IS THE *GOOD* A DESIRE OR AN OBLIGATION? THE POSSIBILITY OF ETHICS FOR MATHEMATICS EDUCATION

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Traditionally, academic writing commences by identifying the aims of the paper – i.e. an articulation of the message the author intends to communicate to the reader. That I will do shortly. However, writing this particular paper has led me to reflect on my intentions in writing in the first place and in presenting it at an international conference. On a few occasions in the past I was reminded of the significance in Foucault's (2000) admission that he writes in order to "change" himself. Following in his footsteps, firstly, my intention in this writing is to continue to develop my own understanding of the difficult (at least for me) question of the role of ethics in mathematics education. However, in making the paper public, I also intend to promote the consideration of this important discourse (at least for an increasing number of mathematics educators) to the practice of mathematics education.

Perhaps, all reflective practices – including philosophical thought, research and academic writing – share (at times implicitly) these two intentions; namely to understand and to improve a phenomenon. Here, I am using the construct *phenomenon* in its widest sense from a concrete action and practice, to contemplation of how society functions, and to the functioning of thinking itself to attach meanings. The first purpose of reflection might be to develop an understanding of *what is*. This, in turn, points to a desire (obligation?) for *knowledge*. However, reflection may also have a second (and more normative) intention; namely, to act on a phenomenon according to *what ought to* be. This intention points to a desire (obligation?) for the *good*. Perhaps, I need to hasten to add that this second desire is not a desire to know what is good (this remains a desire to know), but a desire for the *good* itself (that is a desire *to be/do* good).

In general, research and theory in mathematics education have not explicitly thematised the *good*. For sure, the literature in mathematics education uses constructs such as "good practice", "good achievement" and "good assessment". What is under consideration in this paper is the *good* behind the good – in other words, the ethical or moral *good*. This absence of the *good* from discourse in mathematics education does not mean that it is not relevant or important for the discipline. It does, however, mean that a between-the-lines reading of the literature is required to recognize its different understandings by different writers.

Returning to the aims of the paper, I identify two aims. The first aim is to consider two main challenges in Western thought that contributed to the exile of the discourse on ethics from the educational theory and research arising from what can be taken as two opposing sources, namely scientific rationality on one hand, and certain more recent poststructural discourses on the other. My second aim is to discuss an approach that might bring ethics into prominence in the field and at the same time avoid the noted challenges.

Perhaps a comment about the choice of the term "exile" is in order. The relationship between knowledge and ethics has an intricate history in Western philosophy. Socrates has established the primacy of the knowledge of the *good* over the knowledge of the *truth* – i.e.

the truth was placed at the service of the *good*. For Socrates, however, knowledge is still privileged as the ultimate function of philosophy is to "know of the *good"*. In the early development of European science, there was no separation between knowledge and morality as both were seen as part of God's plan. The authors of the Wikipedia article on Isaac Newton claim that he has written more on religion than the natural sciences. Arguably, in Western thought, the separation of moral religious considerations from science and knowledge developed relatively recently (Brooke, 1991). In contemporary thought, ethics is often associated with questions of morality, dogma, codes of behaviour, and legal imperatives and is often seen as belonging to the domain of metaphysics rather than philosophy proper. Cohen (2005) proposed that the avoidance of ethical discussion in philosophy was because of a fear of moralising, preaching, and that questions of values in philosophical discourses are mainly ontological rather than about meaning. Similarly, in Western thinking, there is a movement away from essentialist thinking represented in the universality of ethical principles (Christie, 2005) and their foundation on rationality as established by philosophers such as Kant. However, this separation is not completely unproblematic. Richard Cohen (2005) raises the question ''has the philosopher abdicated responsibilities'' (p. 39). Atweh and Brady (2009) argue that this avoidance of ethical discourse is slowly dissolving in the West. As Critchley (2002) indicates, it was only in the 1980s that the word ethics came back to intellectual discourse after the "antihumanism of the 1970s" (p. 2). Further, the post-ontological philosophical writings of Levinas (1969, 1997) have been influential in the re-introduction of ethics within philosophy by establishing ethics as the 'first philosophy'.

