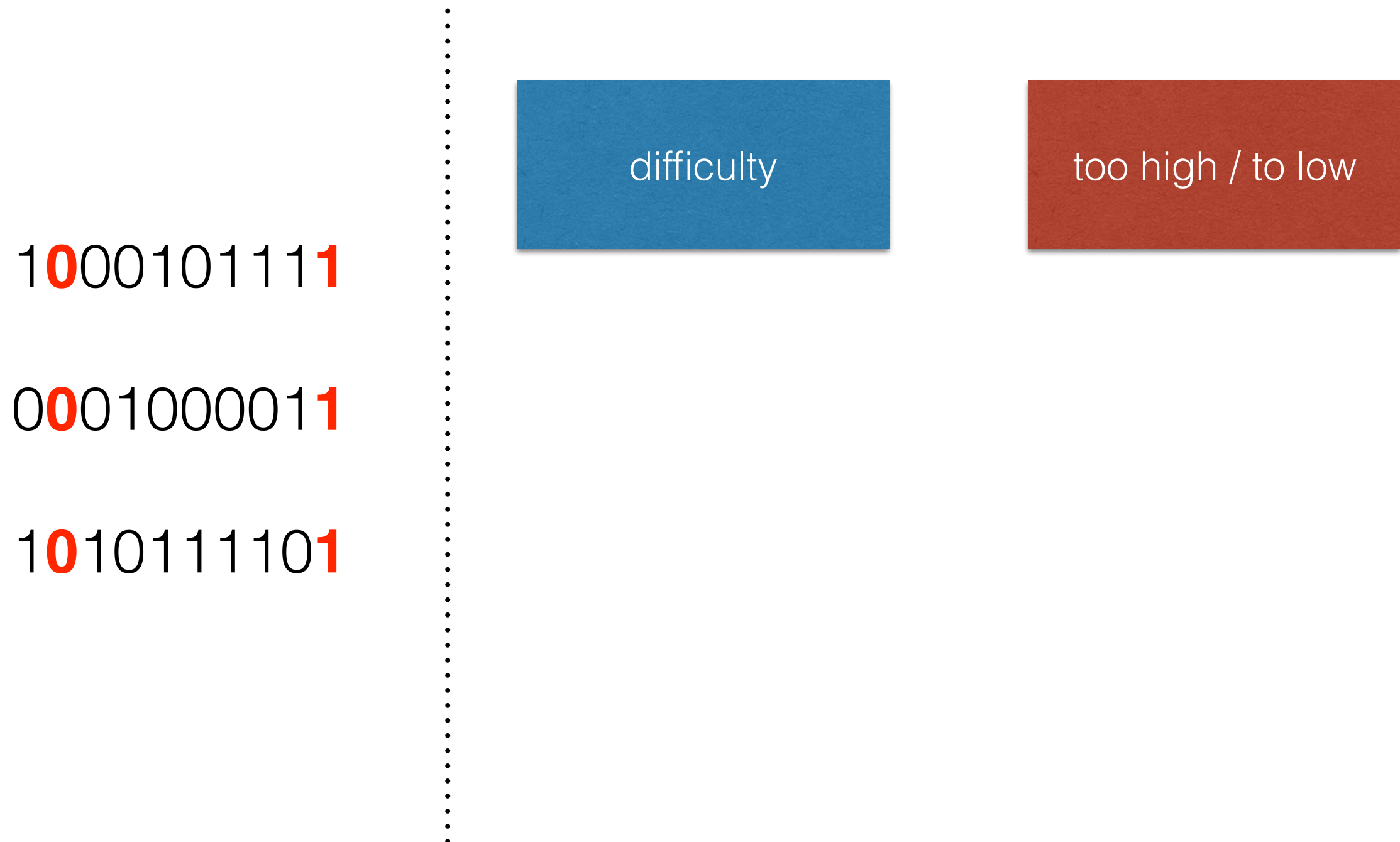
Measuring Quality of Assessments in MOOCs

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1010111101

Measuring Quality of Assessments in MOOCs



Measuring Quality of Assessments in MOOCs

100**0**101111

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101**0**111101

discrimination

low / negative

Measuring Quality of Assessments in MOOCs

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effect of attempts

sorting options

Measuring Students' Interest in MOOCs

student's interaction
with lecture (0 or 1)

Measuring Students' Interest in MOOCs

student's interaction
with lecture (0 or 1)

question about interest
during the lecture (1,
..., 5)

