Clinical Features and Prognosis in Patients with Atrial Fibrillation and Prior Stroke

Comparing the Fushimi and Darlington AF Registries

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DIFFERENCE, INCLUSION AND MATHEMATICS EDUCATION: LAUNCHING A RESEARCH AGENDA[1]

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ABSTRACT

The round-table discussion on Difference, Inclusion and Mathematics Education was in included in the scientific programme of VI SIPEM in recognition and celebration of the emerging body of research into the challenges of building a culture of mathematics education which values and respects the diversity of learners in different educational contexts – in Brazil and beyond. This paper presents the contributions to the discussion, which focus on the problematisation of the term "inclusion", explorations of **how the practices of previously marginalized students can bring new resources to the teaching and learning of mathematics and reflections upon the potentially discriminatory nature of the structures which currently mould school mathematics. The paper aims to serve as material for the developing research agenda of the thirteenth working group of the Brazilian Society of Mathematics Education, which met for the first time during the event.**

Keywords: Mathematics Education, Difference, Inclusion, Special Education, Disabled learners, Contested concepts.

[1] This paper represents a collective version of the three individual contributions, Figueiras (2015), Healy (2015) and Skovsmose (2015) to the round table discussion. We have chosen to list the names of the authors in alphabetical order.

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The Sixth International Seminar of Research in Mathematics Education was the first in which thirteen national working groups of the Brazilian Society of Mathematics Education were represented. GT 13 - *Difference, Inclusion and Mathematics Education* **- was officially created on the 13th of October of 2013. During VI SIPEM, in which its first working sessions occurred, the round-table discussion which forms the focus of this paper, also offered the opportunity of reflecting on aspects central to its emerging research agenda. The round-table discussion was mediated by the first coordinator of the working group (Lulu Healy) and contributions were provided from two invited speakers (Ole Skovsmose and Lourdes Figueiras). The aim of this paper is to present these two contributions and follow them with some reflections about the messages they bring to the new national working group.**

OLE SKOVSMOSE'S CONTRIBUTION: INCLUSION A CONTESTED CONCEPT

A contested concept can be understood as a concept without any well-defined meaning. It can be given different interpretations and they can operate in very different discourses. Furthermore, a contested concept represents controversies that can be of profound political and cultural natures. This should not be taken to imply, however, that attempts should be made to prevent the use of contested concepts. It is precisely their contested nature that makes it possible to facilitate discussions, where agreements and disagreements move a dialogue forward. With reference to educational issues, one can argue (see Skovsmose and Penteado, 2016) that contested concepts provide a fertile soil for pedagogical imaginations.

So let us take a look at the notion of inclusion. Apparently, it is a praiseworthy thing to work for inclusion in an educational domain. There does not seem to be any need of justifying an inclusive education. It seems by itself an attractive thing to do. The question is just how to do it. The point to be stressed here, however, is that inclusion is also a contested concept.

My intention in this contribution is to (1) make some observations concerning the contested nature of inclusion; (2) take a closer look at some of the groups of people that might be addressed by inclusive actions and consider what empowerment could

mean for them; (3) address the notion of deficiencialism; and (4) relate the discussion of contested concepts to broader philosophic issues.

Inclusion into what?

Let me present an extreme case. Nazi Germany developed a most brutal example of social inclusion that at the same time was accompanied by the most inhuman form of exclusion. Schools were to assume a principal role in forming the mind of the future citizen. And not only schools but also institutions like sport clubs and scouts organisations should help to provide the proper outlook of the citizens of the new Reich. Education should provide the inclusion of children and young citizens into the Nazi order of things.

Certainly we do not think of this as an attractive example of inclusive education. Nevertheless, the example emphasises an important point: Inclusion means including somebody into something, and this something might be of the most dubious nature.

