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**Reading Bernstein and Critical Posthumanism Diffractively Through  
One Another: *Intra-activity* Pedagogy**

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A minor dissertation submitted in partial fulfilment of the requirements for the award of  
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## ABSTRACT

Diffraction methodology has been developed by Donna Haraway and Karen Barad as a methodology to read two (or more) different thoughts or works without criticism. The diffractive methodology allows us to see and reinforce connections which seemly opposed to each other (Van der Tuin, 2011:27). This is based on the ontological shift from *interaction*, where we start with separate entities which then interact, to *intra-action*, an event through which subject and object emerge (Barad, 2007)). With the help of this posthuman methodology, I read Bernstein's sociological theory of education that is based on the important concept of boundary and a 'tree-like' structuring of concepts the structure of trees diffractively through knowledge as conceptualised by critical posthumanists. The latter philosophical orientation (Braidotti, 2013) is based on the structuring of concepts like 'rhizomes', that is, shooting in all directions without middle or end and with its blurred and indeterminate ontological boundaries. This study aims to answer the following questions through diffraction: What new insight may be realised in terms of knowledge and pedagogy by reading Bernstein and critical posthumanism diffractively? How does critical posthumanism problematise knowledge and pedagogy as theorised by Bernstein? What is a posthuman pedagogy? In what way can each theory contribute to solving the inequalities of education today? Bernstein, who has devoted himself to the analysis of power and control in relation to inequalities in the school, has described inequalities in relation to unequal distribution of power, and social groups and strength of boundaries. In this regard, I will address four concepts related to this egalitarianism through Bernstein and critical posthumanism and suggest the notion of trans-material egalitarianism in relation to equality in education. The four concepts are subject, boundaries, power and causality. Reading these two theories diffractively gives rise to an interference pattern or superposition (Barad, 2007), especially about trans-species egalitarian education. Critical posthumanism offers another perspective that includes transdisciplinary approaches to investigate inequality in schooling. This study will focus on this navigational tool (Braidotti, 2013) in order to combat injustice through the reproduction of inequality. In conclusion, I suggest that the trans-species egalitarianism education has existed in Eastern philosophy for a long time, and that trans-species egalitarianism education in the post - human era will be achieved by reading Eastern and Western education as a diffraction.

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## CHAPTER ONE-INTRODUCTION

### **Focal research question/problem**

The relationship between pedagogy and social class inequality is one of Bernstein's fundamental issues. His main area of interest was the powerful forms of knowledge transmitted through schooling systems and concerns around who had access to these forms of knowledge (Singh, 2002). His primary question addressed the manner in which social inequalities were reproduced through pedagogy. He viewed the educational movement from 'collection code' to 'integrated code' in the British educational system in the 1970s as the movement that reproduced inequality in school because 'integrated code' implies that classification and framing are weak in curriculum (Bernstein, 2003b). Classification refers to the degree of distinction of the contents. Where classification is strong, each category is independent and protects its original identity. Where classification is weak, there is reduced insulation between contents because the boundaries are weak or blurred. Bernstein firmly believed that the classification was the original nature of social structure. Framing regulates the realisation rules for the production of the discourse and determines the structure of pedagogy. Framing raises the question of controllability of teachers and pupils over the selection, pacing, evaluation and the degree to which community knowledge is used in the pedagogical relationship. When framing is strong, visible pedagogic practices will be demonstrated. This means that instructions and regulative discourse are explicit. On the other hand, where framing is weak, an invisible pedagogic practice shall be evident. This means that the rules of regulative and instructional discourse are implicit, and largely unknown to the acquirer (Bernstein, 2003b).

From this theoretical background, Bernstein argued that in this curriculum (integrated code, invisible pedagogy with weak classification and framing), middle-class children are better able to access the curriculum than working-class children, because it is easier for these children to bring their local experience and language to the classroom. As a result, a working-class child is less likely to achieve educational success because working-class children experience a semantic discontinuity between home and school. They are not familiar with some context-independent knowledge that enables

children to acquire specialised knowledge for their achievement. In other words, the usage language, knowledge and thought of middle-class children and working-class children varies. Whereas the local language and thought of middle-class children and education conducted by schools are closely linked that of working-class children is not. As a result, the middle-class children possess hierarchic principles of classification. This enabled them to transform the status of classification and framing from weak to strong. Furthermore, they were able to recognise the context as specialised. This led to a situation where the middle-class children were superior and able to position themselves above on the working-class children. In this situation, if it was easier for working-class children to bring their local experience and language and knowledge to the classroom, they might be confined in their knowledge system in school and will fail to get specialised knowledges that need for attending higher education. Many studies (Painter, 2005; Ensor & Hoadley, 2009; Hoadley, 2008; Morais, 2002) have pointed out how the environment of working-class children such as parental occupation or teacher education, may disadvantage them at school.

However, such studies are more concerned about social class and social reproduction. This raises several questions: Why do Bernsteinian theorists focus primarily on the social element in curriculum theory and practice? Why do they focus on avoiding inequality? In particular, is this distinction between school knowledge and everyday knowledge necessary? And what are the epistemological principles that create this division? One of the most important factors that seem to be missing in relation to inequality is that difference of achievement among pupils can also be thought of in terms of a different kind of causality. Of course, it is important that Bernstein (2003b) has pointed out that schooling reproduces inequality based on social class, but it is not sufficient to explain fully the inequality in schools. Inequality and injustice are complex and cannot be reduced to the social dimension only. What are the other causal aspects that Bernsteinian theorists might be missing by their exclusive concentration on the social sciences in their theorising? Today, we live in a complex world characterised by fluidity and uncertainty, blurring boundaries. Posthumanist scholar Simon Ceder (2016) writes that children should be considered as part of an always entangled intra-relational world and not (ontologically) as individual beings

with fixed bodily boundaries. Furthermore, we are facing not only human but also non-human problems. Climate changes including global warming, artificial intelligence and biological mass extinction cannot be explained by humanist theories. Therefore, more is required in our theorising, that is, we need to take the non-human and the entanglement of the posthuman into consideration in order to deal with these challenges (Braidotti, 2013). In this regard, posthumanism assists in finding other causal factors that Bernstein was missing in his studies about the inequality in schools, because of his exclusive sociological lens. Critical posthumanism offers another perspective that includes transdisciplinary approaches to investigate inequality in schooling. This study will focus on this navigational tool (Braidotti, 2013) in order to combat injustice through the reproduction of inequality. Critical posthumanism makes it possible to think differently about the child and the teacher/learner relationship.

In short, there are two main problems on which I focus. The first problem is about the particular positioning of the child and the pedagogical relationships in school. Secondly, I will problematise the distinction between school and everyday knowledges and the implication for curriculum construction as theorised by Bernsteinian theory. With regards to the above two problems, I will read Bernstein through critical posthumanism using the diffractive methodology in order to create new insights about inequality and injustice in school. Bernstein's main concern is about reproducing inequality through pedagogy. But inequality also has to be thought of in terms of a different kind of causality (Barad, 2007). In this respect, posthumanism may expose the hidden inequality in the theory of Bernstein and suggest new ways to consider that problem. I will investigate these tasks through this main question: What new insight is produced in terms of knowledge and pedagogy by reading Bernstein and critical posthumanism diffractively? In order to do that, I will answer the following sub-questions:

- How does critical posthumanism problematise knowledge and pedagogy as theorised by Bernstein?
- What is a posthuman pedagogy?

## **Rationale**

### *Positioning the child as a social-being*

Many Bernsteinian have studied the relationship between social class and curriculum or knowledge. The Bernsteinian theory is based on a sociological approach to education. This approach to education can be divided between the macro approach and the micro approach. The scholar who provided the origin of the micro approach is Max Weber. He asserted that the social behaviour of individuals forms the foundation of society and there is no distinction between the society and the individual; society is merely the sum of the individual (Weber, 1921). We can call that approach a micro approach or psychological approach. The scholar who provided the origin of the macro approach is Emile Durkheim. He perceived the individual as a social being in sociology and pointed out that even elements that seem personal and psychological have a social feature. In other words, he viewed a society as an entirety and individuals constructed in that society are respectively perform the function (Durkheim, 1973). Although individuals perform different tasks and often have different values and interests, the order and very solidarity of society depends on their reliance on each other to perform their specified tasks. We can call this approach a macro approach or structural approach. Basically, many Bernsteinian have addressed the issue of the differing performance of working-class and middle-class children at school as related to social class (Hoadley, 2007:679), because they are grounded in a macro approach. They firstly analyse the society rather than the individual when they study curriculum. Bernstein (1999), argues that curriculum regulates what is a valuable knowledge that must be taught and pedagogy regulates what is well-taken method that transmits a knowledge. Furthermore, how society selects, distributes and transmits the well-taken knowledge reflects the distribution of power along principles of control. For Bernstein, pupils usually accept the curriculum and are shaped and determined by it. He, as a sociolinguist, reduces everything to social discourse without paying attention to the materiality of our bodily existence. This is the problem that I want to address here in relation to curriculum. Bernsteinian theorists have two presupposed assumptions when thinking about

curriculum. Firstly, they see the individual as a passive being. Secondly, they locate the problem at the level of society, not individual or individual school.

What we should not overlook is that if all problems of education are evaluated through a social lens only, children are positioned as passive consumers of knowledge. This is because children have less social experience than adults and therefore have to be informed by adults. Furthermore, Davis (2004:44) argues that “our theorizing of social relations, as they pertain to educating, should at least mark the place of the indeterminacy introduced by the presence of human subjects and the theory should take account of the effects of this place on pedagogy” Although Bernstein resists the place of indeterminacy with respect to the reproduction of knowledge, his idea remains implicit and underdeveloped for the most part (Davis, 2004:44). However, ironically, Bernstein often or too often talks about social issues but failed to clarify what he defines as ‘the social’. In his theory, the ‘social’ is very ambiguous. Historically, the concept of the ‘social’ appeared in the Western Middle Ages, but it took root firmly in sociology or social science in the early twentieth century. One of most important scholars in establishing the concept of ‘the social’ is Emile Durkheim. He asserted, in his book. “Rules of Sociological Method” (1895) that sociology deals with society as the target of scientific research; an independent research insulated from psychology, philosophy and biology. In this respect, he argued that ‘the social’ as an independent entity is different from ‘the natural’ which is the target of natural science and ‘the individual’ who is the target of psychology. In other words, ‘the social’ is based on the dichotomy of individual/society. He asserts the methodological principle that social facts must be explained by other social facts, because ‘the social’ consists only of humans. Based on this principle, Bernstein explored pedagogy through a social lens only.

### *Distinction between knowledge structures*

The second problem is about the distinction between school and everyday knowledges. Bernstein draws a strong distinction between two basic classes of knowledge: mundane or everyday knowledge, and esoteric or universal, principled knowledge. These two classes of knowledge are intrinsic to language, and they exist

in all societies, even though their content may vary historically and culturally (Hoadley & Muller, 2010). In horizontal discourse, knowledge refers to everyday or mundane contexts, but in vertical discourse, knowledge requires systematic ordering principles for the generation of meaning. According to Bernstein, there are two knowledge structures regarding conceptual advance: some knowledge tends towards conceptually justifiable advances and unity, another knowledge tends towards advance through variation or diversification of concepts. Although many empirical studies have revealed the connection between different knowledge structure and pedagogy (Reeves & Muller, 2005; Christie & Macken-Horarick, 2007; Young & Gemble, 2006; Wheelahan, 2007), there have been many critical responses to Bernstein as a deficit theorist in relation to the above distinction. For example, Jones (2013) argues that the 'code' is based on the distinction between mundane and everyday knowledge and had to be invented to fit Bernstein's sociological assumptions. Diaz (2001:89) wrote that "Code refers to an orientation towards systematizing social experience and making meaning and it help us to understand relation between cognition and social practices". Bernstein needed to exploit this code theory in order to explain the difference between middle-class and working-class success in schooling, because code theory provides an explanatory principle for analysis of how cognition is differently specialised (Hoadley & Muller, 2010). It is clear why Bernstein formulated the code theory. It was because he wanted to investigate why consciousness is not a simple expression by knowing subjects, but a social construct and associated with the fields of power. Hasan (2004) points out that this distinction is not a viable proposition in terms of semiotic mediation. In another study, Hasan (2002) argues that formative and informative modes of language are not mutually exclusive, that is, elaborated code languages (school knowledge) and restricted code languages (everyday knowledge) can be found in the same conversation in the same social class. Bernstein sees the boundaries as a tension between the known and the possible, not as limited. He identified the central task of school as offering all children the possibility of exploring the boundaries of human consciousness (Bernstein, 1970:117). In other words, in school, students need to learn that recognising and classifying the boundaries between knowledges clearly is necessary in order to acquire specialised knowledge. However, as we will see later,

critical posthumanism is about the intra-action between philosophical, economic, political and cultural dimensions of experience? From a posthumanist point of view, all boundaries are blurry and indeterminate. Boundaries are never stable and always becoming. Moreover, critical posthumanism warns not to take human vision as the measure to decide what is real or not and what the boundaries are 'between' this or that. There is more going on in the world than can be perceived by humans. We will see later that setting boundaries are 'agential cuts' (Barad, 2007) and are human-made and always include or exclude, that is can raise another inequality for child according to the posthuman view, because boundary can exclude and discriminate between something such as gender, class. Ontoepistemic equality is possible only when adults are not in the position to decide what is or is not worthwhile knowledge.

Posthumanist scholarship has been featured in major curriculum journals such as *Curriculum Inquiry* (Gaztambide-Fernandez, 2015) and the *Journal of Curriculum and Pedagogy* (Letts & Sandlin, 2013). Posthumanist curricular scholars have attempted to complement the critical projects (feminism, postcolonialism, antiracism, etc.) against humanism for the last few decades and propose a new solution. They claim that their critique of humanism will be successful by instigating a critique of human exceptionalism at the level of speciesism, rather than a critique of dehumanisation at the level of humanism (Siddiqui, 2016). Snaza (2013:41) writes that "[i]n conceiving of the human as both an ontological given (a being) and the result of a particular process of education, education structurally introduces the necessity of intermediate concepts: the less human, the less than fully human". (Many studies (Lather, 2007; Hawthorne, 2002; Britzman, 2011) have attempted to avoid the predetermined education derived from Plato. Since Plato, education has been regarded as a process of regulation, and certain knowledge has constantly excluded other knowledge. Bernstein set up a curriculum structure that clearly distinguishes between school knowledge and everyday knowledge in this basic position. Snaza suggests that posthumanism in education moves previous epistemological perspectives from certainty, to uncertainty and to indeterminacy. He proposes that:

Education be reconceived as a process that leads us away from being human, or at least away from thinking that we have any clear idea about what that means. So, that lead us away from the stable, predictable, and cultured world of

civilization, of cities, of routine, of politics as we have known it. Whither it should lead us is and must be unknown (2013:49).

The main concern of posthumanism is beyond human exceptionalism. It is not easy to locate the human for posthumanists, because it is no longer exceptional or central. In this respect, Braidotti proposes a disruption of humanism. Siddiqui (2016:64) asserts that “Braidotti’s critical posthumanism and her approach to a posthuman humanities provides a strong theoretical basis for a revised mapping of the humanities curriculum”. Siddiqui (2016:64) further explains, “[h]er map is unique in the way it remains politically engaged with subjectivities and diverse in its interdisciplinary terrain”. Braidotti builds on Deleuze and Guattari and like them, draws on the monistic philosophy of Spinoza. One of the notable aspects of her critical posthumanism approach is the retention of subjectivity that makes possible political and ethical analysis of posthumanism. Siddiqui (2016:69) argues as follows:

[...] it is important to note that Braidotti’s subjectivity is not intended solely for the purposes of negative criticism of power structures. Inspired by her perpetual interest in affirmation and in Deleuzian creation of the new, for Braidotti subjectivity is also a means of creativity, continuous transformations and new futures. This, I believe, is where the productive function of education most easily meets Braidotti’s posthuman theory. Subjectivities are forms with which we can make sense of the processes and flows of that complex globalized culture, and through which we can affirm and create more instances of difference as a positive means of resisting power structures.

