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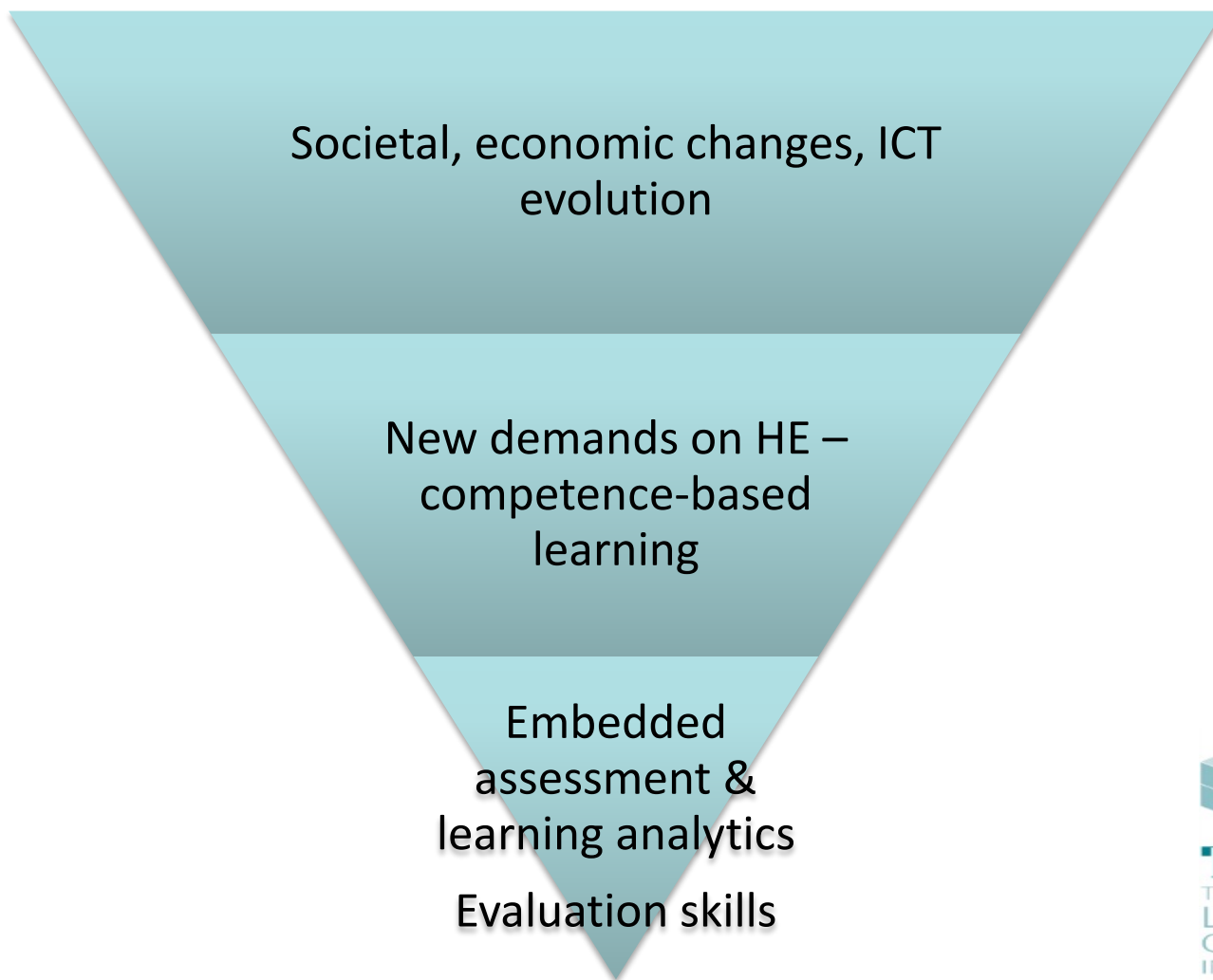
# *Structuring peer assessment and its evaluation by learning analytics*

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# Peer assessment

## Advantages:

- (1) *Logistical* - saves teachers time
- (2) *Pedagogical* - additional opportunity for students to deepen their understanding about a topic **deeper learning, student active learner**
- (3) *Metacognitive* - demystify testing and students become more aware of their own strengths, progress and gaps in knowledge and skills – **increase student autonomy; better understanding of own subjectivity and judgement**
- (4) *Affective* - make students more productive and cooperative, build greater sense of shared ownership for the learning process - **increase responsibility**