Inclusive education was also part of the educational programmes in Maoist China. This was certainly an education that aimed to form students in a particular way. This phenomenon is described by Jung Chang (1991) in *Wild Swans*. She tells how Mao was experienced by students as a legend, as a god, and as infallible. She tells about a complete submission to this general outlook. She tells how any deviant conceptions became impossible. This example also raises an important issue related to an inclusive education; inclusion into what?

Let me refer to a recent school reform taking place in Denmark, which concerns the broad inclusion of children into the “logic of schooling”. The reform included many different elements, and one concerns the length of the school day. This has been extended so that the children spend more time in school. The Danish newspaper *Politiken* (8 September 2015) provides a statistic which shows that Denmark is now registered as the country in Europe in which the children spend the longest time in school. As part of this school reform, however, it is emphasised that the time spent in school need not be composed only of lessons of the traditional format. Being in school could include many different activities. Nevertheless, the children will be integrated into

the “logic of schooling”, and one need to consider what this might mean. The logic of schooling can be related to the logic of the market. In order for both parents to be available at the labour market, the children should stay more time in school. We have to do this with an inclusive education: but we really have to consider what this inclusion might mean.

In the two books *The Wretched on the Earth* and *Black Skin, White Masks*, Franz Fanon (2004, 2008) addresses what inclusion could mean in the context of the colonial order of things. Fanon points out that social inclusion of the colonised is possible only if the colonised imitates the coloniser: the colonised need to give away their identity and establish themselves with white masks. With such a masquerade, inclusion is possible.

With these different references I want to emphasise that we cannot talk about inclusion as any simple and straightforward attractive educational phenomenon. Inclusion means inclusion of some groups into some order of things. This order might be attractive from some perspectives, but it might be highly questionable from other perspectives. Inclusion is a contested issue.

Inclusion as empowerment?

Michel Foucault (1994) has used *The Order of Things* as the title of one of his books. I like this notion, although I am using it in a less philosophical way than that meant by Foucault. Inclusion means inclusion of somebody into some order of things.

Inclusion could concern any group of people. It could be a whole population’s inclusion into a certain worldview. It could concern the inclusion of the colonised into the coloniser’s world. It could concern the accommodation of any “other”. It could concern the inclusion of the group of refugees that are now moving around in Europe. Inclusion could also concern all kinds of processes of schooling. It could refer to any groups of children.

One can address inclusion through the notion of empowerment. Thus inclusion of somebody into some order could be discussed in terms of the opportunities that might be obtained. Such opportunities could be seen as empowering. But the notion of empowerment is also contested.

Let us start with a view related to Paolo Freire's (1972) notion of literacy that can be interpreted in terms of "reading and writing the world". Here "reading" refers to a critical political interpretation of the world and "writing" to some kind of political engagement. Following this interpretation, an inclusive education enables students to read and write the world. Empowerment means preparing students to become critical citizens. According to this interpretation, an empowering mathematics education is, for instance, illustrated by the works of Eric Gutstein (2006). The idea is clearly pointed out by the title of his book *Reading and Writing the World with Mathematics: Toward a Pedagogy for Social Justice*.

However, one gets a rather different interpretation of empowerment, when one concentrates on the person's individual possibilities. In this case, one can think of an empowering education as one that, for instance, enables students to pursue further studies and career opportunities. According to this interpretation, an empowering mathematics education is found in the Algebra Project organised by Bob Moses and described by Moses and Cobb (2001). The aim of the project taking place in the USA was to improve the quality of mathematics education in poor communities and to provide better access to Further Education for black students. Moses wanted to ensure that black students were not obstructed in their career opportunities by low scores in mathematics. The main aim of the Algebra Project was to ensure black students' access to the established educational system. Thus the aim was not to construct a new curriculum, but rather to engage the students in the existing curriculum. The Algebra Project illustrates a form of inclusive education. It intends to empower students, but in this case the interpretation of empowerment is rather different from the interpretation illustrated by Eric Gutstein's approach.