I also agree that subjectivity can be a creative force. An affirmative posthuman approach with its rethinking of subjectivity has implications for Bernsteinian theories about epistemology and pedagogy. Hence, in my dissertation, I will develop a new line of argument with the help of Braidotti’s critical posthumanism, and by using the posthuman diffractive methodology as developed by Karen Barad.

### *Critical Posthumanism*

The concepts such as posthuman, posthumanism, posthuman things are quite controversial concepts. Perspective is differenced through how to see the posthuman as positive or negative, sceptical or critical. What is the meaning of posthumanism? Posthumanism is not same as ‘transhumanism’. Transhumanism pursues the improvement of humans through science and technology such as genetic engineering

to produce the super human that surpasses the limitation of humans morally, physically and mentally. The aim of transhumanism is ultimately to create a better human via artificial evolution. Generally speaking, transhumanism assumes the dichotomy of the mind and the body. Thus, we can say that transhumanism still dwells in the effect of humanism whereas, posthumanism unlike trans humanism, disassembles and tides over the limitation of the concept of the traditional humanism. Generally, the core of humanism that posthumanism is critical of, is that human nature exists as a binary opposite to culture (see e.g. the nature versus culture debate about human intelligence). Stefan Herbrechter (2013) says that posthumanism tries to redefine the human being in two dimensions. Firstly, in a hybrid-definition about humans they break all boundaries placed between human and non-human. In the posthuman view, human is a mixture ontologically entangled with animal and machine and objects. Secondly, human is a historical-technological constitution. They argue that human cannot be distinguished from the technology and seek to combine technology into the meaning of human. Therefore, we can say that the two fundamental tasks of posthumanism is to disassemble the fundamental power producing binaries between human/machine, human/animal, nature/culture, spirit/nature and instead interlink between humanity and technology in a creative manner.

Herbrechter understands the posthuman as including all emotional things which are excluded from the humanity development process and 'all other things'. Of course, these 'other things' involve not only the machine, but also the animal, the god, demon and the monster and child as "the last savage" (Kromidas, 2014:426).

Critical posthumanism does not only refer to the end of humanism, or after humanism, but addresses fundamental ontological and epistemological questions about human nature (Pedersen, 2010). Since the Enlightenment, we have been faced with three challenges against humanism. First, the dismantling of the rational subject by Nietzsche, Marx and Freud. Secondly, the reconfiguring of subjectivity through poststructuralism and deconstruction as a method by thinkers such as Foucault, Lacan, Derrida and Deleuze. Importantly, these philosophers still supported the hegemony of human-centeredness in knowledge construction. Then inspired by

advances in technology, posthumanism has developed through thinkers such as Hayles, Haraway and Wolfe. She says in an interview with Gane, there are three key boundaries that have helped preserve the sanctity of the human as self-contained being: humans and animals, organisms and machines, and the realms of the physical and non-physical. She argues that these boundaries are no longer secure (Haraway in Gane, 2006).

This final posthuman challenge to the knowing subject through the collapse of boundaries and fixed categories between the human and the more-than-human is much more powerful and reconstructive than any other previous challenges. The concept of posthumanism has been increasingly infiltrating academia and cultural studies, including education. Some researchers have argued that the posthuman has already arrived in the academic world (Haraway, 1992; Herbrechter, 2013). Others claim that posthumanism is too premature and that the concept needs more theorising (Badmington, 2003). Perhaps the concept of posthumanism exists in a tension between 'already' and 'not yet', in Hassan's terms "helplessly called posthuman" (Hassan, 1977).

The important notion of posthumanism is that modern science and genetic engineering have affected much of the fibre and structure of existence and changed our understanding about which tools to rely on in terms of knowledge creation and truth. Technical invention creates the interdependence and the negative union between human and non-human. Braidotti suggests that what we need now is not a theory or concepts but other attitudes and contemporary responses in this posthuman time. Braidotti (2013:37) writes that posthumanism is the historical moment that "marks the end of the opposition between humanism and anti-humanism and traces a different discursive framework, looking more affirmatively towards new alternatives through action. It is exciting to investigate the implications of this posthuman approach to education".

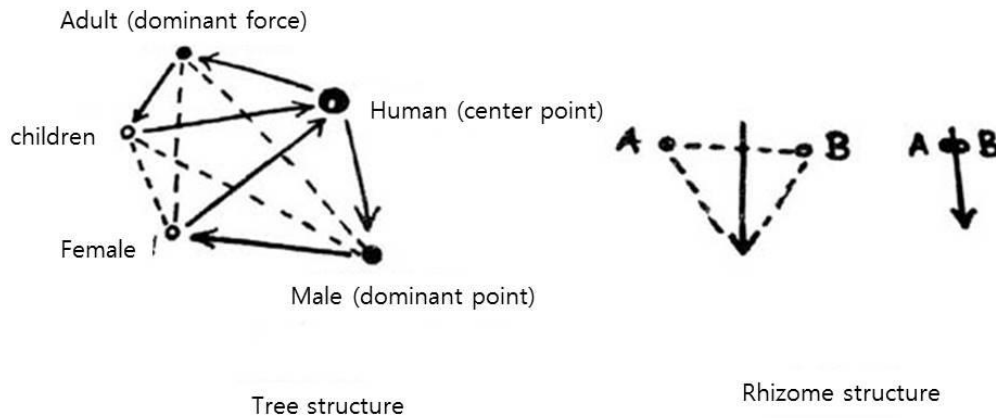
As we have seen above for Snaza, since Plato, education has been treated as creating a fully human individual with premised determination that provides both a beginning point (an ontological given) and an end point (something one becomes through

education). In order to justify the pursuit of humanisation, educators must approach their pupils as not yet fully human (otherwise there would be no need for education). If we approach our pupils as positioned as not fully human, it can be another inequality that Bernsteinian were missing when they focused on reproducing inequality through pedagogy. Regarding this, Murriss (2016) created the notion of ontoepistemic injustice by reading the philosophies of Miranda Fricker and Karen Barad diffractively through one another (see below for this methodology). She argues that much injustice is inflicted upon children on the basis of adult claims as to which determined knowledge is educationally worthwhile, so for educational transformation to occur we need to transmute this in the first instance. Posthumanists assert that human subjectivity is not stable and indeterminate, without the humanist boundaries pointed out by Haraway and others above. It presupposes that there is no existing ontological definition, or essence of what a human *is*, before the reality or existence of this human-being. Furthermore, posthumanism extends subjectivity from human to include non-human beings, such as machines, animals, rocks and stones. In fact, it dissolves the subject-object distinction altogether. It claims that it is time for a new approach to subjectivity that disrupts previous *a priori* assumptions about individualised bodily existence with fixed boundaries. Barad (2009) argues that the subject is always part of phenomena and that knowing and being e/merge ontologically at the same time through practice. Butler's claim that the human is thus "performed" relies on the idea that this performance takes place at each and every moment, hence it is subject to "disruption and rearticulation" (Snaza, 2013:46), but for Butler the body is only the human body and a body that has no agency. Barad moves away from this anthropocentric view of the human body. Deleuze and Guattari (2004:23) distinguish the "sedentary point of view" that characterises much Western philosophy, history and science from a nomadic subjectivity that allows thought to move across conventional categories and disturb settled concepts, signs, and theories.

Rosi Braidotti proposes a reorganisation of humanities and its object of study. Braidotti (1994) asserts that the posthuman nomadic subject is fluid, does not remain in one state, and focuses on the crosscutting connection of differences which execute

active transformation. The notion of nomadic also contradicts and disassembles a stable identity. The nomadic subject is a classless unit that is beyond classification. Nomadic does not mean 'homeless' or 'forced to move locations'. Rather, nomadic shapes a subject that abrogates all ideas and desire or nostalgia about settlement. Becoming intellectually nomadic is about crossing the boundaries and acting in such a way that the subject goes 'somewhere', but without knowing the destination. Nomadic has a keen sense of the territory, but does not possess a mind. Therefore, nomadism is not a flexibility without boundaries, but sharply aware of the mobility of boundary. Nomadic cannot be reduced as a teleological form of subject, rather it is a plurality of connection points. S/he is embodied, so s/he is always already cultural and actively 'ongoing', always becoming. From this point of view of the subject, the child is no longer a passive subject who produces knowledge only just in their own mind. The child is positioned in the mutual relationship with others as active not as passive. No longer is the child contained within a boundary (adult/child dualism), but positioned in the place where boundaries are unstable.

When it comes to knowledge, posthumanism argues from the same nomadic perspective. There is no temporal point of pure origin knowledge. Knowledge is always changing and indeterminate (Barad, 2007). As Deleuze and Guattari (Deleuze & Guattari, 1980) argue, the existing tree-like knowledge structure cannot be maintained, and requires a new epistemological and ontological approach using the metaphor of a *rhizome*. We no longer say that knowledge is a hierarchy and we can say that in this posthuman time, knowledge can be understood in the segments of agency and the tangle as a spaghetti through rhizomatic curriculum (see below image).



In the tree structure, the line is subordinate to the point. In the rhizome structure, a point leads to a line. The line of becoming traverses between points A and B where they can be located.

**Figure 1. Tree and Rhizome**

They also distinguish 'rhizomatic' thinking from 'arborescent' conceptions of knowledge as hierarchically articulated branches of a central stem or trunk rooted in firm foundations. Rhizome is to a tree as the Internet is to a letter networking that echoes the hyperconnectivity of the Internet. The structural reality of a tree and a letter is relatively simple: a trunk connecting two points through or over a mapped surface. But rhizomes and the Internet are infinitely complex and continuously changing (Gough, 2007). David Kennedy (2012:4), in his writing about rhizomatic curriculum, introduces a rhizome as the impulse of difference and multiplicity and "It makes distinctions that are not assimilable by a unity that includes them both; rather, it holds those distinctions in loose and provisional 'assemblages.' Rather than arrange an idea above or below another, or in a relationship of exclusion or inclusion..." Eco (1984) explains that the rhizome is a potential infinite space that can be connected to any path without distinction between the centre and the periphery. This rhizomatic curriculum can be regarded as a new insight in the contradiction by dividing the vertical knowledge and the horizontal knowledge in the field of curriculum.

From this point of view, I will disrupt Bernstein's hierarchical vertical and horizontal structuring of knowledge. I will also investigate what counts as 'worthwhile knowledge' and by whom this decision is made. Murriss (2016) has shown why it is important to disrupt what count as worthwhile knowledge in order to include the

child ontoepistemically. Because in a worthwhile knowledge curriculum, two kinds of epistemic injustice (*hermeneutical* and *testimonial*) are more likely to be generated, because in this curriculum, "child is wronged in her capacity as knower (hermeneutical injustice) and/or as giver of knowledge (testimonial knowledge)" (Murriss, 2016:135). Posthumanism assumes the knowledge is entangled as an "entanglement of spaghetti" without any hierarchical structure (Murriss, 2016:69). This is also important in relation to Bernstein, because worthwhile knowledge can be a contradiction in terms of avoiding the inequality that Bernstein sought in terms of epistemic.

At this point, I will introduce the educational implications of posthumanism. Both the sociology of education of Bernstein and the posthumanists agree that there is no longer unchangeable and universal knowledge, but while Bernstein analysed knowledge as shaped and affected by the power of society and the dominant class structure, posthumanism argues that the production of knowledge is not related to the power determined by the social class it just continuously produces different knowledges in infinite rhizomatic entanglements without binaries. Whereas Bernsteinian theory has been focusing on the acquisition of knowledge, or a process of socialisation into an existing order with a clear beginning of knowledge acquisition, posthumanism is more focused on knowledge construction without beginnings or endings and always starting in the middle. Knowledge is constructed as a result of relational material-discursive entanglements, thereby bringing into existence individuals with their idiosyncratic new knowledge (Murriss, 2016). So, what is clear is the profoundly different starting points in determining what knowledge is, and therefore pedagogy. Posthumanism deeply troubles the anthropocentric nature of binary thinking and western metaphysical dualism and offer a new ontology and epistemology that enables a re-evaluation of the child as knowledge producer (Murriss, 2016). As a result, in my dissertation I will read the Bernsteinian distinction between school knowledge and everyday knowledge diffractively through a posthuman reconfiguration of subjectivity.

In short, I will consider the Bernsteinian pedagogical viewpoint about child-being and knowledge. With a focus on the reproduction of inequality in schooling that Bernstein has tried to address, I will use the diffractive posthuman methodology to produce a

new perspective on the socio-political problems he so clearly identified. This new perspective can be more focused on intra-active pedagogy that Bernstein has ignored, or at least was not aware of, in his study. This is challenging as there are no guidelines as to how this should be done, but I will be using the emergent diffractive methodology and research where this is possible.

## **Methodology**

What is the diffractive methodology of reading works and ideas through one another? The diffractive methodology includes an affirmative reading of insights through one another in order to create new insights that disrupt power producing binaries – what Barad (2007) calls ‘super positions’ (see below). The notion of diffraction has been developed by Donna Haraway as a metaphor, which inspired Karen Barad in turn to use the method to read texts diffractively through one another (see e.g. Barad, 2007). However, for Barad diffraction is understood as an ontological feature of the world of which humans are also a part. Being and knowing always coincide in this non-hierarchical, flattened ontology.

The researcher is not at a distance from the world, as for example in the methodology of reflection or reflexivity, which is centred on a self that is able to reflect on his or herself as an object of contemplation. Diffraction is the process of being attentive to how differences get made and what the effects of these differences are. For Haraway, the starting point for diffraction is to consider how reflexivity is inadequate for bringing the self into visibility in relation to knowledge that is situated. She argues for diffraction as a mapping of interference (Bozalek & Zembylas, 2016). Haraway writes:

diffraction patterns record the history of interaction, interference, reinforcement, difference. Diffraction is about heterogeneous history, not about originals. Unlike reflections, diffractions do not displace the same elsewhere, in more or less distorted form, thereby giving rise to industries of [story-making about origins and truths]. Rather, diffraction can be a metaphor for another kind of critical consciousness (Haraway, 1997 in Dolphin & Van der Tuin, 2012:51).

Barad’s notion of diffraction is derived from the physical phenomenon of diffraction which she extends to other forms of knowledge production. This refers to particles and waves duality. Wave–particle duality is the concept that all particles can behave

as waves, and vice versa depending on the apparatus that measures it (Bucksbaum, 2001). Barad uses this physics process of diffraction as a methodology to work with difference affirmatively, because “diffraction is where waves combine when they overlap and the apparent bending and spreading out of waves when they encounter an obstruction” (Barad, 2007 in Bozalek & Zembylas, 2016:5), thereby creating an interference pattern or ‘superposition’. In this methodology, one discipline is read affirmatively through another discipline in order to create a new insight, or interference pattern. Barad proposes this diffractive methodology rather than a critical methodology that gives less value to one perspective over another. One of the important points Barad makes is that diffraction is not merely a metaphor, but also a method and a practice (Barad, 2014). It is the way the world *is*. Barad explains diffractive methodology as follows:

The diffractive methodology I use in thinking insights from different disciplines (and interdisciplinary approaches) through one another is attentive to the relational ontology that is at the core of agential realism. It does not take the boundaries of any of the objects or subjects of these studies for granted but rather investigates the material-discursive boundary-making practices that produce 'objects' and 'subjects' and other differences out of and in terms of, a changing relationality ... it is crucial that in using a diffractive methodology one is attentive to fine details of different disciplinary approaches (2007:93).

