PEER ASSESSMENT IN ARCHITECTURE EDUCATION

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OBJECTIVES

Make 2\textsuperscript{nd} year architecture students develop a critical thinking process about Architecture Projects.

Improve quality of their work by providing more and varied feedback.

Evaluate the applicability of peer assessment in the classroom.

Evaluate the students critical thinking as part of their cognitive skills.
CONTEXT
“Peer assessment develops skills for lifelong learning.”

in Changing Architectural Education
PEER ASSESSMENT

https://etoilepm.cs-dc.org/

Hypernetwork-based Peer Marking for Scalable Certificated Mass Education

Jeff Johnson, Cristian Jimenez-Romero, David Rodrigues, Jane Bromley and Alistair Willis
The Open University, Milton Keynes, MK7 6AA, UK

In the context of the need for massive free education for the Complex Systems Society and the UNESCO Complex Systems Digital Campus, scalable methods are essential for assessing tens of thousands of students’ work for certification. Automated marking is a partial solution but has many drawbacks. Peer marking, where students mark each others’ assignments, is a scalable solution since every extra student is an extra marker. However there are concerns about the quality of peer marking, since some students may not be competent to mark the work of others. Some students are better than others and often the best students are well qualified to assess the work of their peers. To make peer marking high quality we are using new hypernetwork-based methods to extend previous methods to discover which students are good markers and which students are less good as a course progresses.

Peer marking is becoming increasingly used in education. It has the obvious pedagogic advantage that marking other students’ assignments gives students insights into how well or otherwise the marker themself performed. This alone makes peer marking attractive. To allow for variable quality in marking it is important to find ways of assessing the quality of marking in a scalable way. Automated marking is partial solution but has many drawbacks, as discussed above. Peer marking, where students mark each others’ assignments, is a scalable solution since every extra student is an extra marker. However there are concerns about the quality of peer marking, since some students may not be competent to mark the work of others. Some students are better than others and often the best students are well qualified to assess the work of their peers. To make peer marking high quality we are using new hypernetwork-based methods to extend previous methods to discover which students are good markers and which students are less good as a course progresses.
IN STUDIO
TEACHING ARCHITECTURE IS A HANDS ON APPROACH

Pedro Geraldes sketches
TEACHING ARCHITECTURE IS A HANDS ON APPROACH

Carlos Cruz sketches
TEACHING ARCHITECTURE IS A HANDS ON APPROACH

João Tereso & Giuseppe Schillaci sketches
PEER ASSESSMENT
THE EXPERIMENT

Two Classes of the 2\textsuperscript{nd} year of Architecture of ISCTE-IUL corresponding to 45 students.

Two Peer Assessment Phases

1. Mid semester, after a few weeks into the semester
2. During the final Assessment when Work is presented to Jury

At each phase each student had to Assess the work of three randomly selected colleagues.
PEER ASSESSMENT
THE EXPERIMENT

Not anonymous and done in the classroom.

Students presented their models, plans, graphic diaries, etc…

Markers assessed the materials presented against the programme of the exercise and a prepared marking guide.

Students were instructed to assess what was presented and not to take into consideration the past in-class experience.

Students were instructed that their marking performance was going to be pondered in the course final mark.
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<th>Aspectos Positivos do Projecto:</th>
<th>Nota (0-100):</th>
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# ASSESSMENT SLIP

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Mark (0-100)
The Positives of the Architecture Project

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Things to improve in the current project
RESULTS
2 GROUPS MID SEMESTER ASSESSMENT
Some students engaged strongly with this process going beyond what was asked.

They adopted aspects of the architecture language learned from other students assessments of their work.

Students included in their own work suggestions from the peer assessment.
1 GROUP
FINAL ASSESSMENT
MARKS SPREAD
LESS THAN 20%
Final Mark is the simple average of all markers.

Students Marks are similar to that of Jury (2 professors + external jury).
GOOD STUDENTS, GOOD MARKERS?

Who are the good Markers?

Hypothesis Definition: Those who mark in agreement with the jury final mark.

in the étoile platform, we studied another hypothesis:

Two students are good markers if they mark consistently with each other over several iterations while when in the presence of inconsistent marking behaviour, one of will not be a good marker.
MARKER’S MARKS CORRELATE WITH FINAL MARK

correlation = 0.645
MARKER’S ERROR DOES NOT CORRELATE WITH MARKER’S FINAL MARK

Correlation: -0.063
CONCLUSIONS
BACK TO THE OBJECTIVES

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MAIN POINTS TO TAKE HOME

Peer Assessment is a good pedagogic tool to apply in architecture classrooms.

Peer assessment marks correlate highly with expert assessment.

Prospect of using Peer Assessment for scalability.
FUTURE

Machine Learning
for the textual analysis, summarization and marking
of the students critical thought
(Now professor reads all paper slips,
doesn’t scale for Massive free education)

Move acquisition to digital realm
étoile peer assessment platform is now ready but…
as seen in this case, a simple analogic works well
as students use the tools they are used to (drawing pads /
pens / etc…)

This is a problem for Human-Computer Interface to solve
in this particular contexts