Inclusive education not only concerns racial issues, it also concerns ability-groupings. Some have argued that students learn better if they learn together with students with similar abilities, which leads to the claim that a streaming of students provides more efficiency to the individual learning processes. This perspective includes a particular interpretation of empowerment, namely as referring to the individual capabilities. Contrasting with this perspective, others have argued that learning in mixed-ability groups provides richer opportunities for learning, as learning is related to

processes of negotiating, explaining, and noticing. Again, such a perspective brings forward a rather different conception of empowerment.

The school operates with different forms of groupings with age-grouping as a most common example. If we consider students with different forms of special needs, we find a variety of other forms of groupings. Let us consider blind students. Should they be educated in a particular setting? This could ensure that these students get teachers with a particular professionalism with respect to blindness. Or should one instead try to integrate blind students in the normal classroom, meaning that blind and non-blind students should be taught together?

Addressing such questions means that one needs to address the variety of interpretations of empowerment. One can again consider Freire's perspective and think of empowerment as a way of bringing blind students to read and write the world. And having mathematics in mind, the question becomes how blind students come to read and write the world with mathematics. One can also consider the very different interpretation of empowerment as illustrated by the Algebra Project. Thus one could discuss empowerment with particular reference to blind students' opportunities in life. Thus an empowering mathematics education might open new opportunities for the individual blind students.

There is no simple way of pointing out how an inclusive education might empower different groups of students. We cannot expect to identify any straightforward interpretation of empowerment. Empowerment through inclusive education is a highly contested phenomenon.

Meetings amongst differences

The contested nature of both empowerment and inclusive education can be further explored through the notion of deficiencialism. This notion was coined by Renato Marcone (2015) in his thesis *Deficiencialismo: A Invenção da Deficiência pela Normalidade*.

Marcone presents deficiencialism as the construction of deficiency by normality. The Portuguese word for disability is *deficiência*; it does not have all the same connotations as the English word *deficiency*. Thus *deficiência* is used in the official

language referring to people with disabilities. One could choose to translate *deficiencialismo* as disablism. Here, however, I chose to use the more direct translation *deficiencialism*, keeping in mind that the way Marcone characterises the notion might not be identical with the way disablism or ableism have been characterised in other contexts. Indeed, while disablism and ableism have been used synonymously by some, for others the terms render different understandings of the status of disability to the norm (see, for instance, Campbell, 2008, D'Souza, 2016).

One of Marcone's inspirations for formulating the notion of deficiencialism comes from orientalism, as elaborated by Edward Said (1979). By this notion, Said tried to capture how the East becomes conceptualised by the West. One can think of orientalism not only a notion but as a feature of an extensive discourse, which was formed during centuries. This discourse tends to position the brutal processes of colonisation as natural phenomena, and even as noble endeavours. Orientalism constitutes an integral part of the world views that accompanied the formation of the British Empire.

Orientalism proliferates the idea that people from the East are inferior compared to people from the West. While people from the West operate with a certain degree of rationality, people from the East too often demonstrate a childish behaviour. The missing rationality had many implications, one of which served as a nicely convenient justification for the process of colonisations: the people from the East do not have the capacity to govern themselves – let alone be able to organise an adequate social order. However, such order could be ensured by the English Empire. Thus, the whole outlook of orientalism leads directly to the conception of "the white man's' burden", as coined by Rudyard Kipling. It turned into an obligation for the West to take care of the East.

With this inspiration in mind, deficiencialism in general nominates some groups as suffering a deficiency. Furthermore, deficiencialism stipulates what this group is not able to do, just as orientalism specifies what people from the East are not able to do. Deficiencialism might be put in operation with respect to any group of people; such as the case of blind students, as being studied by Marcone.

In case of blindness, many things might seem obvious: a blind person cannot become a dentist, architect, or coming to master more advanced mathematics.