The diffractive methodology is at the heart of Barad’s philosophy of agential realism. What does ‘agential realism’ mean for Barad? Agential realism makes room for the epistemological significance of the more-than-human. Her purpose is to challenge the methodological assumptions toward the performative and where carried unnoticed in any field of discipline. In many fields of methodologies, they presuppose dualistic distinctions between society and nature, including assumptions about various kinds of cognitive agencies. Mamic points out that the methodology of agential realism improves the ability of empowerments to deal with complex personal and societal issues. She further explains that “agential realism goes beyond dualistic tendencies in its knowledge-producing practices, by focusing on the concept of response-ability and an ethics of entanglement” (Mamic, 2016:1).

I want to state here briefly why I would like to use the diffractive methodology for this study. Firstly, diffraction from a Baradian perspective can be used to acknowledge the

influential role of the knower, and who/what is involved in knowledge production, and particularly how we learn about “material configurations of the world’s becoming” (Barad, 2007:91). For Barad, diffraction is a useful tool highlighting the entanglement of material-discursive phenomena in the world. Diffraction is thus predicated on a *relational ontology*, an ongoing process in which matter and meaning are co-constituted. In this methodology, observer and observed are inseparable and matter and meaning are entangled. This means that we not only want to conduct research from the perspective of particular bodies, but that we also attempt to read the data from our own bodies as researchers (Lenz Taguchi, 2012). The important point is that the researcher is not observing from a distance, but takes an active role in the production of phenomena (or data). Thus, although scientists play an active role in phenomena, the knowledge produced objective and true, in the sense that it is part of the world’s becoming and the objective/subjective distinction in the humanist sense is dissolved (Barad, 2007). Objectivity in the posthuman sense, relates to the issue of response-ability rather than distancing.

Secondly, in this methodology, difference is a tool of creativity. Barad argues that difference is a tool of creation because it is the place of means of becoming, not the opposite of sameness (Barad, 2014 in Bozalek & Zembylas, 2016). We can see some differences in achievement among pupils differently from this point of view. For example, if a child paints black on multiple drawing papers, people will think it strange, but from a different point of view it can be a giant whale painting if you puzzle each black paper. Finally, the methodology of this study relies on the central concept of agential realism, relationality and entanglement. According to Mamic (2015) agential realism is based on accountability and the dynamics of agential realism can play a particularly important role in solving social work problems. Further, the dynamics of realism help to re-examine social differences through a balanced view. It can be applied to the ethics of marginal groups dynamically. Through this methodology, we can overcome some social problems experienced by different social classes with balanced views and propose how we may change recent issues of inequality in school through the empowerment of marginal groups seen through a

transdisciplinary lens that does not reduce educational problems to social problems alone.

In line with this point of view, I will read Bernstein through critical posthumanism using the diffractive methodology in order to create new insights about inequality and injustice in school.

## **Components of the Dissertation**

In this dissertation, I will read Bernstein through posthumanism with diffractive methodology in order to create new insights about inequality or injustice in schools. Bernstein's main concern is about reproducing inequality through pedagogy. But the inequality has to be thought of in terms of a different kind of causality (Barad, 2007). Posthumanism can expose the hidden inequality in the theory of Bernstein and present new ways to consider that problem. I shall argue that critical posthumanism will be able to offer a new approach to the human being in education, and the division of knowledges. Posthumanism may help us to build pedagogical bridges across the multiplicity of intra-and interpersonal 'subjectivity gaps' with which we are faced in curriculum work (Gough, 2004:92). This dissertation will be composed of Four Chapters. In Chapter One, I pointed out the study of inequality found in Bernstein's theory that it is so much connected to the social point of view, and briefly introduced critical post-humanism. In Chapter Two, I will explore the origins of Bernstein's social perspective by looking at his social and academic background. As Moore (2013) says, Bernstein was never shy of proclaiming his intellectual roots in Durkheim. So, by examining the theory of Durkheim in relation to Bernstein we can find the origins of Bernstein's theories in particular the way in which Bernstein perceived a child-being in school and how and why the child distinguishes between school knowledge and everyday knowledge. Chapter Three addresses posthumanism. Based on the relational ontological perspective, I will explore how this differs from the traditional philosophical approach, how it relates to education, and introduce exactly what a posthumanist pedagogy is. Finally, in Chapter Four, I will expand the research by Bernsteinian that addresses effectively the problem of inequality through pedagogy by performing empirical studies in order to move beyond social aspects. I believe it is

time to shift attention from the theories of Bernstein, and the celebration of his undoubted authority as a sociologist, to an extended ethico-onto-epistemological inequality and injustice of education in posthuman times. I will also read posthumanist education diffractively through Bernstein to ensure that this posthumanist education is applied to the real classroom

## **CHAPTER TWO: THE PROBLEMATIC ASPECTS OF BERNSTEINIAN THEORY**

The main purpose of this chapter is to problematise two areas within Bernstein's ideas as mentioned in Chapter One by exploring Bernstein's background. In order to do this, this chapter will comprise four sections. In the first section, I shall examine his background through a consideration of two important contexts: social and intellectual. Secondly, I will explore the influence of Durkheim on Bernstein's theoretical framework. In the third section, I shall examine how his social perspective about child-being emerges through his 'code' theory. Lastly, I will examine the distinction between school knowledge and everyday knowledge as one of his significant premises.

### **Contextualising Bernstein**

Basil Bernstein was born in 1924 in Stepney, UK. In 1951 he graduated with a Diploma in Social Sciences at the London School of Economics (LSE) and then trained as a teacher at Westminster Training College. Between 1954 and 1960 he taught at the City Day College in Shoreditch in the East End of London. In 1960, Bernstein began graduate work at University College, London, where he completed his Ph.D. in Linguistics. He then moved to the Institute of Education, where he remained for his entire career, rising from senior lecturer to reader to professor, to the Mannheim Chair. During his tenure at the Institute, he also served as head of the influential Sociological Research Unit in the 1960s and 1970s and as Pro-Director of Research in the 1980s. He continued his prolific writing as an Emeritus Professor until his death (Sadovnik, 2001). Bernstein had drawn attention to the ways in which schooling had failed over four decades to provide working-class students with access to specific knowledge. He was interested in the powerful forms of knowledge transmitted through schooling systems, as well as who was able to access these forms of knowledge, how, and with what consequences. This concern of Bernstein within the sociology of education can be understood given both his social and intellectual context.

### *Social Context in post Second World War Britain.*

Brook Bolander and Richard j. Watts (2009) pointed out that there was a significant connection between Bernstein and his personal engagement in the context of post-war Britain. After the Second World War, one of the UK's main concerns was to rebuild the level of pre-war industry, economy and education in an environment in which the old divisions into social classes, reaching as far back as the early 18th century no longer worked. More precisely speaking, they wanted to develop their country but realised that an insistence on social class membership constituted a hindrance to the class mobility and permeability that would be necessary to build the 'new Britain'. The major obstacle here was perceived in socialist circles to be the school system. It seemed that when they were pretending to emphasise creativity and imagination in new education, education was still being used as a device to maintain social class and dispute class mobility. In this context, Bernstein realised this was a strategy to reproduce a dominant class without social criticism and was not for educational purposes but for social purposes. This is the key reason why Bernstein paid attention to how social class is reproduced by pedagogy through 'code' and 'language'. In other words, Bernstein saw education not as an education problem but a social problem, and presented four reasons for this assertion: the growing differentiation of knowledge, changes in the division of labour, demand for egalitarian education, the needs for controls on the legitimising beliefs and ideologies. This demonstrates that society will become more and more differentiated and emphasise autonomy, choices, flexibility. And these changes are seen as another force to change the traditional principles of control (Bernstein, 2003b:101). He believed that educational sociologists are sensitive to this political context, because in the wider society, the areas of dilemma and contradiction are more visible in the educational arrangements (Bernstein, 2003b:149). He started to explore what social powers and controls were implicated in that educational movement. This approach, seeing educational movement as a social not educational problem, was fundamental to his study of education.

### *Intellectual context*

During Bernstein's time, sociology of education was flourishing under the banner of 'new sociology of education'. The 'new sociology of education' had started to point out that the problem of inequality relates to the interaction between teacher and pupil, the curriculum of content or knowledge and internal education action in school rather than the structure of education. In addition, they argued, the knowledge that has been taught reflects the benefits of middle-class and has a function to compose a perception in order to make working-class children adapt their structure of class. Therefore, there are valid reasons for interrogating knowledge controls of distribution and organisation. Some British educational sociologists criticised the former conflict theory that considered a school curriculum as a black-box by analysing the problem of educational gaps through the mode of input-output. And they constructed a new sociology of education which analysed the problem of inner education through micro-levels of a pluralist paradigm as a new research trend. Three scholars: M.F.D. Young, Jim Eggleston and Basil Bernstein led this movement in the U.K.. Bernstein points out the limitations of the previous theories of cultural reproduction, which he believed could not provide strong principles in relation to pedagogy. Bernstein focuses his studies on explication of the inner logic of pedagogic discourse and its practices (Bernstein, 2003b). The questions he raised were 'how does power and control translate into principles of communication?', and 'how do these principles of communication differentially regulate forms of consciousness with respect to their reproduction and the possibilities of change?' (Bernstein, 2000). However, although Bernstein represented this 'new sociology of education', he differed in some ways from other scholars. Rochex (2011:80) explains that what is unique about Bernstein in comparison with other sociologists is that "Bernstein pays significantly more attention to the nature and specificity of the practices and knowledge that are constructed, deployed and transmitted in different areas of the social space". Especially, he was unique in that he was grounded in Durkheim who is opposed to 'new sociology of education' as the arch positivist. Moore (2013:33) explains the uniqueness of Bernstein in the field of sociology of education as follows:

Bernstein is unusual, then, in two ways. Firstly, he stands very much apart from the field in which he is located -the British sociology of education. And his foundation is in Durkheim but in a way radically apart from the received Anglo-Saxon 'Durkheim' of the textbook. Secondly, in certain respects, his work can be read as a running critique of British sociology of education, especially in the ways in which early important ideas such as 'classification and framing' and 'visible and invisible pedagogies' imply a critique of the assumptions that underpinned the educational progressivism with which the sociology of education assumed itself to be in a natural alliance. Bernstein was of a generation slightly earlier than that of those who fueled the new sociology of education.

The difference between Bernstein and other scholars of sociology of education is that Bernstein asserts education is located within sociology as the means of addressing the fundamental social problem, but others locate sociology of education in education for addressing educational problems. In other words, the difference lies in the distinction between 'sociology for education' or 'sociology of education' (Moore, 2013:33). The reason why Bernstein held this unique perspective in comparison with other sociologists is that he stood in line with Durkheim.

In conclusion, the unusual theory about inequality in education according to Bernstein is derived from the social context after the Second World War in the U.K. and his intellectual affinity with Durkheim. In relation to identifying child-being, Bernstein seems much more reliant on Durkheim. Thus, in the next section I will explore Bernstein's debt to Durkheim in relation to child-being in education and Durkheim's view of the relationship between society and education.

### **Taking social perspective from Durkheim**

I think like Durkheim one can identify and make explicit the social base of the pedagogic relation, its various contingent realizations, the agencies and agents of its enactments. One can begin to formulate a language for the description of the production and reproduction of its discourses. At a more general level such a study connects with the maintenance and change of the knowledge base of society, and crucially with the maintenance and change of modalities symbolic control, especially those implicated in the process of cultural reproduction. (Bernstein, 2001:364).

Bernstein himself was never shy of admitting his intellectual roots lay in Durkheim (Moore, 2013:30). He was much indebted to Durkheim's views including the fundamental perspective about child-being as a relationship between society and

education. In addition, he took the distinction between school and everyday knowledges from Durkheim. In order to understand Bernstein's of child-being and knowledge structure, we need to explore Durkheim's view about child-being in education.

### *Durkheim*

Functionalism (referred to as structural functional theory; consensus theory; order model; equilibrium model) has been shaped by Comte and Spencer and developed by Durkheim and Pareto, and Malinowski. Functionalism likens society to organisms. Societies, like organisms, consist of different parts, each part performing its own task for the survival of the entirety. In addition, since each part of society is influenced by the other, it is said that a change in one part affects the other part. And society is always trying to maintain stability. Considering that there is already consensus about important values, there is no difference between the parts, and there are functional differences. As a result, social class is argued to be the result of differential compensation due to differences in functions. Functionalism emphasised the positive function of education by positively viewing the relationship between education and society. Its representative functions are socialisation and selection. Socialisation refers to the individual acquiring all the things necessary for an individual to live as a social being, and contributes to the survival of society by education. It also provides students with the opportunity to maximise their ability individually by distributing their social status and income according to their abilities and accomplishments by performing a selection function. This function allows students to classify themselves as people who need it according to their ability thereby contributing to the equality of society. The first scholar to deal with education from this perspective was Durkheim.

Durkheim (1895,) opposed separating or opposing individuals and society. He sought to socially reveal individuals as social beings, and to show that even elements that seemed to be the most 'personal and psychological' in such a position are actually of a social nature. For Durkheim, the individual is a 'homo-duplex'. This means bipolar rather than antithesis. This is deeply rooted in his concept of society and its moving

power. Whatever the theoretical reflection of sociologists, it is clear that individuals are active mediators of culture. In his writing, the aim of education is expressed with more clarity and certainty. For him, according to his definition of education as 'methodical socialisation of the young generation', the aim of education is to move from a non-social existence to existence as a social being. It was underpinned by his ideas of duplex self and his view of seeing school as one area within society. Moore (2013:126) in this respect, figures out the departure point of Durkheim as follows:

The starting point is the fact that 'the social' is both external to us and also 'within' us. The social 'within', however is not identical with our subjective experiences or the content of our values and beliefs (it is, as it were, 'tangential' or 'refracted' in the way that speech and language are not identical). The generative structure of habitus should not be confused with the output of habitus any more than language should be confused with speech.

According to Durkheim (1973), education is the process whereby the young are made into social beings under particular historical circumstances. Central to that process is the inscription of the basic generative categories of thought. These categories are principles of social order translated, through education, into the structuring principles of consciousness. Because these principles vary as societies vary, and because there is no universal human nature, there can be no universal pedagogy. The purpose of the science of education is to explicate the links between particular forms of social order, forms of education and forms of consciousness. More importantly for him, there is no inherent conflict between the collective and the individual. His perception of this decisive factor makes him an idealist. It is beyond the scope of this study to discuss Durkheim's whole theory, so I will attempt to briefly explain Durkheim's ideas around education and point out two crucial features with respect to child-being.

Durkheim's definition of education is this:

Education is the influence exercised by the adult generation on those that are not yet ready for social life. Its object is to arouse and to develop in the child a certain number of physical, intellectual and moral states which are demanded of him by both the political society as a whole and the special milieu for which he is specifically destined (Durkheim 1956 in Moore, 2004:125).

Education is an influence on the young generation who are not ready for social life and its purpose is to cultivate features that are required by political society as a whole

as well as for specific occupations. Education is a process in which adults transform children. The type of transformation effect and how this is achieved is connected with the character of the society. Furthermore, education consists of a different way to socialise a young generation and its purpose is to make them social-beings not individuals. A social-being is not natural nor developed naturally. Therefore, society is faced with a blank slate on which a new generation must be written. Education is creating a new existence from the outside and does not develop innate talents. In this respect, the most important thing is the authority of teacher. The authority of teacher is the crucial source of superior force (educational power) acting on the child's receptivity. The child should be trained to obey this superior authority so that it will respect a future authority conscientiously.

