Simplification Task

In a Year 10 middle attaining class you have invited the students to solve the following problem:

"When $p = 2.8$ and $c = 1.2$, calculate the expression: $3c^2+5p-3c(c-2)-4p$."

After working on the problem for some time you invite the students to share their solution with the class. The dialogue below follows:

YOU: Ok, let's see what we can do with this question. Who wants to share their answer with me?

Student A and Student B raise their hands at the same time.

YOU: Student A?

STUDENT A: I found 10.

YOU: How did you find 10?

STUDENT A: I substituted the values 2.8 and 1.2 in the expression. It took me ages.

YOU: Thank you Student A! [To the class] Does everyone agree?

STUDENT B: I have the same answer but I did it so much quicker.

YOU: Go on…

STUDENT B: I worked out the expression before substituting the numbers and I ended up with a much simpler expression: $p+6c$. Then I substituted the values 2.8 and 1.2 and I found 10, easy!

STUDENT A: I like the way I did it; I don't like simplifying.

STUDENT B: My solution is brilliant, yours takes ages. You cannot work with letters because you are thick [Some students are giggling] … what can I expect from you anyway? [Some students are laughing].

You heard what Student B said …

Questions:

a. How are you going to respond to Student A, to Student B and to the whole class?

b. What do you think are the issues in this situation?

c. How are you going to deal with these issues in the future?

Publications with reference to the *Simplification Task*

Biza, I., Joel, G., & Nardi, E. (2015). Transforming trainees' aspirational thinking into solid practice. *Mathematics Teaching*, 246, 36-40.

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Biza, I., Nardi, E., & Joel, G. (2014). Mathematics versus mischief in the secondary classroom: A study of teachers' priorities. In Liljedahl, P., Nicol, C., Oesterle, S., & Allan, D. (Eds.). *Proceedings of the 38th Conference of the International Group for the Psychology of*

Mathematics Education (PME) and the 36th Conference of the North American Chapter of the Psychology of Mathematics Education (PME-NA) (Vol. 6 pp. 18). Vancouver, Canada: PME.

Biza, I., Nardi, E., & Joel, G. (2014). What are prospective teachers' considerations regarding their intended practice when management interferes with mathematical learning? *In Proceedings of the British Society for Research into Learning Mathematics 34*(2), 13-18.

Acknowledgements

We thank UEA-EDU *Pump Priming Research Fund* for financial support towards this phase of our study. We also thank the participating pre-service teachers for their commitment and the doctoral student Athina Thoma for her assistance with this study.

Let us know whether this task is useful at @mathtask or email Irene Biza at i.biza@uea.ac.uk. For more tasks, visit MathTASK.