Apparently, in order to do mathematics one needs to use symbols and diagrams; and in formulating mathematical insight and in doing mathematics in general visualisation plays a crucial role. Yet, the implications of visual impairment are not well-defined, nor are they stable, not least due to technology. Acknowledging this, Ronald Vargas Brenes (2012) has talked about the social construction of blindness, highlighting that visual impairment is not any a simple biological fact, but a social construction that can be ever reconstructed. What blind people can do and not do is an open issue that cannot be captured by any deficiencialist discourse.

Challenging deficiencialism brings us to challenge the very notion of deficiency. Although deficiency might be used without assuming the full scope of deficiencialism, it is important to consider if the notion, anyway, could be substituted by the notion of difference. Thus differences make part of the universal human condition, and differences can be expected in all spheres of life. Thus Fanon's observations concern differences that in the colonial order became expressed in terms of inferiority and superiority.

Challenging deficiencialism brings about an important observation with respect to inclusive education: it has to do with addressing differences. It could be differences in terms of age or ability. One can think of any kind of differences, also with respect to vision. If we see differences as a general human condition, it becomes possible think of inclusion education in terms of meetings. Blind students' access to mathematics has to do with the construction of proper learning environments, and one feature of such an environment has to do with possibilities for interaction. Thus Lessandra Marcelly (2015) shows how it is possible to construct teaching-learning material that can be used by both blind and seeing students. In this way a mathematics education for blind students need not be an education for only blind students. It can instead be constructed as a feature of an inclusive education.

If we do not think in terms of "deficiencies" but in terms of "differences", nobody is going to be brought into "normality". Instead inclusive education comes to refer to new forms of providing meetings among differences.

Decomposing meta-narratives

Lyotard (1984, p. 18) emphasises that the “movement towards postmodernity is described as a transition in the attitude towards meta-narratives. In modernity meta-narratives were used to legitimise actions, whereas postmodernity is defined as a way of thinking where meta-narratives are rejected or ‘tranquilated’.” Thus, according to Lyotard, the postmodern condition is characterised by a “tranquilisation” or maybe rather a decomposition of the modern meta-narratives. One implication of this decomposition is that notions, like democracy and social justice for instance, cannot be assumed to maintain any well-defined meaning. Instead such notions come to operate as contested concepts.

Although, I do not follow all the ramifications of postmodernism dogmatism, I am interested in Lyotard’s use of Wittgenstein, in pointing out the plurality of possible perspectives and the difficulty in nominating one perspective as being the principle one. Lyotard’s formulations are deeply inspired by Wittgenstein’s notion of language games. Thus, as I suggested in Skovsmose (2016, p.2), “the decomposition of grand meta-narratives draws in Wittgenstein’s rejection of any unified conception of language and his recognition of a variety of language games.”

This decomposition also applies to the notions of inclusion and empowerment. We should not expect the existence of any well-defined meaning of such notions. They do not get any well-defined meaning by operating in some meta-narratives. Instead we should be ready to assume that such notions might be missing a solid kernel; that they can operate in different language games; and that they might comprise a variety of meanings. We should also be ready to consider possible decompositions of expressions like “reading and writing the world with mathematics”. When leaving the outlook of modernity, one might come to operate in an open landscape of contested concepts.

This means that when we discuss inclusive education and related issues, we have to acknowledge the contested nature of the principal notions we are applying. There is no solid conceptual platform upon which we can address inclusive education.

LOURDES FIGUEIRAS’ CONTRIBUTION: MATHEMATICS IN THE DARK:

In 1749 Diderot published his *"Letter on the blind for the use of those who see"* in which he discussed on some of the most interesting philosophical debates of the eighteenth century about the perceptual origin of abstract ideas (Diderot, 1749). Diderot had observed blind people, and deaf people, and people with speech impairments, to think about sensations.