Measuring Students' Interest in MOOCs

student's interaction
with lecture (0 or 1)

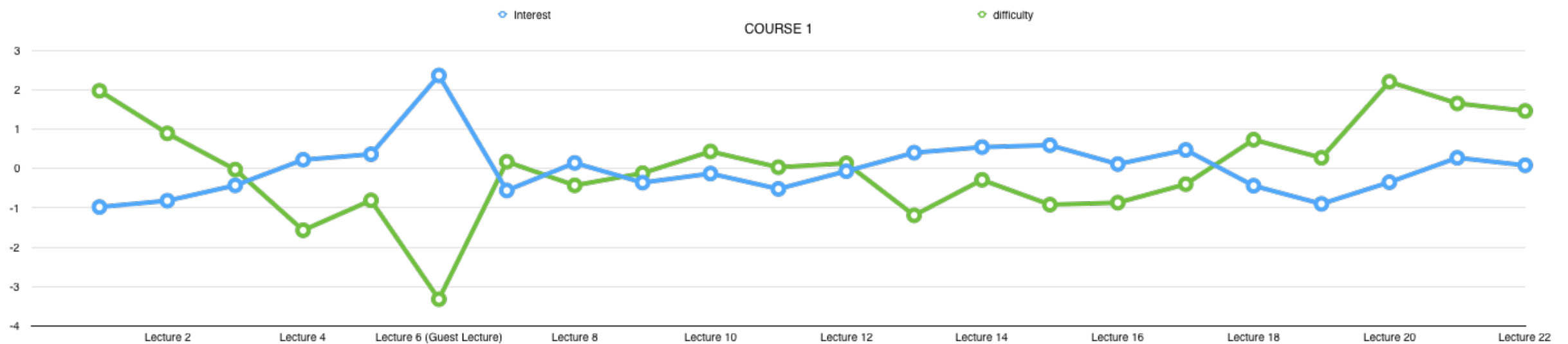
question about interest
during the lecture (1,
..., 5)

interest of each student

interestingness of each
lecture

Measuring Students' Interest in MOOCs

- The interest (blue curve) is changing during the course.
- We can find artefacts that increase and decrease the interest



Measuring Impact of Content in MOOCs

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Measuring Impact of Content in MOOCs