Exile of the Discourse of Ethics

The first challenge to the discourse of the *good* comes from the dominant traditional "scientific" rationalist paradigms of research and learning theories that contributed to the emergence of mathematics education (Kilpatrick, 1992). Much of the traditional research in mathematics education aimed at finding better ways to promote students' understanding of mathematical concepts, their abilities to perform mathematical processes efficiently and correctly, and, at times, their attitudes and beliefs. Such research was more often intended to understand the *what is* – e.g. which method was more effective in teaching fractions or what are students' attitudes towards an approach focused on problem solving. However, within this same tradition of research, every research project had to consider its implications to theory, practice and/or further research. These implications reflect a taken-for-granted acceptance of what is "good" – i.e. higher achievement, deeper knowledge and more positive attitudes. Arguably, behind these is the taken-for-granted moral *good* as a responsibility to teach mathematics in order to promote those "goods". Hence, the first challenge leading to the exclusion of the *good* and concentrating on the *knowledge* is the taken-for-grantedness of the former. Reinforcement for the taken-for-grantedness of the *good* is the emergence of a few of the structuralist theories (May, 1997) that informed much of the traditional research in mathematics education. Theories of cognitive development and theories of knowledge construction, at worst excluded ethical and moral discussion altogether or, at best, reduced moral discussion to the development of determined and measurable stages of sophistication and complexity.

This challenge leading to the exclusion of the discourse of the *good* from traditional mathematics education research is parallel to the development of the sciences and the demise of religion as means of knowing in Western societies. The rapid expansion of the natural sciences in the era we may call modernity has established itself as foundation of a methodology not to supplement other methodologies but rendered them as mere speculations.

Developed in the West, this scientific method has grown to provide a worldview based on objectivity and generalisation that permeated educational research around the world. The questions the sciences raised are questions about phenomena that can be perceived directly through the senses. Contemplations that relate to meaning, value and purposes were seen as meaningful only in terms of explaining the observed phenomena themselves. Science has developed into an all-encompassing, universal, inevitable and all-powerful status and has come to be seen as the (only) hope of mankind (Cohen, 2001). By rejecting a transcendental frame of reference, scientific knowledge has become its own measure of the *good*. In other words, *knowledge* itself has become the *good* – the desire/obligation to know is the ultimate good desire/obligation.

However, the scientific rationality itself faced serious challenges in the twentieth century that exposed serious cracks in its status. The science, including of course mathematics, that lead to greatest successes and achievements in technology, health and advancement of quality of living, also has contributed to technology that resulted in unparalleled mass destruction and devastation (D'Ambrosio, 1994; Skovsmose, 2005). While these uses of science may not be sufficient to demonstrate that scientific knowledge itself is morally deficient, they pointed to limitations in taking science as an all-encompassing worldview and a frame of thinking. For sure, the scientific method itself has identified criteria by which science can be identified as "good science". However, this is different from criteria in which it can be judged as good for society and humanity – or as ethically *good*. Seen in this way, if science itself cannot give account for the questions of the *good*, and if questions of the *good* need to be raised on scientific knowledge – not to mention scientific rationality itself – then science should be subjected to judiciousness external to itself.

This challenge to the dominance of the scientific rationality has come from another development in the early part of the twentieth century – also from Europe. The rise of the fascist regimes in Europe during the first half of the twentieth century has pointed to the danger inherent to totalitarian theories and modes of thinking (May, 1997). Although, once again, science cannot be held directly accountable for these developments, it cannot escape from the fact that such regimes often use scientific rationality of the day to justify themselves. Further, scientific rationality exemplified the totalitarian and universal reasoning adopted by such regimes. It may be the case that science does what it does well; its authority is not in question. However, its totalitarian status it has achieved and the hegemony of its "truth" are, once again to be treated with great suspicion.

