SPECIFIC MATHEMATICAL DIFFICULTIES – DIAGNOSIS AND PEDAGOGICAL AND DIDACTIC ACTIONS

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AIM AND RESEARCH QUESTIONS

This is a presentation of an interdisciplinary project to investigate how diagnosis of specific mathematical difficulties and pedagogical and didactic actions for students who meet the diagnostic criteria for the diagnosis of dyscalculia (World Health Organization, 2022) can be developed and linked together to result in a more equal and health-promoting life situation for this group of students.

Dyscalculia is a diagnosis that refers to persistent difficulties in acquiring basic arithmetic and/or mathematical skills, such as number sense, memorization of number facts, accurate calculation, fluent calculation, and accurate mathematic reasoning. The difficulties should result in significant impairment in the individual's academic or occupational functioning (World Health Organization, 2022).

The aim with this upcoming project is to work with the diagnosis procedure regarding specific mathematical difficulties and didactic and pedagogical actions simultaneously on a national, regional, and municipal level for equal healthcare and education in Sweden.

This is investigated by two research questions:

1) How can an interdisciplinary collaboration between, on the one hand, institutions with expertise in the investigation of specific mathematical difficulties, and on the other hand institutions that design pedagogical and didactic actions be developed at a municipal, regional, and national level?

2) In what ways can pedagogical and didactic adaptations regarding specific mathematical difficulties be designed so that investigation and the designed adaptations can be linked together on both an individual, group and organizational level to favor fruitful participation in mathematics teaching for students in specific mathematical difficulties?

DATA AND METHOD

The project uses a mixed-method approach with a focus on design-based research (Bell, 2004) and single-case studies (Kazdin, 2011) and will collect data via interviews and interventions. The design-based method will be used to create a more thorough understanding of the development of a national system for diagnosis and pedagogical and didactical actions, whereas the single-subject design will be used to evaluate the effectiveness of different targeted interventions.

One important mission of the project is to chart the situation within the Nordic countries with regards to how specific mathematical difficulties are discovered, diagnosed and treated in the societal system of each country, which might entail further collaboration within the NORSMA Network.

RELEVANCE

From an equity and health-promoting perspective, the project aims to develop interdisciplinary knowledge and competence regarding students in specific mathematical difficulties and their well-being, quality of life and educational opportunities and, by extension, also link this to their professional life and community participation. Hence, the project has a health-promoting potential that can make a big difference for many students studying mathematics within both today and tomorrow's school.

REFERENCES

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