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lectures

Measuring Impact of Content in MOOCs

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lectures

practice

Measuring Impact of Content in MOOCs

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lectures

practice

discussion

Measuring Impact of Content in MOOCs

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lectures

practice

discussion

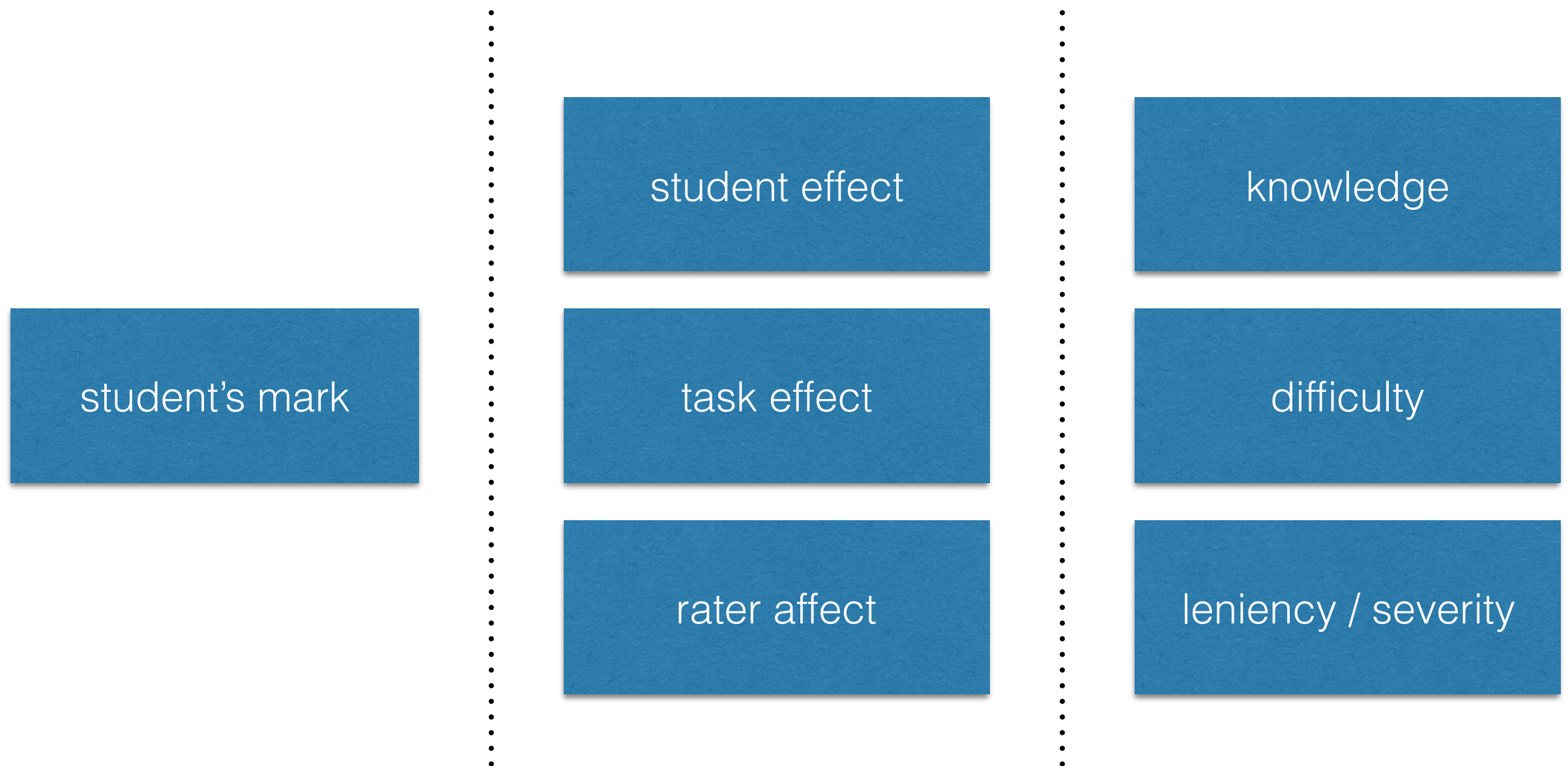
reading

Measuring Quality of Peer-Assessments in MOOCs

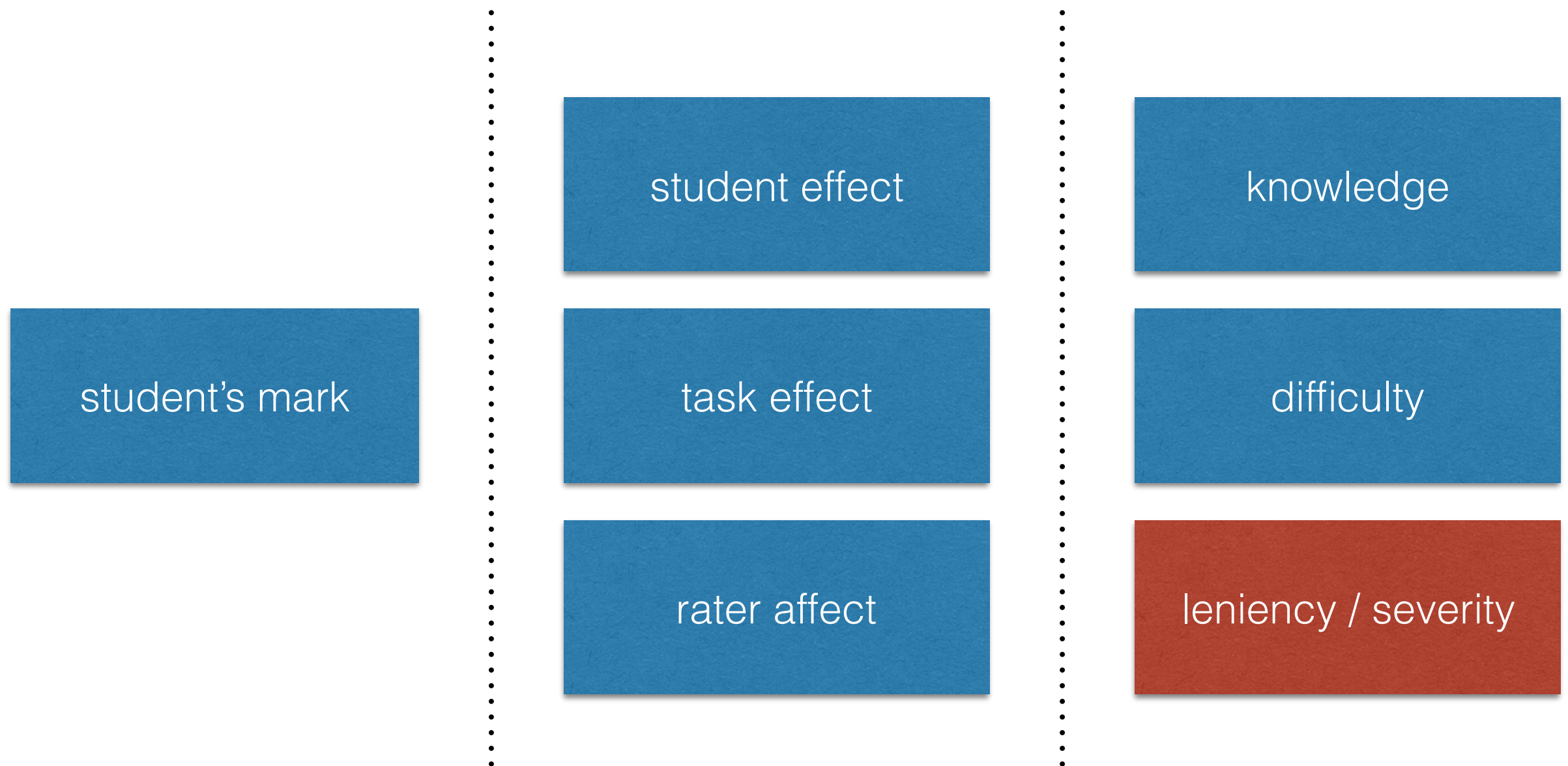


student's mark

Measuring Quality of Peer-Assessments in MOOCs



Measuring Quality of Peer-Assessments in MOOCs





Hello, dabbakumov@hse.ru! [Log out](#)

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Your Courses

Import zip-file

1. unnamed
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
2. Документы и презентации в LaTeX (Introduction to LaTeX)
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
3. Data Structures
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
4. Introduction to Neuroeconomics: How the Brain Makes Decisions
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
5. unnamed
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
6. Математика и Python для анализа данных
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
7. unnamed
 - [Summary](#), [Summary 2](#)
 - Test Level: [Difficulty of Tests](#), [Reliability \(Alpha\)](#), [Sufficiency of Items](#)
 - Item Level: [Overall Quality of Items](#), [Difficulty of Items](#), [Discrimination](#), [Quality of Options](#)
8. Математика и Python для анализа данных

Psychometric Service