The second crisis leading to the exclusion of the discourse of the *good* from educational thinking comes from the poststructural discourses and, in particular, for our purposes here, the constructs of *difference* and *power*. While the first crisis arose with the natural sciences, this crisis arose from developments in the social sciences and the humanities.

Reflecting on the field of mathematics education during the last decade of the twentieth century, Lerman (2000) noted a *social turn* in theories and methodologies used by many mathematics educators. Such a turn was informed by parallel developments in sociology and anthropology and highlighted the social, rather than the individual nature of teaching and learning. A decade later, Gutiérrez (2010) noted that "several scholars have clearly demarcated research that is sociocultural (with underlying goals of enculturation) from that which is political (with underlying goals of emancipation)" (p.4), which signalled a *sociopolitical turn* in the field. She identified four examples of such perspectives, namely critical mathematics education, critical race and Latino theories and poststructuralism. Gutiérrez goes on to say:

> *The sociopolitical turn signals the shift in theoretical perspectives that see knowledge, power, and identity as interwoven and arising from (and constituted within) social discourses. Adopting such a stance means uncovering the taken-for-granted rules and ways of operating that privilege some individuals and exclude others. Those who have taken the sociopolitical turn seek not just to better understand mathematics education in all of its social forms but to transform mathematics education in ways that privilege more socially just practices. (p. 4)*

It is not the intention here to discuss the position of the different perspectives above in the face of the question of the *good*. I will however, identify two persistent themes in poststructural discourses namely that of *difference* and *power* and discuss their implications for dealing with ethical decisions. The concern here is not that poststructural perspectives, necessarily exclude the question of the *good*. On the contrary, the project of "emancipation" and "transforming mathematics education" indicate a commitment for promoting the *good*. Further, it is worthwhile to mention here that Levinas' ideas are well within the poststructuralist French tradition. Here, I restrict my comments to two arguments. First, the discourse of difference, carried out uncritically to its logical conclusion, *may* lead into a position that renders moral judgements themselves untenable. Second, I will argue that a discourse of power (and politics as indicated in the very designation socio-political) requires the discourse of ethics to allow reflections on its own *goodness*.

Turning away from the hegemony of the reductionist and totalitarian "truth" that the scientific rationality promoted, many of the theories referred to by Lerman and Gutiérrez above recognise that knowledge is historically contingent and socially constructed. The language of difference has entered the discourse of mathematics education, reflecting similar developments in Western philosophy. May (1997) notes that the discourse of difference has dominated French thought in recent times (arguably, a term parallel to diversity in English speaking countries).

However, the discourse of difference cannot evade the need for moral judgements as to the status of difference. After all, isn't a commitment for social justice also a commitment against social injustice? Can we accept totalitarian regimes as mere alternative social organisations? Such questions point out to a dilemma within/for the discourse of difference. On one hand, we can take the stance of abandoning moral judgements all together. On the other hand, we can take the stance of adopting ethical values that embrace inclusion – thus allowing difference in ethical standards. Let us examine each stance in turn.

Taking the first stance, adopted by Nietzsche, Foucault and early Derrida, either directly attack the possibility of ethical judgements or ignores them all together (Davis, 1996). Cohen (2001) calls this stance as an "aesthetic stance" which, understood in its broadest sense, "is the show of *what is*" (p. 12). "Emptiness" and "nihilism" are terms used by Standish (2001) to describe some contemporary discourses with regards to ethical stances. Giroux (1987) might include in this stance some, what in his words can be called, "free-floating" forms of postmodernism that lead to "pragmatism and relativism" (p. 9). Such stances lead into an over-emphasis on the body, pleasure, playfulness as well as rejecting seriousness as outmoded concern of the failed rationalist agenda.