▪ Source: D. J. Nicol and D. Macfarlane-Dick,



## Disadvantages:

- (1) *Logistical* - additional briefing time – **plan extra time**
- (2) *Reliability* - risk with respect to reliability, students assessing their peers – **anonymized tasks, LA check**
- (3) *Equalizing* - tendency to award everyone the same mark – **LA check on patterns**
- (4) *Metacognition* - not all students are well equipped to undertake the assessment – **LA analysis on reliability, start with low stake tasks**

Source: B. Divjak, M. Maretić, 2015

- “Learning analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for the purposes of understanding and optimising, learning and the environment in which it occurs”. Source: Ferguson, 2012
- Learning Analytics as a midterm trend in education on a 3–5 year horizon Source: 2015 edition of the Horizon report
- Based on Embedded Assessment
  - learning analytics are used in order to interpret data about students’ learning, assess their academic progress, predict future performance and personalize educational process.
  - Source: C. Redecker and Ø. Johannessen, 2013
- Assessment learning analytics neglected so far
  - Source: Ellis, 2013
- LA is all about learning Source: Gašević & Dawson, 2015

- The course **Project Management**
  - Master Level of Entrepreneurship Study Programme
  - Action research during three years period
  - 131 students were enrolled in 3 years
  - First two years all students' tasks were assessed only by teachers based on scoring rubrics
  - Third year (2014/2015) – peer-assessment and self-assessment based on the same scoring rubrics
- **Research questions:**
  1. How to prepare **peer assessment** to be **reliable and valid** and at the same time enhance mutual learning?
  2. What is student perception about peer assessment, assessment standards and criteria and mutual learning activity?
  3. Is **deeper learning** encouraged by peer assessment?

# Constructive alignment

| Study program learning outcomes (LOs) - relevant for the course  | Course specific LOs related to the study programme LOs                         | Teaching and learning method  | Assessment method  | Student workload - ECTS credits                       |
|--|--|---|--|---|
| Apply concepts and methods of project management...<br><br>Explain and critically evaluate project cycles as well as project success criteria ...<br><br>... | Write project application<br><br>Analyse and evaluate project success criteria | Students work individually on essay writing and peer-evaluation                             | Teacher assessment, self-assessment and peer assessment based on prepared criteria and scoring rubrics | 15-20 h = 0.6 ECTS (approx. 15% of the course 4 ECTS) |
|  | Present project to professional audience<br><br>...                            | Students work in teams on task of project application writing and self- and peer-evaluation |  | 30-40 h = 1.5 ECTS (approx. 30% of the course 4 ECTS) |



# Assessment tasks

| Assessment task  | Percentage of total grade |
|--|---------------------------|
| Tasks in the classroom and online LMS (Moodle)                         | 17                        |
| Essay (writing + peer-assessment + artefact +journal writing)          | 9+3+2+1=15                |
| Tasks in computer labs   | 8                         |
| Project application writing, presentation and self and peer assessment | 30                        |
| Tests (2 x)  | 30                        |
| <b>Total</b>   | <b>100</b>                |



# Peer assessment exercise I

| Activity                                   | Type of work                         | Help  | Duration | Result  |
|--|--------------------------------------|---|----------|---|
| <b>Short essay writing</b>                 | Individual                           | Instructions about good essay writing given before activity | 2 weeks  | Essay submitted on online (Moodle)                                      |
| <b>Peer assessment of essays</b>           | Each student assess three essays     | Assessment rubrics, criteria and instructions online        | 1 week   | Peer review feedback online + comments on what student assessor learned |
| <b>Mutual learning</b>                     | Group work 3-4 with connected topics | Help provided in classroom (can be by webinar)              | 1 day    | Key messages and interesting findings in form of working hints          |
| <b>Artefact – summary building</b>         | Group work 3-4 with connected topics | Recommendation with links provided online                   | 2 weeks  | Artefact that summarized topics submitted online – duration 5 minutes   |
| <b>Evaluation of activity and learning</b> | Individual diary online              | A few general questions given                               | 1 day    | Evaluation reports online   |

