CAPTeAM: Preliminary results

During Phases 4 and 5, thematic analysis of the collected data aimed to characterise participants’ perspectives about teaching mathematics to people with different disabilities, and to explore if and how engaging with the task results in any resignification in relation to these perspectives. Analysis was carried out in accordance with these five dimensions:

1. **Value and Attuning**: to what extent the respondent attunes to and values the disabled learner’s contribution(s), and how, if at all, s/he attends to the learning needs in question;
2. **Classroom integration and Benefit**: how the respondent manages the classroom after the contribution has been made;
3. **Experience and Confidence**: how experienced and confident the respondent claims to be in teaching students with the special needs presented in the Tasks;
4. **Institutional Possibilities and Constraints**: what institutional possibilities and constraints the respondent identifies as crucial to the teaching of students presented in the Tasks;
5. **Resignification**: evidence of respondent’s reconsideration of their views and intended practices in the light of engaging with the Tasks.

Analyses of the data are ongoing and currently revolve around the following key findings (sampled here from the Type I Task data analysis).

**Value and Attuning**
In the first Type 1 task, participants were asked to evaluate the strategy of a blind student as he worked on identifying, describing and constructing a geometrical solid. The second Type 1 task presented the solution of a deaf student to an algebraic activity and in the third Type I task involved a student with Down syndrome working with number. Although there was some variation across tasks and across countries, when asked how they would react as teachers to the disabled students’ approaches, we noted a considerable and explicit valuing of the students’ contribution, but a limited attuning of the classroom action to this contribution. We observed two tendencies that crossed the task and country divide. The first related to respondents’ attempts to switch attention away from less conventional descriptions of mathematical objects and their properties towards familiar textbook definitions and descriptions highlighted in the mathematics curriculum of the respective countries. This was the case even when the unconventional approaches had mathematical validity. The second tendency was associated with a general devaluing of strategies which appeared to depend on the use of concrete materials. In some sense, it appears that, for many of the participants, the use of physical tools is judged as a sign of fragile grasp of mathematical knowledge – a view that at times may obscure innovative and valid strategies that involve the use by disabled students of materials used as substitutes to tools of the body. This tendency poses touching (or seeing with one’s hands) as a lower level strategy than seeing (with one’s eyes) and, in a similar way, treats written means of recording events to aid with memory as more sophisticated (and perhaps more mathematical) than physical tools.
Classroom integration and Benefit

Perhaps because the videos focussed mainly on individual students, the issue of classroom management received limited attention. However there was some indication that the participants were concerned that the disabled student would require more attention than “the rest of the class”. Implicit in this perspective is a view of the disabled as other, as deviating from some kind of homogenous norm to which all the other students belong. Such a view is perhaps further fuelled by the fact that most educational structures (physical structures, such as buildings, as well as curricular structures such as textbooks and materials, policies and assessment methods) are founded on the notion of “the normal student”, creating barriers that limit the independency and autonomy of those who do not correspond to the norm.

Experience and confidence

On this item there is absolutely no ambiguity in our results. The overwhelming majority of participants cite a lack of experience and confidence in supporting disabled students in their mathematics classrooms. Exceptions included those who had disabled family members or belonged to social groups which had brought them into contact with one or more disabled individual(s). Even these participants though tended to state low levels of confidence about including disabled learners in their mathematics classrooms, without more specific guidance than that received in pre- or in-service training. We also note that as the participants’ engagement with the tasks progressed, their expression of strong concern about lack of preparation and support for teaching disabled students increased.

Institutional possibilities and constraints

Some of the UK participants made reference to within-school support systems from which they might seek assistance. These were mainly references to Special Needs Coordinators (SENCOs) and Learning Support Assistants (LSAs), although explicit and elaborate examples of assistance from such external authorities were extremely rare. While some of the UK participants may have overestimated expectations about what authoritative sources (such as prior research) have to offer about teaching mathematics to disabled students, in Brazil very few of the pre-service teachers seemed to be aware of the existence (or not) of any such support systems. In the group discussions a frequently raised issue was that of assessment for disabled learners – even though we note that this is an issue not explicitly addressed in the Tasks we developed during this project.

Resignification

We see the very positive results on this item as crucial. Our results suggest that as the tasks progressed the participants started to rethink some of their initial views about working with disabled students in their mathematics classroom. Some began to reflect on how they might need to rethink some of the strategies they use. From the first Type I task, for example, one described how his tendency to use visual approaches would need to be adapted to include blind learners, and others who liked to include a lot of group discussion, talked of how this might need to be accompanied by additional visual material in the case of deaf learners. Notably after engaging with the Type II Task, where the participants were invited to work on a mathematical problem while temporarily deprived of one sensory or communication canal (seeing, hearing, speaking), an openness to facing the challenge of teaching mathematics to disabled students seemed to be emerging. Comments such as “after seeing the videos, I would like to have this experience” and “inclusion is difficult, but I don’t think it is impossible. I am ready to try” appear in the written protocols.