Taking the second stance of adopting ethical values that embrace inclusion, while appearing to be more accommodating to the aim of the recognition of difference, leads into further grim problems. If the *other* has ethical standards that do not meet my criteria of inclusiveness, then either I accept their ethical values as equally ethical, and hence I am not committed to my own ethical standards, or I find myself in ethical judgement over their standards – thus taking a step back towards totalitarian standards that deny difference.

I need to clarify the source of the difficulty here. Both options are based on regarding the other as the same as the self. In other words, we all are free to develop an ethics and are able – even need to – make moral judgements on our own and each other's practices. A third alternative that is not based on sameness of the other is discussed below. The augment developed here is not to deny that the discourse of difference is useful, even essential to understand and deal with the problems facing mathematics education in today's society. I merely point to the impossibility to establish ethical criteria based on the discourse of difference understood as sameness of the other.

Similarly, difficulties can be demonstrated in dealing with the discourse of *power* and emancipation, which are, once again, central to sociopolitical theories and research. Speaking about the construct of power from a poststructural perspective, Gutiérrez (2010) explains:

> *From a post-structuralist point of view, knowledge and power are inextricably linked. That is, because the production of knowledge reflects the society in which it is created, it brings with it the power relations that are part of society. What counts as knowledge, how we come to "know" things, and who is privileged in the process are all part and parcel of issues of power. Here, power is not a possession but is circulated in and through discourses. (p. 8).*

Notwithstanding the positive contribution of poststructuralist thinking in highlighting the interconnection between power and knowledge, here I argue that power itself necessitates moral judgements. Isn't the devastation caused by wars a vivid reminder of the possible cost of power? Further, as Simmons (1999) points out power "unbounded may lead to tyranny, absolute power of the strongest" (p. 97). Hence, increasing the individual's power to participate in social transformation, may lead to maximising personal gain at the expense of the public good and, at worst, to dominate others and reduce their opportunity for meaningful participation. Simmons goes on to argue with Levinas that, the political, while not reducible to ethics, requires ethics as a means for its critique. Below, I will argue that Levinas shows how ethics also requires politics. Once again, the argument here is not to deny that the construct of power is crucial for understanding the functioning of mathematics education in society and that the commitment to empowerment is a highly valued agenda in the field. Rather, the intention here is to point out that in order to avoid becoming all-embracing and totalitarian, discourses in mathematics education, power and politics cannot escape engagement with the discourse of the *good*.

This section has discussed challenges to the discourse of ethics in mathematics education theory and research from both the traditional scientific paradigms and the arising poststructuralist perspectives (albeit for different reasons) that have contributed to its exclusion from the field. This is not to say that these paradigms and perspectives are a- or even anti-ethical. It is just to show that in order to be able to critically and normatively inform practice, theories and research in mathematics education need to explicitly engage the questions of the *good*. This section also discussed the ethical questions that face researchers from within both approaches – thus making ethics unavoidable. Hence, the question that faces us is how to understand ethics without falling back into metaphysical totalitarian discourses and, at the same time, maintaining a respect for difference and a commitment to the agenda of empowerment. This is the challenge raised by Giroux (1987) who points to a paradox facing many radical educational theories that often posit "moral" indignation about social and political justices and yet have "failed to develop a moral and ethical discourse upon which to ground its version of society and schooling" (p. 9). He adds that, without such discourse, it is not possible for critical education to "move from criticism to substantive vision" (p. 9). Giroux calls for an ethical discourse that transcends both the essentialist

constructions of ethics from the right – that may lead to standardisation of being and conduct – on one hand, and constructions of certain "free-floating" forms of postmodernism referred to above – that may lead to pragmatism and relativism, on the other. Before addressing this key question, I will digress to point out further serious challenges in the traditional discourse of ethics that understand it as a code of practice.

