

## TOP 15

### THE ORGANIZATION OF LEARNING IN MIDDLE SCHOOLS

A meeting with principals and teachers to discuss how middle schools cope with heterogeneity and promote excellence in mathematics and the sciences

*NOVEMBER 13, 2018, 10:45-11:45, DJANOGLY HALL, MISHKENOT SHA'ANANIM*

In high school, the mathematics matriculation exams are given according to level, and in science, only to those who majored in it. In middle school this is not the case, as the curriculum and external tests are the same for all. The immediate implication is that middle schools need to find their own ways to address the diversity between their students. In practice, most schools use a combination of ability groupings and differential instruction methodologies, which take student differences into account.

Many schools recognize that gaps in the levels of knowledge and understanding among students are too wide to accommodate in a single classroom. Therefore, they create ability groupings and special study tracks, the admission to which depends on the students' academic achievements and motivation. A limited menu of such tracks exists today and a relatively small number of students participate in them. Parents who are not satisfied with these options transfer their children to separate schools that offer specializations.

Promoting excellence represents a particular challenge in middle school. How can a school build a curriculum that provides an opportunity to each and every student? How can we connect with elementary and high schools in order to build a relationship that would lead to students development of a personalized learning plan for each and every student? How can students be encouraged to join excellence tracks and generate upward momentum for everyone? And above all, what must be done in order to expand the opportunities for excellence in mathematics and science which currently are reserved for the few, so that they reach many more?

#### QUESTIONS FOR DISCUSSION

1. As a measure of success, we put forward a scenario in which at least 40% of ninth grade middle school graduates will have successfully completed their studies in the highest ability grouping in mathematics, and as a total package, in one of the excellence tracks in the sciences, as well. Is this desirable and achievable? What are the opportunities and limitations?
2. Under current conditions, the mainstream route in middle schools is for all students to study the different areas of science (biology, chemistry, physics and technology) together, while in the special excellence track students study them separately with an emphasis on physics and computers. In mathematics, learning takes place in ability groupings. Our working assumption is that the proposed strategy could succeed even without changing this reality. Is this assumption valid?
3. Do schools annually analyze their level of heterogeneity and, do they organize so as to accommodate it? Does such a process of analysis indeed exist and how is it carried out? Which organizational and pedagogical tools are utilized for this purpose and which are needed? And, to what degree do schools organize in a relatively automatic and habitual manner confined to the resources available to them?

As **background** to the discussion, we recommend reading the following:

- A. [Working paper for consultation with partners – Choosing Excellence in Middle School Mathematics and Science Studies – Philanthropic Roadmap 2019-2024](#) (with an emphasis on Program 3 – “Organizing for Excellence”, p. 10) ([B&W printable version](#))
- B. [How to Smooth the Transition from Middle School to High School in Mathematics and the Sciences](#) – Hadas Brody Schroeder
- C. [Excellence Tracks in Middle School Offered by the Ministry of Education](#)

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