

# Detecting students' creativity from data streams derived from online exercises

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## Abstract

Creativity is becoming increasingly important for our society and economy; thus, education should nurture creative thinkers. However, many school activities are not offering creative tasks to students and partly due to these teachers can have difficulties detecting creative thinking of students. There are numerous studies attempting to detect and measure creativity, however, these are based on scales and various observations. Nevertheless, due to the opportunity that students work in online environments and their entire activity can be observed through streamed data we can develop new ways to identify creative thinking of students. In our project, we proposed online activities that, we believe, inspire some students to solve them in various ways. Then, we can continuously stream data from students' work and develop analytic tools that could identify creative thinking. We aim to develop this analytic tool to assist teachers to be able to help students as well as assist students to nurture their own creativity. In our talk, we will outline current definitions of creativity, methods of the project, and highlight some early results.

This research analyzes the ways literature content developers in Education Publisher organizations develop creative thinking. Our society needs creative people, so they can push the boundaries forward and improve their life by adjust to new situations. To do so, the creativity measurement needs to improve and support scale. To improve, it needs to be based on the students' action, student profile, content profile and social aspects. To support education systems around the world, it needs to be scale, so it based on big data and data analysis models to provide insight to the teachers and content developers. The creativity measured on student's answers in open questions at literature courses in Israel.

Today, the responsibility of encourage creative thinking is the teacher's responsibility. The role of the content developer is to provide content that open opportunities for discussion and methodologies that develop creativity. This situation is going to change because of two reasons. The first is the creation tools. All the content developers agreed that creativity is developing through discussion, share ideas and look at the problem from different aspects. So far, based on their experience, the books and the digital courses didn't provide the right tools for having meaningful interactions that improve creative thinking. The second reason is measurement tools. Today, there is no scale enough and reliable tool that can measure creativity correctly. The tools today are based on assessment and it asked the student to show his creativity in specific time, place and without a proper discussion with peers. Then, the teacher needs to evaluate the exams and this can scale to class. The review process is not trivial and time consuming. Because the measurement of creativity is tedious and not effective, students' creativity don't measured. When there is a challenge with measuring skill or knowledge, you can't defined the improvement of this skill as goal. This is the why no one can be responsible to develop the creativity of students, and even the efforts today maybe not relevant.

The goals of this research is to reveal the challenges literature content developers face when developing K12 creative thinking.