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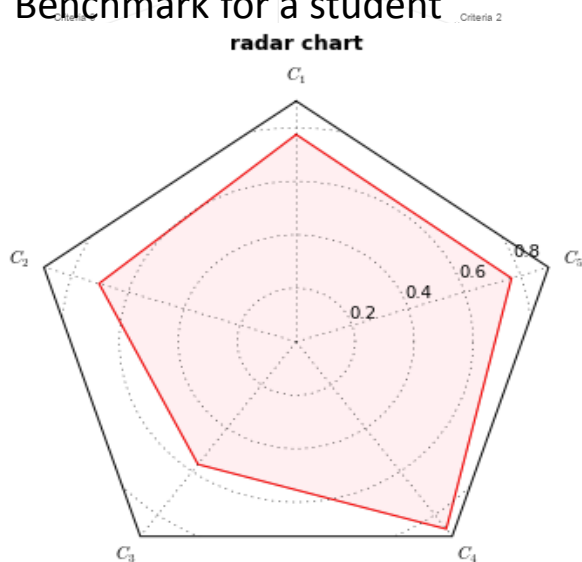


- Essay grading by the following criteria (weight of criteria):
  - *C1 - Topic covering, soundness (3)*
  - *C2 - Essay structure (2)*
  - *C3 - Text formatting, pictures, graphs, examples (2)*
  - *C4 - Language and grammar (1)*
  - *C5 - Referencing (1)*
- Criteria and levels described in details
- Implemented in the **Moodle Workshop assessment package**
  - Students submit their work during the Workshop activity
  - Submissions assessed by teachers, students and their peers
  - Workshop allows multi-criteria assessment based on scoring rubrics
  - Students obtain two grades in a single Workshop activity
    - grade for their submission
    - grade for assessment



# Evaluation of peer assessment by LA

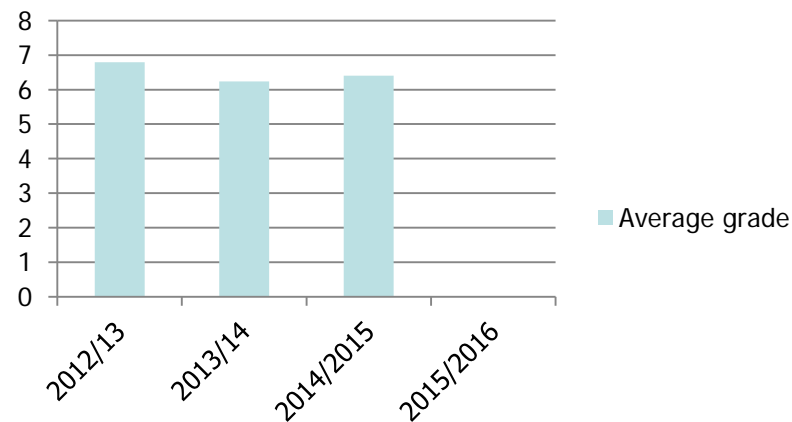
Analysis of criteria  
Benchmark for a student



Reliability of peer assessment

| Academic year    | Average            |
|------------------|--------------------|
| 2014/15 (n=62)   | 6.40/9             |
| 2013/14 (n=34)   | (5.62/10) = 6.24/9 |
| 2012/2013 (n=35) | (6.11/10)=6.79/9   |

