

Strategies when solving school-tasks

How task design limits ASD students to express their content knowledge



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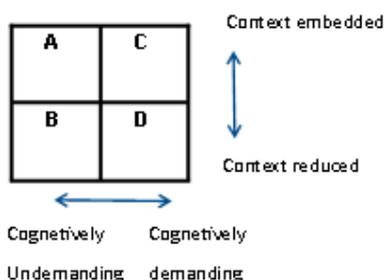
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Background

Central coherence is the ability to gather information from the environment to shape a coherent meaningful whole. Having a weak central coherence, like individuals with ASD usually have, means they tend to divide the whole in parts, while individuals without ASD rather try to shape a whole gestalt of the parts. How school-tasks are designed is of importance for all students, and McMaster, van den Broek, Espin, Pinto, Janda, Lam, Hsu, Jung, Leinen and van Boekel (2015) have studied how task design to establish coherence have to make the students identify how different events or facts lead to or depend on each other can be developed. However, if the students do have impairments in central coherence this issue becomes even more important.

Aim

The aim of this study is to describe in what way four common task-designs limit the possibility for students with ASD to express their knowledge in written form. Four different types of tasks have been tested, based on Cummins (1983) categorization. Two different groups of students' were participating; controls (neurotypical) and students' with ASD (IQ>70) in grades 7 to 9. The figure below show the categorization of task difficulties based on Cummins (1983).



Method

The use of test questions of four different types, based on Cummins' quadrat with four different categories;

- The answer is to be found in the text; context embedded and cognitively undemanding.
- The answer is one of four alternatives in the text, decontextualized and based on the student's own knowledge/opinion; context reduced and cognitively undemanding.
- The answer is to be found in the text and related to the students' context, but consists of several parts; context embedded but cognitively undemanding.
- The answer is to be found in the text, but consists of several different parts and placed in a context the students are unfamiliar with; decontextualized and cognitively demanding.

The participating 16 adolescents from grades 7 to 9 (5 female and 11 male) aged 13-16 years ($M=15, 18$ years, $IQ > 70$) met DSM-IV criteria for HFA/AS and were in a special class included in a regular secondary school. Two control groups ($n=23$ grade 9 and 27 grade 9) with students of the same ages answered the same test.

Result

The qualitative analysis of the written questionnaires showed:

- task solving based on reasoning without finding 'the right answer' impaired (ASD)
- unifying the parts of a more complex content argumentation difficult (ASD)
- the question with several different correct answers depending of circumstances was mainly explained by one single argument (ASD)
- taken for granted assumptions negatively influence task solving for controls but nor for ASD students

Conclusions

•The results point out how neurotypical students tend to answer the question based not only on information given in the task, but also by contextualizing information or beliefs they have. This kind of tasks is easier for ASD students to solve correct if all needed fact is presented in the task.

•Students from the ASD group on the other hand, seem to have difficulties in unifying several different kinds of information in the argumentation or see relationships between several aspects of one phenomenon.

•The ASD students' ability to answer the complex tasks, no matter which answering style is used, is decreased. They tend to answer the task by only one argument even though it ought to be a chain of arguments or different parts building up a more complex argument.

The common used design of questions in school tests limit ASD students' possibilities to express their content knowledge compared to neurotypical students



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