I like to understand Diderot's letter to the blind as a tribute to human diversity, and as a beautiful historical source which demonstrates how our own knowledge is dependent on the experience of others who live and see things differently. This contribution is written with the aim of sharing some of the recent, unfinished research to which I have devoted the last years of my academic activity. It has to do with re-thinking our knowledge on mathematics teaching from the perspective of the learning abilities of those having difficulties, and among them blind students, who learn in the dark. From my experience with blind students and teachers, I have learnt how a deficit, in this case the absence of vision, emphasizes and informs other fundamental, general aspects of mathematics teaching. Therefore, my focus is neither on thinking how to teach mathematics to students with special needs, nor on finding ways to support them, but on how to use their way of learning to rethink some aspects, at least, of our knowledge on teaching.

First, I focus on some interactions which occurred in a mathematics classroom with a blind teacher and three students, two of whom are also totally blind. This teaching experience leads me to argue that learning difficulties or special needs afford rich opportunities for learning which are not always present elsewhere. The classroom episodes are analyzed in detail in Figueiras & Arcavi (2014, 2015). Here, I would like to stress the main conclusions arising from that analysis:

- Blind students develop specific strategies to connect global and local properties, as well as topological properties concerning the inside and outside of objects. Local properties are observed in the neighborhood of a point, and usually blind students explore them with the fingertips. Tactile exploration strategies and their role in reasoning and learning mathematics are seldom found in the mathematics education literature or in the design of mathematical activities for the classroom.

- Blind people face several difficulties in creating and following chains of symbolic developments, like solving an equation. Thus the blind student may tend to develop alternative ways to avoid these difficulties, which are afforded explicitly by the teacher. Students are guided to use logical reasoning that compels them to invoke images generated beforehand and connect concepts and definitions, instead of going right away to a symbolic calculation for that purpose.
- When observing blind teachers and students one may realize the central role that language and references to everyday objects and situations, even purely visual, play in doing mathematics. The combination of visual and non-visual metaphors, and of these again with haptic experiences, seems to act as an essential component in the representation of mathematical ideas.
- Contrasting how the blind teacher addresses the student with residual eyesight and the totally blind student, we realize that, in the presence of vision, it is assumed that the visual image speaks mathematically for itself. When talking to the partially sighted student, explanations are briefer, leaving some mathematical elements implicit. In contrast, when talking to the blind students, explanations include richer verbal descriptions and haptic experiences related to those elements. Moreover, explanations to the partially sighted student seem to be more impersonal and to have a poor argumentative structure, while, in the second case, a perlocutionary effect is clearly at play to convince and engage the listener in thinking and visualizing.
- Related to the last, the lack of vision seems to promote attentive listening as yet another resource for knowledge construction.

Summing up, knowledge construction and mathematical reasoning of blind people is supported by the combination of other resources, such as haptic perception, limited use of symbolic algebra, powerful verbal descriptions and attentive listening which could easily be incorporated as resources for general sighted settings.

I have used these examples to show that observing how visually impaired people deal with mathematical tasks is a fruitful source of insights on teaching and learning. This includes valuing the powerful interdependence of visual and haptic perception; knowing about the many possibilities that haptic experiences afford in

mathematics teaching, or offering a different perspective on the role of language and algebra in supporting mathematics learning.

However, if we accept the thesis that knowing about the experiences of those with special needs helps us to re-think and conceptualize some aspects of teaching differently, special education and diversity also impose constraints that do not make it always possible.

In the following, I will discuss this issue building up from other teaching experiences which contrast to the previous ones. We have taken from the class with the blind students positive resources to enlarge our knowledge on teaching-related issues, while in the example coming up next, positive resources coming from students' interactions are eclipsed. I will try to support the thesis that these resources are not visible probably because the class is planned as a class for students having learning difficulties, and learning difficulties are associated with low expectations of students' potential for achievement.

To illustrate this phenomenon, I will share moments from excerpts of a mathematics class which had been split into two groups, with the same teacher teaching each group. The decision to split the group was a school decision and the division had been made at the beginning of the year, separating from the whole class a small group of students identified as having difficulties, on the basis of previous-year reports of the students' achievement.