Average grade



Number of grades within the 2-point span

51

Number of grades that equal or exceed the 2-point span

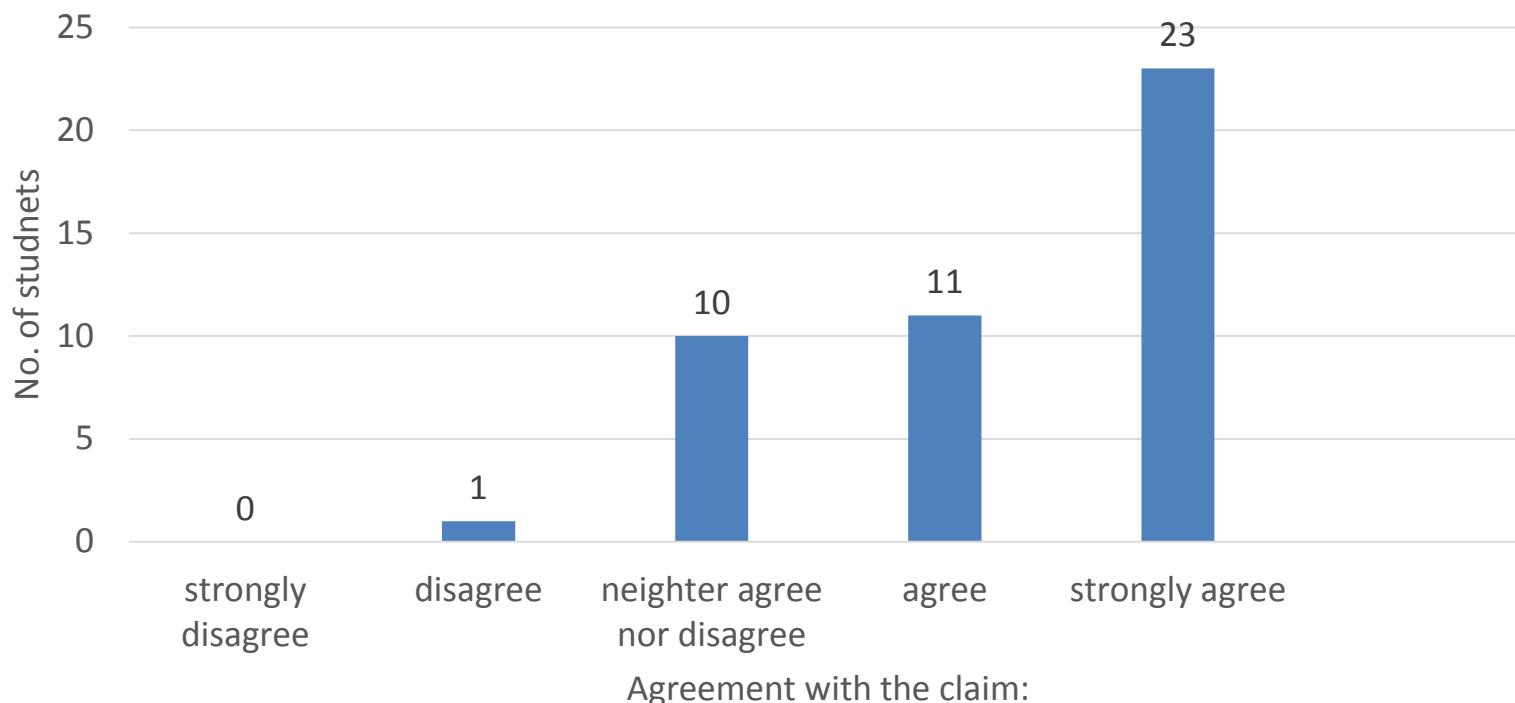
11

85%

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# Peer assessment – student perspective



**Peer assesment of essay and projects motivated me on new way of thinking and learning**

Source: anonymous questionnaire at the end of the course; total no of answers 45 - out 62 that attend the class



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[About TALOE Webtool](#) [Ask for Assessment Advice](#) [Writing Learning Outcomes](#) [Assessment Methods](#) [Case Studies](#) [Help](#)

## About TALOE Webtool

Welcome to the TALOE webtool that will help you decide which e-assessment strategies to use in your online courses. The tool can be used in two ways:

- Check if the existing assessment methods in existing course are in line with the stated learning outcomes
- Help you make decisions on the most appropriate assessment method for the new course or module

The webtool consists of the matrix that aligns the six categories of the cognitive process dimension and relative cognitive processes with the six categories of the general assessment (based on the ALOA model) each with subcategories.

### How to use the webtool

The TALOE webtool will guide you through two steps that will help you to better define your learning outcomes and to decide adequate assessment strategies for each learning outcome.

#### Step 1

During this stage you will be asked to describe the Learning Outcomes you want your students to achieve. Please keep in mind that the Learning Outcomes should be described in a clear way and kept simple. If you have difficulties with this stage, or you wish to learn more about how you can better write learning outcomes please go to the section [Writing Learning Outcomes](#).

#### Step 2

After defining your learning outcome you will be asked to choose the verb/verbs that best describe it.

**Go through the process and receive the assessment advice for your course!**

LLP international project

## The specific goals of TALOE:

- Research and select innovative e-assessment practices that take advantage of the use of technology;
- Develop a web-based tool that is easy to use by the stakeholders;
- To test the implementation of the tool with real case studies;
- To distribute and disseminate the TALOE tool among the communities of stakeholders.

**Project Coordinator**  
Universidade do Porto

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- Research questions – case study:
  - RQ 1:** Peer assessment to be **reliable** and **valid** and at the same time enhance mutual learning?
    - Validity – constructive alignment; student’s self-evaluation; career tracking
    - Reliability – LA checks; metrics to measure reliability
  - RQ2:** **Student perception** about peer assessment, assessment standards and criteria and mutual learning activity?
    - Peer assessment + peer learning enhance opens new learning paths
  - RQ3:** Encouraging **deeper learning** by peer assessment?
    - Students describe deeper learning activities
- Further research
  - Peer assessment of complex non-structured tasks
    - Project, problem-solving
  - Development of metrics for reliability



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# Thank you

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