From the above, we can identify out two problematic issues in relation to child-being. Firstly, he presupposed a child in education as receptive-being not activity-being. The role of the child in education is to accept something from the adult associated with a character of the society. The child is simply being prepared for social-being by acquiring some knowledges that are so important in society (education as socialisation). There is no opportunity for children to affect and participate in curriculum or school activity. Secondly, Durkheim sees the authority of the teacher as a source of superior power to operate on the receptivity of the child as mentioned before. Because the child is passive-being, it can be said that the most important thing is an efficient accumulation of social knowledge through the authority of the teacher. Easthope and Bell and Wilkes (1975:41-2) summarised the three elements derived from Durkheimian assumptions like these:

(i) strongly classified knowledge is demonstrated by a structure of insulated subject departments and hierarchical teacher-pupil control; (ii) social control is assumed to be accomplished by positional authority relationships or by manufactured identities, and is thus demonstrated by the existence of a pattern of structural differentiation that places inmates in recognised ability or subject bound units; (iii) structural differentiation is presumed to be related to a conception of knowledge as a form of private property under the control of the teachers. They further explained the coherence of those three elements is explained by reference to higher order concepts, viz. classification and frame.

The following will examine Durkheim's discussion of the distinction between the two worlds, one of Bernstein's most important theories from Durkheim. Durkheim draws a famous distinction between profane and sacred. Profane refers to the everyday world where meaning gives rise to reality. Muller (2003:132) explains the profane world as in flux and as particulars, and "it is driven by the most practical and direct wisdom: proverbs, prudence, street lore on-the-job". Sacred refers to a fixed and crystalized, immutable (Durkheim, 1895). Durkheim (1895:36) says "in the history of human thought, there is no other example of two categories of things as profoundly differentiated or as radically opposed to one another". Durkheim saw such distinction between profane and sacred as perfect distinctions for explaining not only the birth of religion but also every social phenomena and reality. The most important of his assertions is that the sacred is shaped by society. He says "Sacred things are not simply those personal being that are called gods or sprits. A rock, a tree, a spring, a pebble, a piece of wood, a house, in a word anything, can be sacred" (Durkheim, 1895:35). For him, the social meaning of the distinction between sacred and profane is classified into two origins' one is the origin of power and sacredness, the other is the origin of secularity and destruction.

These are the ideas of Durkheim about education and child-being and distinction between two orders of knowledge that we can find in Bernstein's writing that are grounded in Durkheim.

### **Positioning the Child as a Social Passive-being**

The starting point of Bernstein's theory is the discourse of power and control. The power establishes legitimate relationships between categories and it operates on the relations between categories. Control establishes legitimate relationships within the forms of interaction (Bernstein, 2003b). To understand the process of symbolical control regulated by different modalities of pedagogy discourse, Bernstein translated power to classification and control to framing. Classification refers to the degree of distinction of the contents. The classification has been divided into two levels, which are weak and strong forms. Where classification is strong, each category is independent and protects the original identity. Where classification is weak, there is

reduced insulation between contents because the boundaries are weak or blurred. Bernstein found the trivium as the starting point of classification in education of the Middle Ages. Bernstein firmly believed that the classification was the original nature of social structure. Framing regulates the realisation rules for the production of the discourse and it determines the structure of pedagogy. Framing raises a question of controllability of teachers and pupils over the selection, pacing, evaluation and the degree to which community knowledge is used in the pedagogical relationship. When framing is strong, a visible pedagogic practice is demonstrated. This means that instructions and regulative discourse are explicit. When the external features are strong, social class may play a crucial role. On the other hand, where framing is weak, an invisible pedagogic practice is apparent. This means that the rules of regulative and instructional discourse are implicit, and largely unknown to the acquirer. Bernstein expanded these concepts with regard to broad types of curriculum. Where classification and framing are strong we can call that curriculum the 'collection code'. In contrast, where classification and framing are weak we can call that curriculum the 'integrated code'. Bernstein (2003b:75) pointed out that the movement from collection code to integrated code in British educational system can be a dangerous shift in terms of the outside penetrating the schools. That means the local experience of pupil can penetrate the classroom. Bernstein (2004:104-5) says:

I started with classification because classification, strong or weak, marks the distinguishing features of a context. For example, some children when they first go to school are unaware or unsure of what is expected of them. They fail to recognize the distinguishing features which provide the school/classroom with its unique features and so particular identity. Such a failure in recognition will necessarily lead to inappropriate behavior. On the other hand, some children are extensively prepared and are aware of the difference between the family context and the school context. In this case they are able to recognize the distinguishing features of the school, or class, even if they are not always able to produce the range of behavior the school expects. In as much as some children recognize the distinguishing features of the school, relative to the children who do not, those that do are in a more powerful position with respect to the school.

On this basis, he also distinguishes between 'visible pedagogy' (realised through strong classification and strong framing) and 'invisible pedagogy' (realised through weak classification and weak framing). He explains the difference between these two pedagogies is that "the more implicit the manner of transmission and the more diffuse

the criteria, the more invisible the pedagogy; the more specific the criteria, the more explicit the manner of their transmission, the more visible the pedagogy” (Bernstein, 2003b:107-8). Thus, Bernstein’s insistence that we need certain visible pedagogy that would weaken classification between social class and educational achievement. These theories are based on this statement, “home life in different classes socialize children into different orientations to meaning” (Muller, 2004:7).

The problem is that Bernstein started to analyse a reproduction of inequality in education from local differences between social classes not from educational inner systems. Why Bernstein began from society not inner school is because of Durkheim’s influence. Furthermore, as Durkheim did, Bernstein made a contrast between horizontal and vertical discourse, and knowledge structures to explain the differential achievements between social classes (Moore & Muller, 2010:190). Despite the excellence of his theory, we cannot overlook his starting point as exclusively focused on a social approach. Why did Bernstein not start his analysis from various materials in classroom or intra-action between teacher and pupil? Why did he try to find problems at the level of society, not the individual? Why did Bernstein ignore the possibility of working-class children having hierarchic principles of classification? Why did he assume that education systems should promote social opportunity, mobility and change? These are what I want to address in this dissertation about the field of curriculum. Jones (2013) maintains that this theory of Bernstein’s obscures a powerful engine of social reproduction by shifting the critical ‘spotlight’ (Gordon 1981:132) from the education system to the pupil. We can find easily the fact that the child is marginalised in his arguments relating to curriculum. Davis and Tyler and Hasan pay attention to underdeveloped aspects of the pedagogically ignorant ‘subject’ who does not know in Bernstein (Diaz, 2001, in Muller, 2004:7). Such an exclusion of child-being in the field of curriculum is derived from his deep social roots. In conclusion, Bernstein’s approach to the reproduction of inequality in comparison to other sociologists of education is unique but we cannot deny that his approach is much more rooted in a social approach. And this can limit the exploration of real inequality in recent education systems. In the next section, I will explore another problem that I

want to address here, the distinction between school knowledge and everyday knowledge.

## **Problematising the Distinction between School Knowledge and Everyday Knowledge**

The fundamental distinction that Bernstein drew from Durkheim is that between two orders of knowledge: that which is immediately given in the subjectivity of individual consciousness. Bernstein distinguishes between common/mundane (horizontal discourses) – local, segmental, context-dependent, tacit, multi-layered; and esoteric/sacred (vertical discourses) – a coherent, explicit, systematically principled structure, that is either hierarchically organised or takes the form of a series of specialised languages. Mundane knowledge refers to the meanings that arise “directly out of bodily encounters with the world, with other people, with realities” (Muller & Taylor, 1995:263). In contrast esoteric knowledge is not experimental particulars that are continuously changing, but ‘the work of community’. Because it is constituted by symbolic order as arbitrary conceptual relations (Muller & Taylor, 1995).

Bernstein (2000:29) argues that all societies have a “fundamental similarity in the very structuring of meaning”. Through this, he assumes two worlds: material world (everyday, mundane) and immaterial (transcendental) world because in society, there is the form that reveals a particular order of meanings. And he has formulated in his theory the terms everyday/mundane (horizontal discourses) and sophisticated/sacred (vertical discourses) to explain the two types of knowledge associated with the material and immaterial worlds. Bernstein said that “If meanings have a direct relation to a material base, these meanings are wholly consumed by the context” (Bernstein, 2001:30). As a result, it is quite difficult to link those meanings (relation to a material base) outside of the context. In other words, someone who is familiar with only meanings based on material has *Pedagogy, Symbolic Control, and Identity* difficulty accessing a non-material basis of meaning. They do not understand non-material knowledges immediately. Bernstein brought this logic to account for inequalities within the school with regard to relationships between school education and social class. The working-class children's limited language and their context-

dependent knowledge gave them a disadvantage in competing with the middle-class children in school because middle-class children are accustomed to both the non-material and material associations of meaning. Bernstein also points out that the education that causes more inequality is open education—the education that seeks the diversity of knowledge that weakens the boundaries between the contents in school. He raised the question that the diversity of knowledge with the aim of weakening the boundaries between societies and disciplines would not be evenly distributed among all institutions and students. Instead, diversity will be filled through existing reproductive structures, and the hierarchies of current privileged institutions will continue to be maintained (Bernstein, 2001:368). We need to listen to Bernstein's thoughts about boundaries more, because the purpose of this paper is to question whether these boundaries between discourses or knowledges are needed.

Young (2007) says that Bernstein's ideas about boundaries can be seen in two ways. The first is to emphasise the key role of knowledge boundaries as a condition for knowledge acquisition and for the realisation of power relations related to education. Secondly, the strong boundary between knowledge domains and school and everyday knowledges plays a crucial role in supporting learner identity and is therefore a condition for developing the learner. In his theory, the boundary is conceptualised as follows: He distinguishes the degree of insulation between knowledge domains (*classification*) and the degree of insulation between school knowledge and every day knowledge that children bring into the classroom (*framing*). When the distinction between knowledges are strong (for example: history and physics), classification of knowledge can be strong, but when the distinction between knowledges are weak or blurry (for example: humanities), classification of knowledge can be weak. In same way, if there are low levels of insulation between school knowledge and everyday knowledge, framing can be weak, and the distinction between those knowledges are strong, framing can be strong. In his later works, he distinguishes between vertical knowledge and horizontal knowledge structure, focusing on the relationship between the domains and focusing on the structure of the domains themselves.

This is Bernstein's basic theory of boundary. Through this boundary theory he distinguishes between school knowledge and everyday knowledge. This raises several

questions: Does this distinction of knowledge really exist? Is the assumption that any knowledge exists in a hierarchically higher position than other knowledge persuasive? Is not this distinction developed and presupposed to explain Bernstein's inequalities in the school? Bernstein explains that in his short essay (Bernstein, 1999:159), it is not important whether there is hierarchy or distinction between knowledge or not. The important thing is to recognise how important it is in relation to pedagogy. He focused on the power behind knowledge, rather than knowledge itself. Because, for him, knowledge is an object that can be acquired or excluded by competence rather than an object that should be accepted as an objective and public standard (Bernstein, 1999:161). The nature of knowledge is segmental, local, context-dependent. Thus, if knowledge is routine and segmental, it is also a positive function to maximise the encounter between man and environment (Bernstein, 1999:159), but the more dominant action is then dependent on the circumstances or interests power. In other words, it is his fundamental interest to see how it causes inequalities in the school functions rather than whether the distinction between knowledges is real. According to Mueller (2001:139), the distinction and boundary between knowledge discourses is most clearly when considering acquisition as follows:

Horizontal discourse is acquired in segments where there are only loosely organized rules of distribution. It is context-dependent, and transfer across contexts can occur only on the basis of analogic extrapolation. Vertical discourse cannot be acquired segmentally, only via specific principles of recontextualisation, and access to which is regulated by explicit distributive rules (who can get what, when, and how).

Bernstein's concern is that working-class children have failed to gain school knowledge as determined by the curriculum makers controlled by a specific social class. Although it is not clear whether or not there is a distinction between knowledges, it can be said that it is working within the school in terms of acquisition of knowledge.

In summary, Bernstein presupposed the distinction between knowledges as the two fundamental orders in the world through the influence of Durkheim. And through this distinction, he has developed a discussion of the reproduction of inequality, especially with regard to the acquisition of school knowledge in the school. Distinguished

knowledge is acquired through distinct ways and cognitions. Working-class children are failing in the recognition and acquisition of school knowledge, which Bernstein claims is a reproduction of inequality by the power that determines what knowledge in the school should be taught. In the next chapter I will discuss how the premise of the distinction between knowledges can lead to another: inequality.

### CHAPTER THREE: CRITICAL POSTHUMANISM AND EDUCATION

We need to understand that five hundred years of humanism may be coming to an end, as humanism transforms itself into something that we must helplessly call posthumanism (Hassan, 1977).

In Chapter Two, I examined the background of Bernstein's theories and the dualistic thinking of Durkheim in which his theory is rooted. The reason why I focused on this is to grasp how posthumanism can move beyond a humanistic, dualistic, educational sociological approach to inequality in education. The interest in humanistic thinking is based on dichotomous thinking that requires an object to be interpreted by subject, thereby separating the subject and the object. Rene Descartes, a mathematician, philosopher and father of modern philosophy in France, after questioning all forms of knowledge methodically, said famously, "I think, therefore, I am." Descartes' expounded a dualist philosophical system which distinguishes two essentially different substances: Mind and Body. The essence of the Mind is spirit and the essence of the Body is extension. Descartes' metaphysical system is 'rational' in that it is derived through reason, but Descartes' physics and physiology is 'experiential' in that it is based on knowledge acquired through the senses. Clearly, for Descartes how body and soul interact is theoretically problematic. The problem is that as a dualist he posited the existence of two essentially different substances, therefore how can body and soul interact in a human being? He was famous in the arenas of mathematics and philosophy, but in addition he was interested in anatomy and neuroscience. Interestingly, he viewed the pineal gland as a place where the soul resides and viewed the soul and body as interacting in the material (fibrous). Thus, he cannot be said to be a perfect dualist who refers to the total separation of the perfect mind and the body. Of course, many of his anatomical neurological assumptions were erroneous (Lokhorst, 2013). If the starting point of Western modern philosophy is Descartes, the end point is Georg Wilhelm Friedrich Hegel. The two philosophers are clear contrasts from the point of view of philosophical history, but Hegel is still Cartesian in that the concept of the independent human mind presupposed by Descartes. Hegel (1991), like Descartes, assumes an independent mind separate from the body, and argues that the law of society is a mind as the second nature created from this mind.

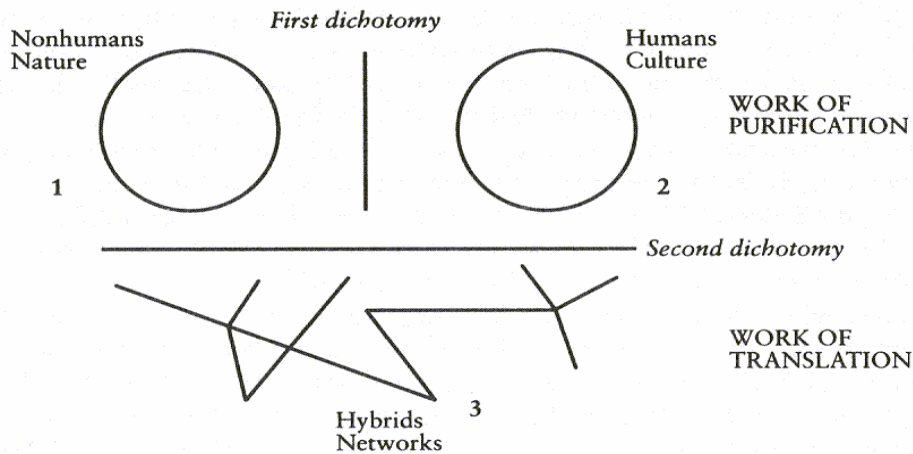
Marx and Engels, philosophers of German Idealism, are critical of Hegel and point out his failure to acknowledge that human nature is not located outside history, politics and social relations. They argued that consciousness does not determine the social life of an individual but rather the opposite. The subject is not given, and not the cause but the effect of an individual's material conditions of existence. There is "an awareness that radically different material conditions of existence produce incompatible subjectivities" (Badmington, 2000:5). Marxist critique opens the way for anti-humanism. At the same time, historically, psychology develops by adding unconscious motives and thereby also challenges humanism. Jacques Lacan who was Freud's faithful interpreter, reconstructs Descartes words as follows: "I think where I am not, therefore I am where I do not think ... I am not wherever I am the plaything of my thought; I think of what I am where I do not think to think" (Lacan, 1997:166 in Badmington, 2000:6).

