Answers to Panel Brief Questions by Bill Barton

Panel 1. Mathematical Massively Open Online Course

1. Please explain to us the general aspects of the panel including its contents, main arguments, etc.

   BB: I think our approach should be something like: Our aim is to review the development of MOOCs in the context of mathematics education to understand the opportunities it provides, and the issues that need to be attended to when taking up these opportunities.

2. How does a MOOC operate?

   BB: MOOCs (or more generally, internet developments for mass education) are at a very early stage of likely development, and new ideas and approaches are trialled constantly. It is therefore too early to try to describe a universal MOOC method.

3. What types of technologies and efforts does it require to operate one MOOC?

   BB: As with most IT developments in their early stages, the answer to this question is "More than you expect, even when you take this answer into account".

4. What are the strong and weak points of MOOCs compared to traditional classroom courses?

   BB: It may be an error to think of MOOCs compared with classroom courses. They are fundamentally different modes of education—just as you would not compare Community College Adult classes with professional university engineering courses. They cater to different constituencies who have different needs.
   That said, the main strong point of a MOOC is its potential reach to a very wide audience; and the main weak point is the lack of a realistic funding mechanism.

5. What effects does MOOCs play in mathematics? What effects do you wish for MOOCs to bring in mathematics?

   BB: MOOCs are likely to be useful for some routinized learning in mathematics (things like learning and practicing particular skills) and for making accessible to a wide audience universal information in enhanced form (things like historical information, new developments, applications). I hope that these advantages can be mixed with more traditional education to a) reduce workload in these areas, b) bring higher quality, "horizon" material within reach of more students, c) show the interesting face of mathematics to a wider audience.

6. Could you explain about the lower completion rates of MOOCs compared to that of traditional courses?

   BB: To be expected when no investment has been made by the potential students.

7. What are the most effective assessments in MOOCs?

   BB: I do not think we are even close to an answer to this question.

8. What is a good business model for MOOCs related with higher education?

   BB: I do not think we are even close to an answer to this question.

9. How are students tested in a MOOC? What are the effective ways to carry out the exams, what are the difficulties, and what special attentions need to be paid considering the differences of MOOCs compared to traditional classroom courses?

BB: Again, we are probably not close to having effective answers to this question, but it is almost certain that many different effective ways to assess will be found. However, this makes the assumption that learning in MOOCs needs to be assessed, and I can visualize many situations (that will suit MOOC-type delivery well) where summative assessment is not required and formative assessment is easily undertaken. For example for those people who wish to learn a bit more about mathematics so that they can read a newspaper more effectively, understand financial situations, or make sensible probability decisions in their lives, then formal assessment is not necessary.