

Mathematics without useless words

Interview with Krzysztof Cywiński of Zabrze, author of a mathematics book "for hopeless cases", by Katarzyna Piotrowiak

A former teacher wrote a mathematics book for humanists, the dyslexic and other hopeless cases. The topic got popular?

The whole thing has gone beyond my highest expectations. Every other day I get phone calls from the publisher who bombs me with information about parents, students, grandparents and teachers from all of Poland being interested. The response is a result of a great need, especially that what I've prepared is no material to be compared to what the Ministry of Education offers. It is more of a gap-filling process between the rather archaic method of teaching mathematics in school books and the possibility of perception of a student.

The school books approved by the Ministry of Educations are, in your view, composed inaccurately?

Most of them are written in an uncommunicative way. For example students do not realise the difference between a definition and a thesis. That's why I've carried out research, a poll among students to see what problems they actually have. It appears that 99% of them didn't know what prime numbers were, or what the difference between a circle and ambit is. Whereas during converting formulas, when asked why they did it such and such, they usually answered: because that's how it's done. Students often cannot understand their mathematics classes. You cannot expect a student to do a back flip, if they cannot do a forward roll. Knowledge is hierarchical. First, one must master the basic skills to comprehend the other thesis, and the acquired knowledge is to be used while doing physics tasks, for example.

What can a student learn from your book?

The book is aimed at students from fifth graders (approx. 11 years of age) and up even to first-year university students. It shows how to convert formulas and solve reading tasks. The content of this book is minimal, because that is what it is all about. The purpose of writing it was nothing but aiding students, who usually have problems with mathematics, and they also convert formulas in physics class. The given information show that only 5% of students handle it on their own, and the rest have a big problem with it. I believe that such a book should have been published a long time ago.

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How long did it take you to work on it?

Eleven years. I began working on it just as I started giving tutorial studies. I could not let any student not understand something. And so I have begun to think why it was so. I decided to follow one simple rule, that is explain every phase with one easy sentence. I corrected everything until students stopped asking questions, which was meant to show that the book is easy and comprehensive.

And the students knew everything at once?

The book had over two hundred versions before the students began working out the tasks themselves. Questions stopped being asked two years ago.

In your opinion, learning mathematics is about an adequate choice of words?

Yes. My reviewer told me to write more and more, while one of students told me that in a high-school student's point of view, there's a little too much explanation. So I took a teenager's opinion into account, because the book is aimed at them.

From what you are saying, the book was created with students' help. According to the former vice minister of education, Irena Dzierzowska, school books are old. Do you agree with that statement?

They are old, but just in the case of the strategy which one would like to achieve in teaching. School books are actually collections of tasks, which can only be handled by exceptional students. The rest of them, without proper support from their parents, have a really big problem with that. The way I see it, the aim of a school book is to help with working out tasks. Every student that is not at school, because of an illness for example, should be able to learn from it and get a B grade. Anyway, that's why the parent spends 300 PLN for school equipment. If a school book doesn't meet the requirements, then you can only decide that it is but a book on a certain topic.

Teachers only have school books approved by the Ministry of Education. They cannot pick them independently.

But there are both good and bad ones among them. If a student shows me what they use to learn at school, they usually hear me say: "Your teacher doesn't like students, because you can't learn math with this."

You are really self-confident. Are you not afraid the book will be taken under a microscope?

I am not afraid of criticism. Also, I do not think that what I've written is perfect and cannot be improved. That is why just as the book goes to teachers, I will be collecting opinions about it. However, I do not expect criticism from someone who teaches in school, and the criticism of professors, who do not really know what problems teachers encounter, will not matter.

Do you expect revolutionary changes?

I am not expecting miracles. I am aware that when one tries to handle such things, then the river flows just a little more ahead. If a few percent of students make use of this method, it will already be a lot. That is why I have decided to create a website, so as to let everyone share their views.

While speaking about your work, you always keep using the word "manual". Whereas a manual is only book approved by the Ministry of Education...

I believe that this book can be called a manual to learn mathematics.

Are you excited about your role as an author?

I am actually a little worried that it has already gone to be published. If it had not been for the publisher, I would still be working on it. Well, but there was no other way, it had to be ready.

Krzysztof Cywiński is a tutor from Zabrze, he worked in school for only about a year, he has three children. For information concerning the book "Mathematics for humanists, the dyslexic and... other hopeless cases" can also be found on www.cywinski.org