In the course of the development of anti-humanism, posthumanism is the most powerful critique of traditional humanism with the human as a measure of all things, as well as disrupting dualisms such as mind/body, nature/culture, human/non-human. Although it has to be said at this point that many posthumanists are not anti-humanists as the progress made in terms of rights and privileges for the less powerful that have been gained through humanism should not be forgotten (Braidotti, 2013). Posthumanists problematise the idea of the human being as central, divisible into inside/outside, nature/culture etc., as objective observers of a world at a distance, and instead the monist philosophy posits a relational ontology with the key notion of 'entanglement'. It is not just the entanglement of nature and culture, the entanglement of observers and objects of observation, the entanglement of human beings and non-human beings, but the entanglement of everything, including time and space. In a time when the criterion of 'human' presented in a universal form is widely criticised because it discriminates against anything other than the white, male, heterosexual, able-bodied ideal of humanism, we now demand a new ontology (Braidotti, 2013). Thus, posthumanism demands that the starting point of a new ontology is not an individual entity but relationality (Ceder, 2016). In this chapter, I will look at the understanding of relational ontology to relationally understand all

beings based on the fact that there is no essence that can be defined philosophically or scientifically, and to examine the relevance of this posthuman ontology for education.

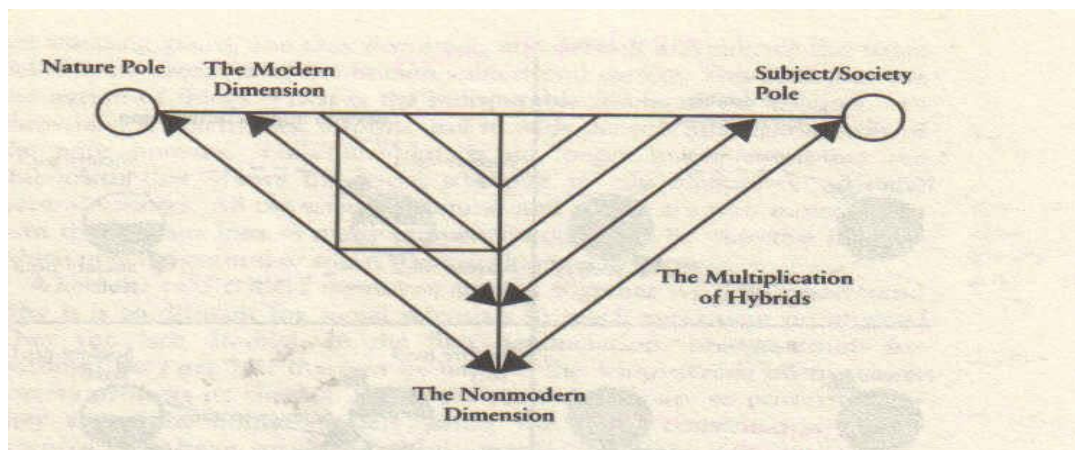
## **Relational Ontology**

The dichotomy of nature/society has its roots in a dualistic ontology, where the world is fundamentally composed of two heterogeneous beings, humans and non-human beings. Since the 17th century, Descartes had insisted on the Platonic dualism of the body and the mind (as substances) This ontology was inherited in the 18th century Enlightenment period, as the dichotomy of the object/subject and transformed the object into a world of 'fact' (World), and the subject as belonging to the world of 'value' (i.e. the world of reason and freedom). The Enlightenment, the ideological basis of the French Revolution, succeeded and spread throughout the West, so that dualist ontology eventually became the dominant worldview of the West and supported the rise of capitalism. In this view of the world, human beings are fundamentally different from all non-human beings on Earth and can therefore justify the domination of non-human beings. A Human can learn to choose his own purpose as the master of his destiny and to do all that is necessary to achieve it, including using nature as a resource. Because the world is vast, it gives humans an unlimited opportunity. Therefore, human history is seen as a history of progress. There is a solution to every problem, and therefore progress does not have to stop. However, it is true that many philosophers have registered deep concern about this notion in Western ideological history since the 17th century. The theory is most noticeable is Bruno Latour's ANT (Action Network Theory). In his book, *We've Never Been Modern* (1993), he argues that "since the 17th century scientific revolution, westerners have espoused the dual ontology of nonhuman/human, nature/society (expressed as "purification work") (Latour, 1993:11). In fact, we have contradicted many hybrid or heterogeneous networks of human-non-human beings through science and technology without any reflection (that is, 'translation work'), and he claims that this is the cause of global ecological crisis today. (see below, Figure 2)



**Figure 2: Purification and Translation (Latour, 1993:11.)**

He points out that modernists have allowed hybrids as experimental materials for science and technology, but they have also created an ecological crisis by concealing their impact on society as a whole. Therefore, it is necessary to provide an ontological space for understanding the identity of these hybrids and accepting them through appropriate processes. It is a non-modern dimension that is not a modern dimension (= a horizontal axis representing 'purification work') but a non-modern dimension that forms a vertical axis (= axis of translation work) in the middle zone of the modern dimension (Latour, 1993).



**Figure 3: Purification and Mediation (Latour, 1993:51).**

Therefore, Latour sought a new non-modern ontology that rejects the dual ontology of modernity and does not distinguish human and non-human agency (the ability to bring change to the world). This is what many scholars call 'relational ontology' today. In short, relational ontology is the view that all reality emerges from relational

practices among actors. Thus, reality is not assembled in any fixed essence, but in assemblages, always in a complex nature, with uncertainty and variability. In this sense, Latour's 'Reassembling the Social' is an effort to transform the present modernist sociology, which stands for its dual ontology, into a non-modernist sociology based on relational ontology.

The critique that Braidotti and critical posthumanism have applied is not merely to criticise and deny the human-being. It is a denial of the acceptance of one way of thinking about the human: the notion of European white men that humanism has been taken for granted for a long time. This is not only a preselected basic model from a previously established standard, but has also served as a tool to judge and control others. Braidotti (2013:26) is critical of the human as "a normative convention, which does not make it inherently negative, just highly regulatory and hence instrumental to practices of exclusion and discrimination." She saw this as an historical construct and social convention. And she also criticised the constitutive approach that although not entirely negative, can be used as a dangerous tool to enable discrimination and control. In other words, she rejects a dialectical reasoning scheme in which otherness plays a constitutive role (distinguishing differences). She writes:

to be 'different from' came to mean to be 'less than'. The dominant norm of the subject was positioned at the pinnacle of a hierarchical scale that rewarded the ideal of zero-degree of difference. This is the former 'Man' of classical Humanism (Braidotti, 2013:28).

In other words, posthumanism is not a demise of the human, but a demise of 'Man' – the measure of all things. With this demise of the humanist human, she proposes the transversal and relational nomadic subject or extended nature-cultural self. She argues that the end of classical Humanism is not a crisis, but entails positive consequences.

Braidotti (2013) has an important shared point with posthuman theory, and it refers to the natural culture continuum. The natural culture continuum is a scientific paradigm based on the philosophical separation of the subject and object in Ancient Greek metaphysics. It informs the social constructivist approach that categorises the given and the constructed. She argues that the traditional dualistic approach, which

depended on the dichotomous confrontation between the given and the constructed, is being transformed into a monolithic way of non-dichotomising the interaction of nature and culture in a monist ontology. The philosophy of monolithic emphasis is that life matter is vital, self-organising, and non-natural. She says the categorical boundary between natural and cultural is shifting and much more blurred by the advancement of science and technology. Regarding the relationship between humans and animals, she agrees with the argument of Wolf “they need to be approached in a neo-literal mode, as a code system or a ‘zoontology’ of their own (2013:70). According to Braidotti (2013:71), posthumanism removes the dialectical oppositional schema and recognises deep *Zoe* -egalitarianism between humans and animals, instead of a well-established dualism. Thus, the ethnology of power based on Spinoza ethics, based on a monist ontology, emerges as the main reference point for changing human-animal interactions. Further, she maintains that we need monistic relationality a la Spinoza reread by Deleuze and Guattari in a way that fully deals with the complexities of modernity, thereby avoiding the pitfalls of dualism. This enables the intersection of relationships by emphasising processes, vital politics, and in deterministic evolutionary theories. Braidotti, referring to this tendency as the ‘matter-realist’ trend, argues that “primacy is given to the relation over the terms, which foregrounds the transversal connections among material and symbolic, concrete and discursive entities or forces, which include non-human Life.” (2013:159). Therefore, she emphasises the importance of recognising that we are the effects of unsteady flows of accidental encounters, interactions, emotional alterations, and desires. We can now call us (humans) as effect in this relational ontology.

Karen Barad (2007) likewise a critical posthumanist, argues for an agential realist ontology based on empirical studies of new quantum physics discovered in the 21st century. She rejects existing dualisms by drawing on Neil Bohr's new empirical findings in the domain of atomic physics. Like Braidotti, Barad (2007) also proposes a relational ontology but through science studies. She regards Bohr's quantum mechanics as a challenge to not only Isaac Newton's physics but also to Cartesian epistemology and its representationalist triadic structure of words, knowers, and things. The question raised by Bohr about Descartes is the latter's belief in the

inherent ontological distinction between subject and object. What Bohr (1958) discovered in his work is that things do not have any intrinsic boundaries or individualistic characteristics, and the words themselves have no inherent meaning by reference to a world outside the human. Although Bohr has examined the consequences for epistemology, the fresh insight that Barad brings is to acknowledge the ontological implications. What she postulates is that the primary ontological unit is a 'phenomenon', not an independent entity with its own boundaries and characteristics. And this phenomenon is not an observed or laboratory result, but "ontological inseparability/entanglement of intra acting agencies" ... She defines the phenomenon as "ontologically primitive relations without pre-existing *relata*" (Barad, 2007:139). Thus, nothing can exist as a *relata* in a phenomenon before a relationship, and all these *relata* occur through a specific intra-action, which again defines agential separability. And she presents this agential separability as an alternative possibility of classical existential dependence. Intra-activity enables the penetration of many non-human beings that were previously passive into entanglement in this phenomenon as active participants (Barad, 2007:139).

Ceder (2016:33) writes that "the most common use of posthumanist ideas in education is to critique a view on non-human aspects as passive objects and instead include them in educational research in a post-anthropocentric manner". Barad (2007:140) further explains:

In my further elaboration of this agential realist ontology, I argue that phenomena are not the mere result of laboratory exercises engineered by human subjects; rather, phenomena are differential patterns of mattering ('diffraction patterns') produced through complex agential intra-actions of multiple material-discursive practices or apparatuses of bodily production, where apparatuses are not mere observing instruments but boundary-drawing practices specific material (re)configurings of the world-which come to matter. These causal intra-actions need not involve humans. Indeed, it is through such practices that the differential boundaries between humans and nonhumans, culture and nature, science and the social, are constituted.

Barad argues that we cannot ontologically separate the material from discourse. She argues that material and discourse are intertwined in the dynamics of intra-activity (Barad, 2007:152). As such, she calls on us to focus more on dynamic relationships than on any entities by postulating ontological units in space and time. This

dynamism is an ongoing reorganisation as a performative agency. Her agential realism focuses on the process of their interaction to avoid, like Braidotti, a dichotomy between material and cultural (Braidotti, 2013:158). Ultimately, existence is not an individual event defined as human, so Barad focuses more on the entanglement of human beings and non-human beings and pursues a new ontology.

## **The Implication of Posthumanism for Education**

It is difficult to express the specific vision that posthumanist education can offer, and it is open for posthuman researchers to explore the implications (Snaza et. al., 2014:52). But in the context of a posthuman relational ontology, the posthuman educational task must (at least) include the following features:

- Posthuman education should be about an education that gives up the distinction between knowing subject and known objects (the Cartesian binary). This allows us to rethink how meaning for the knowing subject is generated.
- Posthuman education needs to consider the important structure of the context and relativity in which knowledge is generated (the notion of 'situatedness')
- Posthuman education should focus on continuity between human and non-human. There is not a difference of kind, but a difference of degree between the two.

In her study of the relationship between critical posthumanism and the curriculum, Jamila Siddiqui (2016:66) explains the assumptions of the who, why, what, where and how of a posthumanist education:

**Who:** Students are repositioned on the boundaries of human to non-human and non-human to non-human.

**Why:** Educating for social justice is a social justice that includes not only human, but all non-human beings.

**What:** In education, language has now lost its dominant identity and all possible materials should be considered in the classroom. "Thinking moves beyond representational images and into new realms such as sound" (Beier, 2013 in Siddiqui, 2016).

Where and how: The most explicit expression of a posthuman curriculum appears in Snaza (2013) as "bewildering education" [Snaza, 2016:66, my summary].

Nathan Snaza (2014) realised that in the work of reading humanism education from Ancient Greece to the present, humanism is based on one fundamental assumption: the conception of the human as both a starting point and an end point. Humanism assumes that human beings are inherently different from animals and machines. It is a premise that assumes that animals can *react* but only humans can *respond*. The starting point of postulating human beings as distinguished from non-human beings implies that only in education the focus is only on human beings with a linear educational trajectory and goal and the non-human is ignored. It is what Deleuze and Guattari call a 'tree structure' in that all education has an end point with a vertical, hierarchical structure like a tree with a trunk and branches growing upwards. As an alternative, and to overcome the limitations of this humanism, Snaza (2013:47) suggests a posthumanist education and argues that "human/animal; living/non-living; communication/language—are crumbling or have crumbled," and human is no longer the only knowing subject on earth. He is critical of a humanist education with its linear starting point and end point (see above), and suggests a posthuman "bewildering education" (Snaza, 2013:39-40). This education is an education that does not know where it is heading. The nuance of this word makes it look like an education that must fail, but he explains that this is not the case. Snaza argues that this kind of education will lead students away from the familiar, fixed, and well-known to a new, unknown world. It opens the door for us to move into a new way of thinking and doing from a position of infinite potential and possibility. Snaza (2014) admits that he cannot yet give details of this, but it can be done by bringing relational ontology into the classroom as we have seen earlier.

Hillevi Lenz Taguchi (2010) deals with this relational ontology in connection with two strong contradictory discourses present in contemporary education. The first is an educational movement that increases complexity and diversity, and the other aims to reduce this. She finds in relational ontologies the possibility of overcoming these two contradictions in education today. She argues that education based on a relational ontology (or the 'material turn') will seek to: include active participation of the non-

human (Lenz Taguchi, 2010:12). Secondly, this education should focus on the relationship between the human and the non-human, not only on the human subject. As humans we need to understand ourselves in a constant and mutual state of responsibility as a subject that both affects and receives. And in the classroom where these phenomena occur, we must have a 'collective responsibility' that is created by the immanence of relationship between all matter and organisms (Lenz Taguchi, 2010:52). Thirdly, this kind of education escapes from perceiving learning as a technical process of expression, reproduction, categorisation and standardisation. It means working with new theories and perspectives that require new ways of thinking and doing. It does not provide certainty and predetermined outcomes, but requires that we are accountable for our own meaning-making and for the relationships with what is different. Lenz Taguchi proposes (2010) the idea of an intra-activity pedagogy. As we have seen, this relies on the ontology of immanence, which is to recognise that as humans we are *part of the world*, and not at a distance from the rest of the world. Such a posthuman position implies that we are regards our own agency as well as non-human agency as intrinsic.