Codification of Ethics

Traditional discourses of ethics understand it as set of principles or duties that participants in a community of practice, or particular discourse, are to abide by. One can think of the equivalents of the Ten Commandments, the code of ethics common to guide professional conduct or even a possible set of principles parallel to the Universal Declaration of Human Rights. Here we consider the question whether it is possible to formulate an ethical code of practice for mathematics education. Such attempts necessarily would consist of a set of demands on behaviour that are decontextualized and universally binding within that community of practice. I argue that such understanding of ethics would lead to three difficulties.

The first difficulty in such constructions of ethics relates to their ontological and epistemological foundations. To borrow a term that Agnes Heller (1992) used to describe human rights as represented in international conventions, articulations of ethical codes are 'fictions' (p. 351). Of course, by saying they are fictions is not to dismiss them as whimsical and unnecessary; rather to point out that they have no ontological reality and hence are in question as to their being. It is customary to refer to all such terms in academic and public discourse as 'social constructions'. While, this is perhaps an appropriate description as to their origin, it fails to imply their normative status in society. Similar difficulties arise if attempts to found these articulations of ethical codes on epistemology. Arguably, knowledge and understanding are necessary for accepting difference and to inform conversations about power and social justice. However, as K. Roth (2007) explains, knowledge can also lead to oppression and domination. Hence, epistemology cannot provide a foundation for the normative principles required for just and ethical practices in the field.

The second difficulty relating to articulation of ethics as codes of practice is in their application in the contemporary world. In his reflections on the contemporary status of mathematics education, Skovmose (2005) noted the many challenges facing the field in the age of complexity and uncertainty that makes (political) decisions challenging. For example, referring to the writings of D'Ambrosio (1994), he notes the critical role of mathematics in society that is, on one hand, intrinsically related to significant advances in knowledge and technology and on the other to most devastating instruments of war and destruction. Skovsmose calls this the "paradox of reason" and asserts that even though there is nothing intrinsically in mathematics that determines its effects, it is in the midst of – and cannot escape from – this paradox. Of particular relevance to the discussion here, he adds that the "wonders'' and "horrors'' regarding the social effects of mathematical knowledge are often *unpredictable* and *uncertain*; moreover, to add complexity, "we might be lacking any reasonable standards for judging [between them]". (p. 101). He goes on to reject critical rationality as a means of providing the foundation for the necessary critique to deal with the sociopolitical effects of mathematics – since rationality itself has led to this paradox in the first place. Using the concepts of existential freedom and responsibilities of Sartre, Skovsmose argues that in the face of uncertainty, responsibility is expressed as concerns, and shared and discussed with others, thus forming a "critique without foundation" – in other words a critique that is not based on "logical, philosophical, political nor ethical" grounds (p.

131). In several places in the book Skovsmose presents responsibility as a way to deal with uncertainty – a theme that will be discussed in the following section of this paper.

Thirdly, understanding ethics as a code of practice raises question about the role of *freedom* in making ethical decisions. It might appear that without freedom there is no ethics, but merely adherence to the rules. How can ethics be ethical if it is imposed on me? In this context I can point out that most scientific and structural approaches as well as most poststructural discourses, understand the human subject as neither completely free nor completely determined. In other words, both approaches can be contrasted with that of Sartre (Davis, 1996) who asserts human's total and existential freedom. At the risk of overgeneralising and reducing differences between followers of each approach, according to structuralist rationality, as human beings, we are somewhat determined according to biological, cognitive, economical status. Likewise, according to poststructuralism, we are somewhat determined as participants of the discourse that construct us. Yet at the same time, as human beings we are partially free because we are individuals according to traditional rationality and have agency according to poststructuralism. In any case, ethics, which only can be said to be ethical as much as we are free to act ethically, is based on our ability to be free. My aim of this diversion is not to argue against the partial freedom or that ethics is related to our freedom to act ethically. However, basing ethics on freedom does not explain why we chose to be ethical in the first place – even in situations that are not to our advantage. Is it the case that we chose to be ethical for our own survival or the survival of our social order? Is our commitment for ethical conduct towards the other a mere charity or convenient politics? Or is there an ethical obligation? This issue refers to the question in the title of the paper: Is the *good* a mere desire or an obligation? I will return to this question below.

