Prevention of plagiarism in computer graphics projects

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Outline of our workshop

- Introduce of computer graphics teaching at Mendel University.

- Specifics of graphics courses in relation to plagiarism.

- Why do students of computer graphics cheat?

- How to avoid plagiarism in graphics courses?

- How to deal with suspicious cases?

- Sharing best practices

Computer graphics at Mendel University in Brno

- The course is taught annually for more than 100 students.

- They are students of informatics and economics.
  - Computer graphics is not their main discipline.

- The course provides theoretical knowledge and practical skills in computer graphics.
  - Vector graphics, raster graphics, 3D graphics, fractal geometry.

- Students submit projects from these specific parts.

- Projects' evaluation must be included in the overall evaluation.
  - Project points are included in the final grade.
  - They prove their theoretical knowledge in the form of a written test at the end of the semester.

Specifics of graphics courses in relation to plagiarism

- Students submit graphical data in projects instead of text data.
  - We cannot use common SWs for detection of plagiarism.

- The subject is taught for a large number of students.
  - We cannot afford a personal approach.

- There is a large number of publicly available databases for graphics products on the Internet.
  - Students can easily download a project from the Internet.

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- **Consequences: it is very hard to reveal cheating students.**

Why do students of computer graphics cheat?

- In the past, we had to deal with many cheating students.

- What were the most common reasons for cheating?
  - Teachers put high demands on students.
  - Students do not want to be ashamed of their work.
  - There are too many projects in one course.
  - They are not used to being creative.

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How did we solve the situation?

- Students create a pictogram instead of logo/logotype.
  - There is a quite simple technique for pictogram construction.
  - This procedure (method of circles) can be handled by everyone with good results (even without art talent or previous experience).

- We explained to students that we are not at art school and so we do not evaluate the aesthetic level of the project, but the mastering of the technique.

- We have reduced the number of projects.

- Most important: thematic interconnection of projects.
  - Students choose one topic at the beginning of the semester.
  - Topic stays the same for all three projects.

First project: Series of three vector pictograms

Second project: Digital collage of raster images

Author: Jakub Hemala

Third project: 3D model

How to deal with suspicious cases?

- In the case of a suspicion (e.g. when one project is much better than the others), student is invited to explain used techniques that led to the result.

- Good students mostly have qualitatively balanced projects.

- Which one is original work and which one was downloaded?

Best practices

- Students should know in advance that they will be able to create the project themselves.

- Students should know the evaluation methodology.
  - The originality of the work is more valuable than aesthetic perfection.

- There should not be too many projects.

- Topics should be close to students (and ideally chosen by them).
  - This significantly contributes to their greater engagement.

- Thematic interconnection of projects (if it's possible) reduces the possibilities for cheating.
  - Perhaps they manage to cheat in some parts but rarely in all three at once.

- Ask students about their level of graphic experience in advance.

Thank you for your attention.

Comments and suggestions welcome.