From another perspective, Maria Kromidas (2014) provides an image of a new pedagogy that transcends this dichotomy between the human and the non-human, but focuses on the child/adult binary. She points out that the binary between child and adult is still left in place, despite endeavours to overcome many gender and human/non-human binaries (Kromidas, 2014:426). According to Kromidas, when a human being is defined as having an essence with particular qualities as in humanism, some humans are necessarily marginalised and the most powerful alienation is the treatment of children as not fully human. Treating children as not fully humans leads to a curriculum design with content knowledge that has already been predefined and set out according to fixed ideas about what a child should learn and decided by the more fully human adult. This requires children to follow a set educational trajectory of socialisation and formation. Although Kromidas and Lenz Taguchi are both critical of normative humanist education, the former focuses in her critique on how this kind of education gives children the opportunity to recover what human beings supposedly are in essence according to humanism, rather than being concerned about expanding

these humanist boundaries of what it means to be human to include children (Kromidas, 2014:427). Now, in posthumanist education, the child is not an empty vessel to be filled in order to become a full human being, but is regarded as a dynamic performer in the process of becoming that is always possible to move toward creation.

In an article introducing children as educators, Haynes and Murriss (2013) introduce the child as a co-educator rather than a mere learner in the traditional society, or the child as peer-educator, or the child as educators of the teachers, and implicitly to the child as educators of curriculum-advisors, policymakers and teacher-educators. The implications of these ideas is that the child can be seen as educating teachers and colleagues, and even play a role as policy maker rather than simply being regarded as a 'baby bird'. The child is now not a mere object of knowledge acquisition, but an active being that can also educate adults, and offer schools advice on their curricula. This does not simply mean that the content of the curriculum should be determined by children, but that the child also has an agency and should have an ongoing influence on the formation of the curriculum.

I have so far described my understanding of how the relational ontology explicated above is related to education through the scholarship of Snaza, Lenz Taguchi and Kromidas. What remains in this chapter is an exploration of the pedagogical relevance through the idea of a rhizomatic curriculum and a posthuman diffractive methodology in order to offer a responsible diffractive reading of Bernstein and posthuman education that does justice to both approaches to education. Before I do that, I summarise the manner in which posthuman education works in repositioning our education in the following three ways.

Firstly, a child is positioned as a fully human being and has an agency that is equal to all materials which can influence all aspects of education, even curriculum policies. Children are no longer baby birds waiting for their mouths to open and to be filled by food supplied by the grown-up bird. Children are no longer seen as inadequate, uninformed and with no relevant experience or knowledge. Rather, the notion of child

has been transformed into a being with agency that plays a crucial role in the school as dynamic performer.

Secondly, all materials act as 'third educators' in schools as performative agents. The chair, the carpet, the desk, the water, the wind, the temperature, the teacher's footsteps and so on, also play an active role in what emerges in the classroom.

Thirdly, the attention in education has shifted from unity to relativity. We no longer need to pre-set what is essential in education, what is prescribed, and what can be normalised. Of course, there is still the problem of hidden power relations, which will be discussed in the next chapter. Nevertheless, I will now focus on certain interrelationships between the child and adult that take place in the intra-activity rather than on an effort to anticipate one essence or to set the essence in advance. There is no *relata* prevailing before the relationship. We start from the relationalities and stay in the relationalities through the intra-active.

## **Rhizomatic Curriculum**

Noel Gough (2007) points out that the space of inquiry into curriculum in the age of increasingly complex information/communication/knowledge/technology is becoming more suited to rhizomatic thinking rather than the fixed thinking that has traditionally been pursued. In particular, it is clear that fixed thinking cannot contribute to the quest for a national curriculum that suits the era of globalisation. In order to achieve this, it is necessary to study curriculum through rhizomatic thinking. The idea of the rhizome has been explored in Chapter One, so I now give some suggestions as to how rhizomatic thinking may contribute to the creation of a curriculum in an era of globalisation.

First of all, the rhizomatic structure can provide an appropriate solution to the harmonisation between the various divergences. The uniformity of diversity about what is more right or valuable than that on which traditional western philosophy has focused can no longer be welcomed because no one has been qualified or mandated to decide the comparative value of one thing above another. Of course, the rhizome is not the perfect match for all the differences. However, it is possible to eliminate the

inconsistency within existing hierarchical knowledge structures. As Bernstein (2003b:92) pointed out: if the integrated curriculum is advanced with the hierarchical knowledge structure in place, other topics will be absorbed by the subject that are deemed more valuable. Only those topics that are judged to be more valuable will survive later. We can never ignore the possibility that only those subjects that will help future career choices within a highly capitalist society remain in the curriculum.

In the rhizome structure, the productivity of differences in concepts is opened. If the tree structure pointed dot, the rhizome creates a constant connection. There is no position or place in the rhizome structure. And there are only lines. Within the rhizome structure, diversity is flat (Deleuze & Guattari, 1987:7-8). Deleuze's and Guattari's concern is not to interpret a concept but to ask how it is (or can be) created. In the rhizome structure, not the hierarchy, the subjects are given the agency to act for another production through the difference to the mutual acknowledgment of the differences between them. The conceptual absorption cannot occur in the rhizome structure because every concept in the rhizome structure is a "finite multiplicity" (Gough, 2007:285). The present time of the rhizome is not separate from the past and the future, but always with the connection of the past and the future. MacKenzie (Mackenzie, 1996, in Gough, 2007:286) wrote that "without a presupposed limitless expanse of time we could not talk of the present".

Second of all, the rhizome structure can contribute to the procedural and substantive change of the curriculum. Deleuze and Guattari (1987) argue that the rhizome rejects linear movements that involve starting and finishing based on traditional philosophical thinking based on binary logic and instead always seeks to stay in the middle. This does not match the traditional curriculum that has set the starting point and ending point and has added educational content. A traditional humanist curriculum follows the order of setting educational goals first through pre-determined learning outcomes and then setting the contents and methods of education. This is like a tree structure, in which first the educational goals are the roots, the contents of education are based upon those roots (that is, grow out of them), and then the pedagogies employed follow from that. There is a clear expectation for a specific educational 'fruit' (on the tree) that is predetermined. There is a beginning and a

destination. But it does not work like that in a rhizome structure. All concepts in the rhizome structure are entangled and located in the middle with no beginning or ends. As a result, the curriculum does not need to set up training content with expectations for certain pre-set goals and results. Of course, humans cannot escape from the objective perception, some goal setting is needed, but the direction and content can be modified at any time by the human and non-human intra activity in the classroom. Educational goals do not have the power to control content or educational activities in the rhizomatic curriculum where creative becoming emerges through constant entanglement. There is movement through intra-activity through agencies that teachers, children, and materials share together, but there is no movement towards the target.

Last of all, the rhizome structure helps the curriculum to be constantly emerging, in other words, it is an emergent curriculum. We can also refer to the curriculum with a rhizomatic structure as the 'becoming curriculum'. Seller (2010:562) explains this becoming curriculum inspired by Deleuze and Guattari as a possibility for working with a conception of children as embodied be(com)ings. From this point of view, the child may be an alternative epistemology in which a dynamic process proceeds. So now the curriculum needs to hear the children's 'voices' although voice does not mean just the sound that comes out of a child's mouth, which would be a humanist idea. Seller (2010:563) explains:

Understandings of becoming-child(ren) and becoming-curriculum are used for exploring the situated production of subjectivities of children alongside notions of curriculum in ways that decentre hierarchical arrangements, such as hierarchical arrangements in which adult conceptions of curriculum assume precedence over young children's understandings of curricular performativity. Within the web-like interactions of rhizomatic thinking, of interconnecting and intersecting, becoming is not about becoming anything specific, rather, it is what happens in-between, so that 'becoming is the very dynamism of change, situated between heterogeneous terms and tending towards no particular goal or end-state.

Changes in this perception of the curriculum and of the child being encourage us to understand the curriculum as a stream of becoming. The rhizome structure not only disrupts the hierarchy of knowledge, but also puts everything in the middle for becoming, so that newness of connection and in order to understand the rhizome

curriculum. In other words, when we examine today's curriculum, we must be able to see both its past and future. From this point of view, we can avoid setting up a curriculum for fixed goals through simple comparison and criticism.

But here we should be careful. I am not now claiming that the curriculum that relies on the existing knowledge structure of the tree structure is wrong, and that only the knowledge structure of the rhizome is the right structure for the curriculum. If I say so, I am simply attempting to make another fixed point. Discarding the knowledge structure of the tree structure and making the rhizome structure a model is not much different from what anthropocentrism education has been doing in the meantime. It is just a repetition of the same mistake. Only the tree structure has been replaced by a rhizome structure. The reason I explore the possibility of a new curriculum here through the structure of the rhizome is because I want to provide a new pathway to open a place of becoming for new possibilities through the structure of the rhizome. Drummond (2005) states that the structure of the tree and the structure of the rhizome are not mutually exclusive. He explains that it is more productive for us to regard these two as unpredictable interactions, rather than as oppositional concepts in structure. He says that there is no pure rhizome or tree structure. We can only grasp the near or far rhizome structure, the near or far tree structure. He argues that what we need to consider is not a choice of the structure of rhizome or tree, but of understanding the specific nature of them and developing a mechanism that can conceive of those two structures together. I am especially pleased that he does not explain the structure of the rhizome as an oppositional concept of something. Tree structures may also occur within the rhizome structure because it is a path that may lead anywhere. I think that understanding rhizome structure and tree structure as opposed to intentionally preventing the occurrence of tree structure within the rhizome structure is also just an extension of humanist education tradition. We need a new understanding of the tree structure in the rhizome structure and I believe that the hierarchy of Bernstein can be an active movement to generate creative insights within the rhizome structure of the posthumanism curriculum. The reason I am trying to re-examine Bernstein's hierarchical knowledge structure in this paper is not because it is wrong, but to provide new insights through thinking of the structure of

the tree and the structure of the rhizome. For this we need a methodology that is different from the conventional one, but the diffractive methodology based on the wave/particle duality can be one of them. The last part of Chapter Three will address this diffractive methodology.

## **Diffractive Methodology**

The theoretical development process of the diffractive methodology is described in Chapter One. Barad's diffractive methodology does not mean merely differentiation. It is rather a connection and commitment (Barad, 2009). Diffractive methodology is basically based on the particle/wave dualistic of quantum physics. It is interesting to note that in quantum physics, J.J. Thomson won the Nobel prize for describing the electron as a particle and his son George Thomson won the Nobel prize for describing the electron as a wave. How can both positions be true? This is because the existence of electrons depends on the kind of apparatus the researcher uses to measure. In other words, there is no essence of an electron before its measurement. Following this new ontology, the diffractive methodology can be understood as an effort to discard the possibility of finding an existing essence before measurement thereby creating different characteristics (wave or particle) depending on the apparatus used. To better understand this methodology, it would be beneficial to look at Vivienne Bozalek and Michalinos Zembylas' paper on how diffractive methodology differs from reflection in educational research. Reflection is like mirroring. It is understood as an activity for an inner activity which looks back on one's inner self in order to make a new change. This reflection is mainly used in sociological discourses (Bozalek & Zembylas, 2016:3). Bozalek and Zembylas (2016:3) argue that reflection first focused on individual social response and then shifted focus to "how knowledge is generated and how power relations influence the process of knowledge production". The latter confirms that Bernstein's work can be seen in terms of reflection. And this sociological approach to reflection develops into critical reflection, exploring how power relations affect the production of knowledge in teaching and learning, including the process of reflection itself. Reflecting on this aspect, reflexivity has been defined as a generalised practice in which researchers attempt to acknowledge their influence on research.

According to Bozalek and Zembylas, the fundamental purpose of reflectivity is to increase transparency and reliability in research. However, there have been many concerns and criticisms about the uncritical adoption of reflectivity. The reason is that it “involves ambivalent particles and produces partial counts” (Bozalek & Zembylas, 2016:4). However, this reflectivity is lacking in reading the aforementioned tree structure and the rhizome structure together because reflective methodology requires critical thinking to connect social and power relationships. Haraway and Barad suggest a diffractive methodology as an alternative to critical reflexivity. There are two reasons for this. First, in reflection, boundaries between subject and object are not produced by the methodology, but are assumed in advance. The second is that reflection is still focused on a subjective researcher concentrating on reflection through the subject. However, in the diffractive methodology, neither subject nor object exist as individual units in space and time, but are entangled with each other creating new insights. There is only intra-action and connection between human and non-human (Bozalek & Zembylas, 2016).

For a responsible reading of Bernstein and critical post-humanism that will begin in the next chapter, I want to summarise here the diffractive methodology in three simple ways. First, diffractive methodology is an attempt to escape from the modern dualist habit of thinking. Secondly, the diffractive methodology is a perpetual reconstruction of space and time, and the materials of educational environments – what Barad (2007) calls ‘space-time-mattering’. This is because in this methodology, time is not a linear structure but a (quantum) entanglement. Thirdly, the diffractive methodology constantly opens up new ‘spaces’ for thinking and doing. This methodology focuses on how to open up other possibilities through continuing questioning and concept creations and the differences that are continually emerging. If this is a diffractive methodology, the most proactive way to do this is to create an atmosphere in which all differences, especially disciplinary differences, can be communicated respectfully. It can be regarded as a boundary crossing, trans/disciplinary methodology. In Bernstein’s case, sociology should be in dialogue with other disciplines in a respectful way.

## **CHAPTER 4: READING BERNSTEIN AND CRITICAL POSTHUMANISM DIFFRACTIVELY FOR TRANS-MATERIALS EGALITARIANISM PEDAGOGY**

This chapter will be responsible for reading Bernstein and posthumanism diffractively through one another. The diffraction of Barad allows us to see and reinforce the connections which are seemingly opposite (Van der Tuin, 2011:27). This is based on the shift from interaction, where we start with separate entities that interact, to intra-action, where there are intra-actions through which subject and object emerge (Dolphijn & Van der Tuin, 2012:55). Diffractive methodology allows differences to intervene, co-establish one another, respect, exist, and flourish, unlike the traditional modern Western philosophical approach that seeks, assimilates, and eradicates differences. This focuses on a thoroughly non-dualistic, non-separational model (Geerts & Van der Tuin, 2016). This diffractive methodology allows us to identify and strengthen the link between two seemingly opposite theories beyond the politics of negation (Van der Tuin, 2011).

In this chapter, Bernstein and posthumanism will not read the other as separate subjects. I will read Bernstein and critical posthumanism diffractively through one another in order to create new insight for trans-species egalitarianism education that they seek in common. Bernstein, who has devoted himself to the analysis of power and control in relation to inequalities in the school, has described inequalities in relation to unequal distribution of power, and social groups and strength of boundaries. In this regard, I will explore four concepts related to this egalitarianism through Bernstein and critical posthumanism and suggest the concept of transversal egalitarianism in relation to equality in education. The four concepts are subject, boundaries, power, and causality and I will argue further that reading Bernstein and critical posthumanism diffractively may give us a new understanding of where inequality is occurring.