The *Good* as Pre-discursive Obligation

I now turn to the question I raised above: how to understand ethics without falling back into metaphysical totalitarian discourses and, at the same time maintaining our respect of difference and a commitment for empowerment in mathematics education. I will engage the work of Emanuel Levinas, widely acknowledged for his re-introduction of ethics to Western philosophy in the last century, as an example of such understanding of ethics.

Elsewhere, I (Atweh, in press) noted that for Levinas, ethics is before any philosophy and is the basis of all philosophical exchanges. In other words, ethics is the 'first philosophy'. It precedes ontology "which is a relation to otherness that is reducible to comprehension … or understanding" (Critchley, 2002, p. 11). Levinas points to the trend in Western philosophy to develop understanding by reducing the *other* to the same. This, he argues, is a philosophy that attempts to assimilate and dominate the *other*, and hence is a form of violence towards the *other*. Ethics arises from an encounter with the *other* who is totally, and infinitely, *other* than the self. This relation to the *other* that precedes understanding he calls "original relation". Further, this encounter with the *other* "awakens a sense of responsibility that will deepen the more I answer to it, and is wholly *other* to any calculus of want and satisfaction, of need and fulfilment (Standish, 2001, p. 342). W. Roth (2007) describes that this original ethical relationship discussed by Levinas consists of an "unlimited, measureless responsibility toward each other that is in continuous excess over any formalization of responsibility in the law and stated ethical principles" (p. 31).

Levinas' original contribution to ethics is that he does not see ethics as a pre-determined set of principles that can be used to make decisions about particular instances of behaviour; rather, it is an adjective that describes a relationship with the *other* that precedes any understanding and explanation (Critchley, 2002). Davis (1996) makes a distinction

between *ethical* and the *ethics* (parallel to political and politics) and claim that Levinas was more interested in the former even though "it inevitably leads into the latter" (p. 48). Using a phenomenological approach, Levinas argues that to be human is to be in a relationship with the *other*, or more accurately, in a relationship *for the other*. This relation is even prior to mutual obligation or reciprocity. Hence, according to this understanding, ethics neither can be reduced to a code of behaviour nor is based on the equality of the other. On the contrary it is based on the other as totally *other*. Similarly, ethics is a desire that is all-consuming and absorbing. It is not based on my ability to understand the *other*; on the contrary it is based on my inability to understand the *other*. The *other* is not the same as me – the *other* comes before the self – both ontologically and ethically.

This relationship with the other (re)presents a "difficult freedom" for the self (Cohen, 2001; p. 7); it is at once free and binding. It is binding, not because of an external and transcendental commandment. It is the *other* who commands a responsibility on the self. For Levinas, this relationship with the other is the true being of humanity; it is the being-for-other before being-for-the-self. However, this obligation does not negate freedom because it does not dictate a particular way of responding. Levinas position indicates that we are not condemned to be free (ala Sartre), our freedom is conferred through the other. Davis (1996) notes that "without the *other*, freedom is without purpose, or foundation" (p. 49). Yet also, my infinite responsibility is imposed on me by the other. Davis adds

> [Levinas'] ethics turns out to be more demanding than any formal code. My responsibility and obligation to the other are absolute they exceed my ability to fulfil them, always demand more, are never satisfied by the completion of any action or service. As a moral subject, I am always found wanting, because ethics is not just a *part* of my existence, not simply one of the things I do amongst others; it defines the whole domain that I inhabit. (p. 54) (italics in original)

Further, Levinas' understanding of ethics is not outside politics. He was quick to acknowledge that ethics without politics is not possible in a world that has more than one *other*. He would agree with Kant who pointed out that ethical responsibility to one person may be in conflict with a responsibility towards another. The appearance of a *third* limits my responsibility for the *other* in being infinite and nonreciprocal (Simmons, 1999) and necessitates entering into the realm of the politics and justice. Simmons explains:

