

## Young children's early mathematical competencies: the role of spontaneous focusing tendencies

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In this plenary talk, which is co-authored with colleagues and coworkers from our research team at KU Leuven, we take a look at the role of young children's spontaneous focusing tendencies in their early mathematical development. Starting from a brief review of a very influential and successful line of (neuro)cognitive research on children's early numerical and mathematical abilities and their relation with later school mathematical performance, we focus on a complementary new line of research wherein the focus is on a more dispositional aspect of children's early mathematical competence, namely their spontaneous focusing tendencies on various mathematical elements in their environment, the development of these tendencies, their measurement, and their relation with later mathematical development in school.

So far, this latter line of research has largely focused on children's spontaneous focus on numerosity (SFON), but to a much lesser extent, similar efforts have been done for numerical symbols (SFONS), quantitative relations (SFOR) and mathematical patterns and structures (SFOPS). We emphasize that these SFON, SFONS, SFOR or SFOPS tendencies are not about what children think and do *when they are instructed or guided* to the mathematical elements, relations or patterns in the situation, but *what they spontaneously and preferentially focus on* without any instruction or guidance.

We start our overview of the available research on these spontaneous focusing tendencies with the research on SFON. Afterwards, research on SFONS, SFOR and SFOPS are reviewed. In these overviews we will try to give a broad picture of the theoretical insights, diagnostic tools, and educational recommendations the international research scene has produced, but pay special attention to the past and ongoing work within our own research team at KU Leuven.

### References

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