### **Knowing Subject**

Bernstein implicitly employs a structuralist approach. According to him, subject is social and “is socially constituted in meanings and these are specific cultural orders produced on the basis of differential arrangements or differential distributions” (Diaz,

2001:88). It can never precede categories and is not a founding category of abstract meaning. As for the relationship between subject and meaning, he claims that the subject does not produce meaning but meaning produces subject. He denies the notion that a word from someone's mouth comes from the person's unique subject. The meaning is entangled in subject production, and the subject is created by means of difference, opposition, and positioning, displacement, and substitution that make meanings. In particular, meaning creates differences and by such differences unequal relationship is redefined. Meaning is investing in subjectivity, positioning, and power relations. Thus, the subject, which is constantly reproducing the meaningless unequal relationship and is created together with it, cannot but be read in this unequal relationship. Since this production is not conclusive but perceived in a perpetual cycle, it "reminds us of the dialectical relations between the objective structuring structures and the internal or subjective structured and structuring codes that regulate practices" (Diaz, 2001:88). Subject and meaning are always structured in the opposite-position created by power relations. Diaz (2001:88), in this view, pointed out that for Bernstein, the subject exists in the play of the differences between the spaces. He further explains:

A more interesting way of explaining Bernstein's position is to say that the subject is an inscription in the discontinuity of meanings drawn from oppositions within and between fields. The subject in Bernstein speaks, realizes the voice, from a position such that there are no absolute meanings. A positioning in meanings is always a relational positioning which can be structured and deconstructed. Different symbolic positions arising from power relations are constitutive, consciously or unconsciously, of different forms of subjectivity (Diaz, 2001:88-89).

Bernstein, who relied on the 'homo-duplex' of Durkheim also manifests both individuals and social in the subject. Bernstein liberated the subject from self-determining being by developing his code theory, and the code becomes a means of the relational subject. Thus, in Bernstein, the subject is not a determined view or a fixed essence, but a relationship, that is, an educational relationship in which a subject emerges. The subject and educational relationship affect each other. The subject is created by the educational relationship, but the reaction of the subject in the process of production makes difference the result of educational relationship. If we understand this educational relationship constructively, the subject becomes the

potential of that space. We can find in Bernstein's subject understanding that he focuses on a relationship that is not an individual subject, similar to posthumanism. In analysing recent fields of identity, he argued that the subject had been re-contextualised with a specific identity in a way that excluded certain others, and criticized the process of exclusion can be a 'sinking of moral imagination' (Diaz, 2001:88). But in two aspects it is distinct from critical posthumanism. Firstly, he still confines this subject to humans only. In his pedagogic discourse, material is still excluded. Secondly, he understands the subject as an educational relationship, but presents the social or social background as the most powerful factor influencing this educational relationship. The subject is constantly reproduced by the relationship and also plays a role as a potential element in its production, but the object with which the subject interacts is extremely social. It is for this reason that I continue to argue that in Bernstein's theory a child is like a bird whose mouth is open and waiting for food. Although his view of the subject is developed from the classical subject, it is still limited in that the child is constantly formed by the macro level of society.

If so, what attitude does the posthuman maintain on the subject? Haraway questioned how we could reconsider the unity of the human subject that connects to the new self-flow and separates the dichotomy from the humanistic beliefs and connects the body and mind (Braidotti, 1994:174). What Haraway suggests is an entity that forms a connection point and a cyborg as a body-machine as a way of deliberately blurring categorical distinctions (human/machine, nature/culture, man/woman) without falling into relativism. Petitfils (2015) says there are two possibilities for finding the subject in the posthuman era without falling into relativism. The first is human reconsideration (a common example of the posthumanism) in the traditional domination and the relationality between human and non-human as a decentered human. The second is a recentered human who replaces the old ideas of classical/religious/secular humanism and stimulates new inspiration. He argues that the posthuman era we now face is also the result of human creativity. He argues that we have laid too much emphasis on the decentered human in the posthuman debate, and that there is a lack of discussion of the recentered human. He agrees with anti-humanism, which attacks humanistic thinking, which, like other posthumanism,

places humanity at the center of dialogue from an anthropocentric point of view. He also welcomes the distribution of agencies to other non-humans. However, he disregards all other refutations and emphasises the need for a recentered human through the most realistic question. How can young people living in exponential posthuman times understand their own decentered-self? (Petitfils, 2015:34) He further explains:

Here, Baudrillard shocks us into the realization that we are delusional if we claim to assert any notion of identity. We live in the era of the hyperreal, where everything we own is mass-produced from mechanisms of domination that are built upon functions of meticulous reduplication. Our commodities define who we are as individuals (I am an iPhone. I am a Galaxy. I am a pair of Google Glasses- and you don't have a pair!); by default, we have become decentered subjects as a result of our consumerist tendencies. It is likely that, from here on into the posthumanist future, individuals will identify themselves through their digital identities before their embodied identities, hence the need for "recentering" the posthumanist subject (Petitfils, 2015:35).

Braidotti and Barad also presented an understanding of subjectivity that does not fall into the crisis of human. Braidotti (2013) also prefers the method of keeping a subjectivity concept rather than abdicating a subjectivity concept. Then she proposes the nomadic subject as one of figuration about the subjectivity of our generation. She uses this approach in order to find a possible alternative without falling into the trap of the human crisis. Interestingly, she argues that we can never deny all the positive elements of humanism. According to her, anti-humanism is so full of contradictions that it gets deeper and deeper as it tries to overcome its contradictions. In particular, the two great contradictions she grasped are that anti-humanism either advocates humanistic ideals, or sustains the critical thinking work itself as essentially humanistic. She argues that human beings are not capable of removing the traces of humanism in the same vein as posthumanism has claimed that human beings are not the central subjects for any work. She warns that overcoming anthropocentrism in the global ecological crisis and joining non-human beings together can sometimes be negative unity. She strongly agrees with extreme science-led posthumanism, which generally agrees with the discussion of de-anthropocentrism, but overlooks subjectivity. However she is strongly opposed to extreme science led posthumanism that while generally agreeing to the discussion of posthumanism, overlooks subjectivity. She

argues that we need some subjective position to be a place of political and ethical responsibility, a collective imagination and a shared aspiration. The alternative she proposed is a transition from the unity of subjectivity to nomadism.

The concept of nomadic refers to the simultaneous occurrence of different axes of differentiation. The idolatrous and mythical manifestation of the subject, such as the nomadic subject, is a move against the theoretical reason, especially the settled customary character of philosophical thought. Nomadism refers to critical consciousness that refuses to settle in a socially coded way of thinking and behaviour. One of the problems at issue here is how to combine polarization/partiality and discontinuity with a new form of interrelationship composition and collective political subject composition. The nomadic movement is a creative being, a permissive way of being that allows unexpected sources of interaction, experiences, and knowledge that are unlikely to occur. Nomads do not imply no home or forced movement. Rather, the nomadic forms a kind of subject that discards all ideas, desires, or fragrances about stickiness. This manifestation expresses the desire for identity made up of transitional, sequential mobility, and cooperative changes, without intrinsic unity and against this unity. That does not mean there is no unity among the nomads. The style is a form of movement with limited, seasonal patterns that go through somewhat fixed paths. Being an intellectual nomad is about crossing the boundaries, and about going to work regardless of destination. A purposeful consciousness is a form of political resistance against hegemonic and exclusive residences of subjectivity (Braidotti, 1994:59-60). Nomadic has a keen sense for the territory, but does not assume a mind to possess it. Therefore, nomadism is not a flexibility without boundaries, but sharply aware of the mobility of boundary. Nomadic cannot be reduced as a teleological form of subject, rather it is a plurality of connection points. He/she is embodied, so he/she is cultural. Their tense is imperfect in that it is an active ongoing. From this point of view, no longer are children baby birds waiting with their mouth open. The child is positioned on a mutual relationship with others as active not passive. No longer is the child confined but positioned in a place where they acutely recognise the instability of boundaries. Therefore, nomadism as one of the shaping notions about the subjectivity of our generation is post-metaphysical and concerns

plural beings. It only exists within a network of interaction. He/she cannot be reduced as subject of teleological and linear forms, rather point of connection of plural (Braidotti, 1994). She says that she herself chose to become a nomadic, a subject who was able to take responsibility and explain herself so that she could be accountable, and yet fully anchored at certain historical points

Barad (2007:215) denies the view that agency and subjectivity are the same. In many cases, the rejection of non-human agency is because it considers it in relation to intentionality and subjectivity, and she argues that it needs to be understood only as "understood as an enactment and not something someone has". Rather, she says we need to see subjectivity as a responsibility. By quoting Levinas' word "[r]esponsibility is the essential, primary and fundamental mode of subjectivity," she argues that responsibility is a fundamental mode of objectivity as well as subjectivity (Levinas 1981, in Barad, 2007:391). In her understanding of matter, the nature of matter is entangled because all matter is already entangled with the other, and in this understanding differentiation is not a separation or a disconnection but a connection. She says that in this entanglement, subjects and matter are not distinguished because all materials are dynamic movements in their intra-active becoming. And subjectivity also needs to be re-understood in this entanglement. In conclusion, she asserts as follows:

We (but not only "we humans") are always already responsible to the others with whom or which we are entangled, not through conscious intent but through the various ontological entanglements that materiality entails. What is on the other side of the agential cut is not separate from us-agential separability is not individuation. Ethics is therefore not about right response to a radically exterior/ized other, but about responsibility and accountability for the lively relationalities of becoming of which we are a part (Barad, 2007:393).

According to Deleuze and Guattari (1987), the posthuman nomadic subject is a conceptualised subject in the nomadic ontology seen through the lens of multifaceted and related subjects, and augmented the theories of feminism and post-colonialism. It is also a subject realised by relational vitality and intrinsic complexity that characterises posthuman thought itself. This subject places a "mechanism of differential mechanism of distribution of power effect as the core of subjectivity" (Braidotti, 2013:188). The 'transversality of relations' is a key concept in these

decentered human, posthuman nomadic subjects. Transversality realises 'Zoe-centered egalitarianism' a method for ethical and alternative forms of post-human subjectivity. In addition, as Barad argues, subjectivity is treated as separate from the agency, and the fundamental mode of subjectivity is responsible for all otherness entangled in accountability, and especially on the relational ontology. Because of this, when we talk about subjectivity in education, it needs to be interpreted in accountability with all the other entangled in the classroom. Thus, while the subjectivity of Braidotti and Barad differs with regard to detail, subjectivity can be perceived as a constantly transversal responsibility. If this is applied to child and teacher in the classroom, the child's subjectivity moves from the acquired knowledge to account for all the entangled materials in the educational responsibility and teachers have an obligation to move themselves nomadically based on the fact that the boundaries in the classroom are constantly moving. And the activities that take place in the relationship between the teacher and the child are not understood in the structure of the framing according to Bernstein, but as an agential responsibility towards each other in mutual accountability. Petitfils (2015) asserts that concrete identity is only one possibility selected from an endless choice, therefore post-human education work should help students to constantly come back to themselves. He emphasises that we are still living in this limited space with this infinite potential, and the role of the educator should be to help students to engage with posthuman subjects in light of the conditions of these possibilities, and the tension between decentered human and recentered human should be central to pedagogy discourse (Petitfils, 2015:36).

## **Boundaries**

Boundaries, or forms, are the precondition for meaningfulness. Without them, the immensity of the world would swamp life and render it a marsh of senselessness and uncertainty. The boundary, above and below, is our means for finding direction in the infinite space of our worlds ... (Simmel, 1971:353).

Muller (2001) explains that in his essay on the "intimations of boundlessness", the boundary is the fundamental condition of ourselves and the intellectual world. He further explains that crossing the border is the dominant moral ideal and teaching

children to cross the border is more than pedagogical. Furthermore, he deals with Durkheim's distinction between sacred and profane, explaining that the distinction between this everyday world and another fixed and unchangeable world produces a prototype of socially constructed social knowledge. Diaz (2001) explains that the boundary is the object of the struggle between unequal power as well as providing space for opposition and strategy. He specifically points out that these boundaries are a crucial point for the subject, explaining:

The more the boundaries, the more the distribution of unequal spaces and the more the distribution of inequalities between positions, discourses and practices. Thus, there is a close relation in Bernstein between boundaries, power, social group, and forms of identity. Bernstein's analysis of power and boundaries provokes questions about their force, duration of spacing, ordering of internal forms and sites for knowledge flows of identity, and relations with changes in the collective basis of society (Diaz, 2001:85).

Bernstein emphasised the concept of boundaries in two respects. First, he analysed inequality in education in relation to acquisition of knowledge. His pedagogic discourse examines a set of rules in the Pedagogy and how these rules affect what is taught in the school and, consequently, how knowledge is acquired by children of different social classes. He distinguishes between horizontal discourse (local segment context-dependent, tacit, multi-layered) and vertical discourse (coherent, explicit, systemically principled structure), explaining that the "difference between the two is clearest when considering acquisition" (Muller, 2001:139). According to him, the horizontal discourse is only in the area of loose distribution rule, whereas the vertical discourse is obtained in the area of explicit distribution rule. It is his argument that the difference in knowledge acquisition due to differences in social classes that arises implicitly causes the reproduction of the social class. In other words, the difference between children in acquiring knowledge is not just their ability or level, but that the two discourses, which are firmly separated, require different areas of knowledge acquisition. This is why Bernstein saw it as a way to prevent the reproduction of inequality by articulating the occurrence of these differences through a clear set of boundaries. Second, in Bernstein, the boundaries have close connectivity with the learner's identity. His hypothesis is that a strong boundary between school knowledge and everyday knowledge plays a crucial role in supporting learner identity (Young,

2007). Bernstein thought that it was important for the teacher to show students where they are now and how much they have developed. However, if the pedagogy becomes invisible, then that role will disappear and eventually students will not have the opportunity to hear feedback from their teachers about their identity. In this way, the concept of boundaries helped Bernstein develop the code theory and analyse the inequality in the school with reference to the connection of power, identity, and social class in the classroom. Young (2007:153) summarises how Bernstein uses the idea of the boundary:

- Boundary refers to the relationship between content, not content of knowledge
- the disciplines and subjects that we know are not the only form that strong boundaries can take
- Strong boundaries between contents will have distributional consequences and it can be linked with certain inequalities of outcomes.
- School improvement will involve both stability and changes in terms of the inter relation between boundary maintenance and boundary crossing.

We can find two important elements in the connection with posthumanism in Young's writings above. The first is that Bernstein has always linked the concept of boundaries and the distribution of power. We will look at this in the next section. Second, Bernstein claimed the necessity of a visible pedagogy based on strong boundaries, but also recognised the importance of the simultaneous occurrence of the concept of boundary maintenance and crossing in the development of future education.

Since I have fully explained that in posthumanism the boundary has become blurred, let us briefly discuss how Barad proved this as a physicist. She begins her discussion from the ambiguity of the concept of 'position'. She says that the concept of 'position' cannot be understood as an independent entity with certain inherent meanings and attributes. Instead, she describes 'position' as "only meaning when a rigid apparatus with fixed parts is used (eg, a ruler is nailed to a fixed table in the laboratory), thus establishing a fixed frame of reference for 'position'" (Barad, 2003:814). Therefore, we cannot refer to the 'position' measurement that is measured by this apparatus as

an 'object' that exists independently. It can only be understood as a property of one phenomenon because of the inseparability between the 'observed object' and the observer. And in her agential realist elaboration, she develops phenomena beyond the inseparability of observers and observed objects to "phenomena of the ontological inseparability of agent-intra-acting components" (Barad, 2003:815). Now, the primitive unit of epistemology is not an independent object with a unique boundary and property, but rather a phenomenon. It is her concept of intra-action that enabled this profound conceptual change. She wrote:

A specific intra-action (involving a specific material configuration of the "apparatus of observation") enacts an agential cut (in contrast to the Cartesian cut—an inherent distinction—between subject and object) effecting a separation between "subject" and "object." That is, the agential cut enacts a local resolution within the phenomenon of the inherent ontological indeterminacy. In other words, *relata* do not preexist relations; rather, *relata* within-phenomena emerge through specific intra-actions (Barad, 2003:815).