> Levinas' philosophy champions the ethical relationship with the Other, but this is not the end of his philosophy. According to Levinas, the Other drags the ego out of its selfish lair, and leads to ethics. However, Levinas worries that the face-to-face relationship with the Other will devolve into another selfish lair. In this relationship, the ego can become infatuated with the Other to the point of ignoring all others. (p. 92)

The appearance of the *third* leads Levinas into the realm of justice and politics. Davis (1996) explains that in the face of the third, the social responsibility "turns into social justice" (p. 52). Levinas demonstrates how ethics and politics are necessarily independent; however, one needs the other. Ethics, which is the encounter with the *other*, needs politics since the *other* is not singular – as there are many others. On the other hand politics needs ethics since politics is always open to the possibility of excess and needs to be kept in check.

In his later work, Levinas (1997), in response to Derrida's claim that the encounter with the *other* is "violent" if it is based on language and discourse, introduced the distinction between *saying* and the *said* in the face-to-face encounters with the *other*. Further, he locates the initial encounter with the *other* as based on saying which precedes the ontological said. Simmons (1999) explains "Prior to the speech act, the speaker must address the *other*, and before the address is the approach of the other or proximity" (p. 88). Importantly for our purposes here, Levinas places ethics in the *saying* and politics and social justice in the realm of the *said*. He argues that peace is in the *saying* and the *said* is necessarily open to the

possibility of violence. The *said* is always open to be *un-said* or *re-said*. In particular the *said* is based on knowledge in its concreteness and context.

Concluding Remarks

The last point I would like to make in this context, I note that the "exile" of the discourse of ethics from mathematics education is slowly, but surely, lifting. The language of ethics is finding its way into the writing of many authors – perhaps with different understandings of ethics. At the risk of overlooking some contributions, and more importantly, of omitting significant volume of work that clearly, but implicitly, reflect deep ethical commitment, I mention few examples. Hackenberg and Lawler (2002) reasoned that the principles of a radical constructivist theory of knowing underlie a model for an ethics of liberation. A year later, D'Ambrosio (2003) described that "the essence of the ethics of diversity is respect for, solidarity with, and cooperation with the other (the different). This leads to quality of life and dignity for all" (p. 237). In a book on mathematics education and postmodernity, Neyland (2004) called for the need to re-focus on the interpersonal relationship and ethical commitments in mathematics education in the face of the hegemony of scientific managerial rationality plaguing education systems around the world. Similarly, Neyland (2008) has used an ethical lens to discuss issues related to globalisation in mathematics education. In the same year, Stemhagen (2008) discussed mathematics as an intentional human activity. He argued that since intention implies choice, there are ethical dimensions to making mathematical choices. Freitas (2008) showed how problem-solving in mathematics using real-world problems can bring ethical issues into the classroom.

In a keynote at the International Conference of the Psychology of Mathematics Education group, Ernest (2009) argues that the ethics should be the first philosophy in mathematics education. A year later, using the writings of Foucault, Walshaw (2010), discussed how poststructuralist understandings of identity are crucial for grounding "ethical practical action" (p. 1) that is emancipatory for the different subjects traditionally excluded from experiencing the power of mathematics in their lives. George (2010) considered the three constructions of ethics, of justice, of care, and of critique and their motivational potentialities in remedial mathematics education.

Finally, working with some of my colleagues, we have been attempting to apply an ethical perspective to investigate different aspects of mathematics education. In Atweh and Brady (2009), we discussed an approach called Socially Response-able Mathematics Education based on the concept of responsibility as disused above applied to curriculum and pedagogy in mathematics education. In Atweh (2011) I used the discourse of ethics as developed here to reflect on constructs of social justice, race, ethnicity and identity. In Atweh (in press) I have examined the relationship between mathematics education and democracy using the Socially Response-able approach discussed in the Atweh and Brady paper.

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