Overall Quality of Items

Introduction to Neuroeconomics: How the Brain Makes Decisions

Show 10 entries

Search:

Assessment	Item	Difficulty Trouble	Discrimination Trouble	Options Trouble
Introduction and Scope of Neuroeconomics	Which of the following categories divides economics properly?		Yes	Yes
Introduction and Scope of Neuroeconomics	Which of the following is the major conclusion of the Benjamin Libet's experiment?	Yes	Yes	
Introduction and Scope of Neuroeconomics	According to Benedict de Spinoza, which of the following can cause people to believe that they are free?	Yes	Yes	
Introduction and Scope of Neuroeconomics	Which of the following is the assumption usually held and used by mainstream economics?	Yes		
Introduction and Scope of Neuroeconomics	Which of the following is not an assumption in decision making theory?	Yes	Yes	
Introduction and Scope of Neuroeconomics	Which of the following does decision making theory not include?	Yes	Yes	

Psychometric Service



Sufficiency of Items

Introduction to Neuroeconomics: How the Brain Makes Decisions

Show

10

 entries

Search:

Assessment	↕	Number of Items	↕	Trouble	↕	Required Number of Items	↕
Introduction and Scope of Neuroeconomics		15				15	
Neuroanatomy and Neurophysiology		15				15	
Decision-Making		15		Not Enough		22	
The Nucleus Accumbens		15		Not Enough		24	
Emotional Stimuli		15				15	
Valuation System		15				15	
Risk		15		Not Enough		20	
Game Theory		15				15	
Cooperation		15				15	
Final Exam		30				30	
Assessment		Number of Items		Trouble		Required Number of Items	

Showing 1 to 10 of 10 entries

Previous

1

Next

Psychometric Service

Grazie!
Thanks!