

MATHEMATICS AS AN AESTHETIC EXPERIENCE

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We explore aesthetic aspects of mathematical attention and insight in the context of “big” mathematical ideas. We draw on relevant data from two studies on elementary teacher thinking about mathematics in which teachers reflected on (1) the processes they used to solve computation problems mentally and (2) interviews with mathematicians who talked about the beauty of mathematics. We suggest that the aesthetic in mathematics is encountered when engaging with “big” mathematical ideas, which draw our attention and offer the pleasure of mathematical insight.

Big mathematical ideas draw attention to mathematical relationships. Ginsburg (2002, 13) suggests that we should aim to develop a curriculum for children in which they are challenged to understand big mathematical ideas and have opportunities to “achieve the fulfilment and enjoyment of their intellectual interest” (p.7).

It may seem rather obvious to people who love mathematics that mathematics is (or can be) an aesthetic experience – that big mathematical ideas draw our attention and offer opportunities for gaining mathematical insight, and that this feels good. Yet, “mathematics as an aesthetic experience” remains elusive in most mathematics classrooms. The mathematics experiences “authored” for students typically rely on shortcuts to mathematical insight, with a rush to conclusions and rules. Students miss the pleasure of the process, of the journey (Gadanidis & Hoogland 2003).

The desire “to be part of a child’s discovery” was expressed by several pre-service teachers in one of our studies. However, pre-service teachers also expressed doubts that they can do better than the teachers who taught them mathematics.

I don't know about the rest of you, but I grow increasingly fearful that I'll mutate into my bad math teachers who cannot teach a child how to think mathematically and only teach the rules of adding/subtracting/multiplying/dividing. Oh-oh!

Mathematics teachers need to (re)discover the aesthetic nature of mathematics. To this end, they – like their students – need personal aesthetic experiences with mathematics, where their attention on big mathematical ideas results in the pleasure of insight.

References

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