The classes took place on consecutive days. The topic that was being studied is proportionality, and both classes start by analyzing a problem in the same context, a Formula 1 race in which the drivers Hamilton and Alonso were both participating. The problem aimed to involve the students in finding a relationship between the number of laps of a F1 circuit and the amount of fuel used. The planning of the session, the initial description of the content, and the statement of the problem to be solved were the same for both groups, as the teacher expressed a strong commitment to teaching both groups the same content. However, we are surprised by a very different qualitative unfolding of the two classes:

- Norms were different: in one of the classes, the students were allowed to interrupt freely to ask questions anytime, while in the other class they could ask only at specific moments after listening to the teacher's explanations.
- Opportunities for collaborative work were different: in one of the classes the teacher affords opportunities to discuss and work in groups, while there is no evidence of this offer in the other class.
- The expression of value given to student ideas was different: When responding to the same kind of student contribution, the teacher valued it as "fantastic" or "extraordinary" in one class, while it was valued as "good" or "correct" in the other one.
- The public or private management of the same kind of student contribution was different: In one class, students' observations were considered interesting and openly discussed as a learning opportunity for the whole class, while in the other class they were addressed only in private conversation with the student who asked.
- Connections among mathematical concepts were different: In one class, the objective is to use ratio for describing linear change, while in the other, the aim is to find the particular ratio for solving the particular problem.

One plausible interpretation that makes sense to me from the perspective of other cases analyzed by other researchers with whom I have collaborated has to do with teachers' expectations of students' skills (Straehler, Pohl, Fernández, Gellert & Figueiras, 2013). Expectations operate implicitly and result in different conditions and learning opportunities, particularly with a different image of mathematics, for instance, through the creative and more powerful use of a general linear modeling in the first class, or as a static, instrumental view of it and a set of techniques to be applied in the second class – the class in which those students identified as having difficulties participated.

Many times these expectations are self-fulfilling, in the sense that they can be defined as an anticipation of how a situation will develop, which then prompts those who are involved to behave so that these expectations occur (Merton, 1948). They take place in a very implicit, deep way, and build a strong obstacle for attention and

inclusion of students with special needs because they trigger a high qualitative difference among mathematical practices. Having low expectations of students' achievement leads in general to offering limited opportunities to engage in mathematical practices even when this is consciously not the intention. One of the best ways to improve our teaching is taking those expectations seriously, devoting time to reflect on their origin, how they implicitly grow, and how they affect our practices. Low expectations prevent us from actively considering the many times distinctive potential resources that students with difficulties might bring. Reflecting on these expectations from the point of view of the learning opportunities that special needs offer is in my view a good exercise for mathematics teachers to improve their own professional knowledge. An improvement in the quality of the mathematics education of students with special needs as a consequence of such reflection is, at least, plausible.

LULU HEALY´S REFLECTIONS ON THE CONTRIBUTIONS

Both contributions offer much food for thought to researchers interested in the issues that form of the focus of working group GT 13, which has as its main aim developing Mathematics Education in ways which value, respect and understand the particularities associated with the mathematical practices of all learners. The proposal for this thirteenth working group of the Brazilian Society of Mathematics Education emerged alongside debates concerning the structuring of an inclusive education system and the Brazilian educational policies which, like those of other countries who have signed the United Nations Convention on the Rights of People with Disabilities (2006), privilege mainstream schools as the preferred institutions for including all students, the disabled and the non-disabled. As Skovsmose's contribution stresses, inclusion is posited here unproblematically as a desirable scheme of affairs, something to be aimed for, something that will contribute to guaranteeing a quality education for all.

Certainly, current educational policies in Brazil related to inclusion have had an impact: the number of disabled students present in the classes of mainstream schools has grown considerably this century, bringing new challenges to school communities

and consequently to research in education in general. As these challenges have begun to be addressed in different ways by researchers within the Brazilian mathematics education community across the country, a new axis of research has been formed. In this sense, the public policies were an important factor in motivating the proposal for the creation of a new national working group and it is no coincidence that this proposal was developed in the first instance by its twenty-three signatories, all of whom were working with questions associated with the mathematics learning processes of students who would considered as the target population of special education within an inclusive perspective (defined in current government policies as composed of students from three groups: students with disabilities, students with pervasive development disorders and gifted students). Yet, as a group we chose a name that goes beyond attending to shifting definitions of what (or who) constitutes the target population of Special Education.

Perhaps, to borrow a term from Skovsmose's contribution to this round-table debate, this choice reflects how Special Education too is a contested concept. The labelling of students as members of target groups of special education has a controversial and unstable history, both nationally and internationally.

Reflecting on Special Education and the teaching of mathematics in the US, for example, Borgioli (2008) has argued that labelling a learner as in need of special (mathematics) education has tended to involve determining "normal" or "ideal" achievement, and positioning those who deviate from this norm as problematic and in need of remediation. She cautions against viewing learners' relationships with mathematics as defined by "their internal *dis*ability rather than to factors related to the learning context and environment, such as a mismatch between the learner and the task, conceptually fragile curriculum and/or instruction, inadequate social and emotional support structures, etc." (p.139). Gervasoni and Lindenskov (2011) also indicate how discourses about disabled mathematics learners in the research literature as a whole have been infused with narratives underestimating their mathematics learning potential. This point was bought to life in the Figueiras' description of how almost all aspects of teacher-mediated activity around an identical mathematics problem were unconsciously changed, in radical ways, according to the expectations of the students' potential for mathematics learning. This story also servers to highlight

that, as Broderick *et al*. (2012, p. 1) have put it “the constructs of both ability and disability are socially, culturally and politically constructed facets of identity and experience”

Skovsmose drew our attention to meta-narratives. The dominate meta-narratives about members of target groups of special education then, both historically and currently, tend to position them as lacking – but narratives of deficiencies are by no means restricted to members of this group. Berry *et al*. (2011, p.11) have described, for example, how “constant depictions of African Americans as deficient mathematics learners has crafted images that failure is normative with respect to African American mathematics learners”. In general, success in school mathematics amongst students from marginalized groups tends to receive rather less attention in the research literature, when compared to the vast amount of literature that depicts their academic achievement in terms of failure (Thompson & Lewis, 2005, Stanley, 2007, Mendes, 2016). To challenge views which associate deviation from the mainstream with failure and deficiency, there is a need for more research bringing what Stanley (2007) terms counter narratives that serve as alternatives to the dominant discourses, and to document stories of struggle, resistance, achievement and of success (such as those presented in the research of Berry, 2008, Berry *et al*., 2011, Broderick et al. 2012, Mendes, 2016, Stinson, 2006).

Such narratives might contribute to avoiding the phenomenon that concerns Figueiras – the ways that the positive resources coming from different students’ interactions can easily become eclipsed or made invisible. Indeed, in presenting her observations of how visually impaired people deal with mathematical tasks, she offers the compelling alternative of incorporating the combination of resources used by disabled learners as they act and reason mathematically into mainstream settings. The approach she proposes resonates with the view that Skovsmose offers of inclusive education coming to refer to new forms of providing meetings among differences.

Both Skovsmose and Lourdes, in different ways, highlight how difference should not be equated with deficiency. Perhaps this was one of the most central messages of the round-table contributions and the discussions during the GT13 working group sessions throughout VI SIPEM. But dismantling this equation is by no means trivial. It involves deconstructing, or decomposing, the very notion of normality.

Historically, the separation of certain groups into specialised schools explicitly underlined their distance from what was deemed normal and the movement to include all students in the same educational institutions might be seen as a move to create a new normality. But normality is another contested concept. Healy and Powell (2013) stress how the very framing of "students who differ from the socially and politically defined norms as outsiders" perpetuates inequitable practices and legitimizes exclusion. They go on to point to how, in many countries, including Brazil, concerns have between raised about the disproportionate representation of ethnic minority students, indigenous students' groups and those living in poverty in Special Education programs (Artiles, Klingner & Tate, 2006; Dyson & Gallannaugh, 2008; Mantoan, 2009; McDermott, 1993).

It was factors such as these that contributed to our choice of the name of our working group – *Difference, Inclusion and Mathematics Education*. We wanted a name which reflects how inclusive education should not be associated only with the area of Special Education, but with the process of destabilising discriminatory visions of students' potential for mathematics learning in general. This implies a rethinking of the very aims of schooling and the creation of mechanisms which enable the modification of existing school structures and environments, since they are currently based on classification, segregation and exclusion. The contributions to this round-table discussion bring evidence of how the biggest obstacles to the creation of equitable schools have little to do with the students themselves. The obstacles that are most difficult to surpass are of an institutional, not individual, nature. As Fernandes and Healy (2016; p.2) have argued, our schools and our universities "disable students and they disable certain groups to a much greater degree than others".

In addition to documenting the mathematical experiences of those whose mathematical practices have been invisible or ignored, so that we might order to reconceptualise aspects of our teaching practices as Figueiras describes, the research agenda of GT 13 will also need to focus on the institutional constraints imposed by an educational system that continues to be selective and profoundly structured around the construct of the "normal student", instead of around the living, flesh and blood people who are actually subject to it. Examining the ways in which the curriculum and assessment structures, as well as the culture and organization of schools constrain the

achievement of particular groups of students, at times even pathologizing their bodies and behaviours, need to be further studied, especially in relation to the labeling of underachievement (O'Connor & DeLuca Fernandez, 2006).

The VI SIPEM, and this round table debate, occurred whilst Brazil was discussing the adoption of a Common National Curriculum base (a still ongoing discussion), it therefore seems appropriate to end this paper reflecting briefly on the mathematics curriculum, a central structure around which mathematical activity in school is visioned, sanctioned and measured – and to bring the discussion back to Skovsmose's question: *Inclusion into what?* The following analogy in which the constructing of buildings is used as a metaphor for the constructing of curriculum documents is offered as a means of reflecting on this question.

> We might argue that in the past, buildings tended to be erected with the construct of an average person in mind. Average people do not exist, since an average is a mathematical construct whereas a person is not. Worse still, "average" perhaps easily becomes confounded with "ideal" as it finds its way into the construction of normality. It is only relatively recently that buildings are being constructed with the diversity of users in mind. It is only relatively recently that the bathrooms in airports, for example, include facilities for wheelchair users and for people of small stature. It is only relatively recently that tactile paving, ramps and lifts, door and corridor measures appropriate for the mobility-impaired are being included as essential elements in the construction of public amenities. But this *is* happening now. What is more, including these elements in the constructions of new buildings is more efficient and cheaper than adapting existing buildings to be more accessible.
>
> Can we learn from this as we discuss the construction of a new national curriculum, a new mathematics curriculum? Will we begin the process of designing the curriculum by considering all the learners whose performances will be assessed in relation to its demands? Will we stop thinking of an average student and start thinking of students who really exist? Will we accept that it might be more efficient, even

> more economical, to build an inclusive school mathematics, a school mathematics built from the premise that the way that we learn may vary according to our physical, social, linguistic and cultural experiences. Will we design a school mathematics that learners will choose to include themselves in?

I hope that this analogy will work in communicating my personal view of the focus of GT 13, and to stress how the considerations of the group, which began in the context of learners with disabilities, address issues that influence all learners, the non-disabled alongside the disabled.

Even more, we all hope that the work of GT 13 will help us to stop disabling so many mathematics learners.

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