Braidotti explains that the boundaries are blurred in connection with 'Zoe'. She says molecular biology teaches us that matter is self-organised (autopoietic). And this material includes all non-anthropomorphic elements that are not limited to our species. Living matter is not separate from the rest of organic life and is self-organising. She says that "Life, far from being codified as the exclusive property or the unalienable right of one species, the human, over all others or of being sacralized as a pre-established given, is posited as process, interactive and open-ended" (Braidotti, 2013:60). Through this, she disturbs the boundary between human and non-human. The 'Zoe', dynamic, self-organising structure of life itself represents a generative vitality that expresses the transversal forces that "cuts across and reconnects previously segregated species, categories and domains" (Braidotti, 2013:60). This constantly occurring transversal force urges all entities in the classroom to have an egalitarian aspiration by constantly crossing the boundaries in the pedagogy and creating a difference.

I think it would be beneficial to address here the prospects for future education as proposed by Muller and Young, long-time readers of Bernstein. In 2010, Mueller and Young (2010) forecast the future of education as threefold: First is a fixed curriculum with boundary maintenance. Second is an educational system without boundaries.

And thirdly, they present a system of education that complements the problems of the previous two. The third system they predicted emphasises the continuing role of the boundary, not as a given factor. They said whether it is in the brain or in the mind or in the world of human existence, it plays a role in more generally defining a growing global expert group as the basis for new knowledge and the acquisition and production of human progress (the reason why this role is important is that if there is an inequality and an injustice or power relation without a boundary, it can be judged to be more dangerous than the force relation shown because it is invisible. So it is important to visualise the invisible force relationship by retaining the role of the boundary). They found that in an education system without boundaries, the following can occur; “the 'integration' of school subjects, the stipulation of curricular content in generics, the skill or outcome terms, the promotion of formative over-summative assessment, the introduction of unified national qualification frameworks, the promotion of facilitative rather than directive teaching” (Muller & Young, 2010:18). In relation to the evaluation, a formative evaluation is inevitable. Since the formative evaluation itself is very vague, it is very difficult to realise in an actual educational evaluation. Bernstein (2003b) criticises the invisible pedagogy and says that it interferes with teacher preparation because it makes it difficult for the teacher to know where the student stands. One of the most challenging and complex areas of posthuman education is related to educational evaluation. How should educational evaluation be accomplished in a classroom where mutual learning is achieved and boundless differences are created? This is an important task that must be solved in the future for posthuman education. It may be that the role of educational evaluation itself is transferred. With regard to qualifications, we must keep in mind a future that is increasingly dominated by economic logic. The economy society sees qualifications when hiring employees, and when qualifications become indistinct within education, social difficulties arise. Muller and Young (2010) explain the consequences of this as the introduction of a unified qualifications framework. Because the boundary between academic and vocational qualifications has been blurred, it is inferred that a unified national qualifications system will be introduced to maintain economic societies as an alternative. Economic and social structures can never accept such a tendency, even if education that weakens boundaries and makes a difference has

some effect within the education system. In other words, the pursuit of difference and the weakening of the boundaries means that the social structure in capitalist logic tries to recreate a standard. This includes questions about how posthuman education can play a real role in the neo-capitalism social structure.

As a result of these analyses, Muller and Young (2010:16) propose the alternate prospect of “boundary maintenance as prior to boundary crossing” as a third element of the future, which can simultaneously satisfy the conditions of creation and the acquisition of knowledge. This third future element is more concerned with its role than with the presence or absence of the boundary. Rather than paying attention to what the boundaries are and whether they exist, it is important to note how it works. I think that one of the important parts of Bernstein's contribution to curriculum research which critiques progressive education is the emphasis on the role of the boundary. Through boundaries, we can analyse the distribution of power and power relations in education. And this analysis can grasp the imbalance of power and the inequality and the control of dominant groups in education. This was Bernstein's fundamental concern with regards to the curriculum and was the starting point of his passion for correcting inequality in education. If Bernstein reveals the power relations of the social class hidden through the role of this boundary, in posthuman education this can be extended to all materials, contributing to revealing the power relations hidden in the intra-action of all materials. We still do not know how posthuman education will happen. But one thing is clear, as Baudrillard(1998) has pointed out, in a powerful consumer society and digital innovative society, cyborgs, machines, and goods can have a governing power, which can be a force to control humans. It is interesting that the movie ‘Avatar’, as a reality of the Posthuman, expresses through the avatar (we can never call it pure human) that there is still a need for control by power relations. In this respect, I believe that the role of the boundary that Bernstein points to can make an important contribution to the application of posthuman education in the actual classroom.

## Power

Bernstein holds a relational concept of power. At different levels, power is in an inseparable relationship with the physical and symbolic boundaries of the context of experience, meaning and interaction in which the realisation of meaning occurs. For him, power is external and internal and unconscious to the individual because power in the subject defines the principle of relationship with other subjects and things. Power is the force which organises space, relationships, and positions, while its limit is the structuring of space that makes it possible to legitimise identities and voices (Diaz, 2001). Power is the means by which voices form the multidimensional set of social relations or social places in the context of the "personal" profits rising in a strategy-filled conscious action and interaction. Thus, the subject becomes a symbolic space for the realisation of the force position where the fragmental voice is decomposed into the voice of the individual. Bernstein considers the subject to be limited by the establishment of power in the real voice, in opposition to individual unity and free. Diaz (2001:87) maintained that "Power is translated into voice, voice is translated into difference, and difference creates identity. But the translation is not mechanical; it is realised through the fracturing, dispersing, and fragmenting of voice".

Bernstein's work around this power has been understood as a work which complements Michael Foucault's attempt to show a new form of subject's discourse. Both Foucault and Bernstein were concerned with how to classify and distribute scales to create hierarchies and functions. But if Foucault focused on the micro analysis of the discursive power itself, Bernstein focused on a macro analysis of the class power of educational discourse. What is unique about Foucault's understanding of power is that he explores the subtle aspects. It is narrowed down to microscopic power to see the whole. Foucault (1977) narrows the power to the biological forces that are applied to the body and explores how power is exercised. So, it creates a new power structure called 'mind/power'. The power that appears in *Surveiller et Punir*" (1977) can be called "micro-power." Foucault stresses that power needs to pay attention to the division and distinction of micro-powers everywhere. And in a discipline system with hierarchy, power is neither possessed like things nor transferred as possessions.

Power functions as a mechanism. So, Foucault proposes to consider some social micro-physics. This micro-physics assumes that the power acting on it is not a property but a strategy, and that the dominant effect of that power comes from the arrangement, manipulation, tactics, techniques, and functions, not from any possession. And in that power, rather than finding any privilege that we possess, we must always find a tension, always-active network, and think of a battle that lasts forever rather than thinking of the conquest of that power. He further explains that:

this power is not exercised simply as an obligation or a prohibition on those who 'do not have it'; it invests them, is transmitted by them and through them; it exerts pressure upon them, just as they themselves, in their struggle against it, resist the grip it has on them (Foucault, 1977:27).

This is the micro-physics of power (*Les microphysiques des pouvoirs*). Bernstein's work is to discuss the transformational role of educational discourse related to class power on a macro level based on Foucault's understanding of this power.

Like Foucault and others critical of representationalism, Barad transforms a generally human-centred view of the world as individuals with inherent attributes that exist before their expression. Barad (2003) does not just point to the shortcomings of Foucault's power, but attempts to develop it through her criticism. She suggests that Foucault's analysis of power links discourse to the materiality of the body, but because of its limitations it does not understand exactly how discourse practices produce the material body. She shares an interest in Foucault's power but tries to analyse it to explain further. She refers to Foucault placing the body as a place where large organisations of power connect with local practices and his words "deployments of power are directly connected to the body", "what is needed is to make it visible through an analysis in which the biological and the historical are not consecutive to one another", "I envision a "history of bodies" and the manner in which what is most material and most vital in them has been invested" (Barad, 2003:809). What is important in understanding the workings of power is to understand the essence of power in its fullness of materiality. She says that to limit power productivity to a limited range of 'social' or to identify it as a mere end product rather than as an active component to more embodiments is to "cheat matter out of the fullness of its capacity" (Barad, 2003:810). Having a disciplined habit of tracking down the causes

specified by discipline to the appropriate disciplinary action will result in the loss of all important intra-actions among these forces that will face all the problems associated with professional discipline. In the same way Foucault did, Barad put the thought of the human to the test of reality, and this is a 'realism' that provides a solid explanation of the materialisation of all human and non-human and their material discourse practices. In order to further develop Foucault's theory, she argues that we need "a robust account of the materialization of all bodies—'human' and 'nonhuman'—and the material-discursive practices by which their differential constitutions are marked" (Barad, 2003:810).

Barad (2003) points out that Foucault's analysis of power is limited in two respects: first, how body and history are entangled, that there is no account of the history of the body, and second, it is still strongly based on the passivity of matter. This approach requires firstly, an understanding of the nature of the relationship, discourse and practices and material phenomena; secondly, a description of the non-human agency and thirdly, a reconsideration of the causal relationships associated with human behaviour. Although Barad and Bernstein are similar in their understanding of power as relational power not possessing power, Bernstein is merely expanding it to a macro level in relation to educational relationships, while Barad is further developing it into a historicity of body and non-human. But the fact that Bernstein has pointed out that power has a desire to regulate the principle of relationship is a worthy consideration for posthumanism as a warning of the negative effects of power in the pedagogy.

## **Causality**

Hammarström (2010) argues that Barad's agential realism proves to be closer to constructivism than relativism, and Bohr's theory reveals that the substance of the object we observe and the interaction of the observing organism can never be separated. Hammarström then argues that scientific knowledge cannot provide us with information about independent reality, but only induces a reproducible phenomenon. In addition, he concludes that "the inseparability of the object from the phenomena and the agencies of observation amounts to a final renunciation of the classical ideal of causality" (Hammarström, 2010:10). In this context, Barad refers to

the new relational ontology and says that "mechanisms are largely causal, but they do not necessarily involve linear causality" (Dolphijn & Van der Tuin, 2012:162). She says we can think again about classical causality through intra-action. Here we must first understand the concept of transferability. Without the classical ontological condition of the contours existing between the observed object and the observer, it provides a condition for the possibility of objectivity. Furthermore, the agential cut identifies the local causal relationship between the 'components' of the phenomenon in the representation of the 'measuring agencies' (effect) by the "measured object" (cause). Therefore, the concept of intra-action implies the reconstruction of traditional notion of causality (Barad, 2003:815). She claims that the causality has been tarnished and that we have to re-read this important causality diffractively through intra-action and relational ontology (2003:55). Dolphijn and Van der Tuin (2012:66) wrote:

And importantly, the original diffraction pattern doesn't return, a new one is created, one in which the diffraction (that is, entanglement effects) is a bit challenging to trace. So, the issue is not one of erasure and return. What is at issue is an entanglement, intra-activity. The "past" was never simply there to begin with, and the "future" is not what will unfold, but "past" and "future" are iteratively reconfigured and enfolded through the world's ongoing intra-activity. There is no inherently determinate relationship between past, present, and future. In rethinking causality as intra-activity and not as this kind of billiard-ball causality—cause followed by an effect—the fantasy of erasure is not possible, but possibilities for reparation exist.

The absence of an intrinsic outcome relationship between the past, the future, and the present suggests that we need to rethink additional approaches to the various causes we have been discussing. There are so many realities that cannot be grasped by causality like billiard balls, especially in the post-human world. Barad emphasises reconsideration of causality in order to find alternative answers to social justice and global issues. Her argument is that the causes of today's world-wide epidemics such as MERS Cov, Ebola and H1N1, can never be solved by providing solutions to the causes found through classical causality. An important cause of these epidemics can be linked to the industrial form of weapons of mass destruction (Barad 2003:56). She refers to Chris Wilbert's study of avian flu for a new understanding of this causality. According to his research, the World Health Organization and governments monitor

the causes of this disease in migratory birds and small bird farms following their billiard ball associations, but in reality this is linked to a large poultry production plant through a diffraction pattern do. An unprecedented density of birds produced by large poultry production plants is what causes these diseases. Other aggressive apparatuses are also responsible for the occurrence of diseases, such as industrially produced meats, international veterinary practices, bio-security practices, international trade agreements, transport networks, and increased density of human populations (Barad, 2003:56). Barad (2003:56) speaks in strong tone. "Causality is not interactional, but rather intra-actional". For her, the relationship can be called "queer causality" (Barad, 2003:162). A new view of causality implies Bernstein's emphasis on classical causality, especially on the anthropocentric language. Barad (2003:802) wrote "Language has been granted too much power. The linguistic turn, the semiotic turn, the interpretive turn, the cultural turn: it seems that at every turn lately every 'thing'—even materiality—is turned into a matter of language or some other form of cultural representation". Language can, of course, be an important factor in the educational achievement of a class, but it is also in a collaborative relationship with other causes. Learning is very closely related to language so that it is the language that is most easily associated with learning achievement and social class can be linked to that language. But the new causal relationship proposed by Barad says that this simple hypothesis will never explain the difference in academic achievement. We can identify alternatives to inequalities within the real posthuman-era school by identifying different causes, including non-human things with different possibilities, through a diffractive pattern.

### **Toward Trans-species Egalitarianism**

I have read Bernstein and Critical Posthumanism in relation to subject, boundaries, power and causality. As I conclude this chapter, I will put on the table together the resistance to inequality to which Bernstein has been devoted in the field of education and the resistance of posthumanism to human monopoly power and rule. Bernstein saw that the education of the differences that respects the differences would cause great inequality in the classroom. However, efforts to apply posthumanism to

education may be different from the progressive/child-centred practices that pursue the education of difference. Since posthumanism has not yet been fully applied to education, we cannot define it as specific education, but I think it is similar to the education of becoming that Deleuze (1994) mentioned.

Education of becoming differs from education of sameness in pursuit of equality, and differs from education of difference in recognising or respecting difference. Education of becoming is education aiming at 'becoming' rather than pursuing the existing sameness or difference. Here we need to pay attention to the difference between education of difference and education of becoming. Difference education is education that recognises and respects difference rather than sameness between beings. But education of becoming is more important than creating newness beyond acknowledging and respecting existing differences. In contrast to the education of difference in recognising and respecting the importance of these differences while accepting the divergent differences of the learner, the education of becoming emphasises that the learner changes into a different entity every moment by dynamically making a difference to the learner's body and mind. Let's take an example of white, yellow, and black people. The education of becoming differs from the education of sameness in that it seeks to resemble a particular race and the education of difference is trying to recognise and respect the difference in race. The education of becoming emphasises 'being different' such as being white or becoming white. The white man's own becoming-difference through the whiteness of being black or yellow, this is what the education of becoming seeks in school. An attempt to aggressively create an unknown existence that is not known to us now through learning, an experiment to create a strong existence that is different from our present existence, an effort of becoming to constantly escape from the imposition of sameness to embed our existence in a fixed framework, these is education of becoming. One of the biggest advantages of this education of becoming is that it pursues equality. Deleuze (1994:37) says:

The words 'everything is equal' may therefore resound joyfully, on condition that they are said of that which is not equal in this equal, univocal being: equal being is immediately present in everything, without mediation or intermediary, even though things reside unequally in this equal being. There, however, where they

are borne by hubris, all things are in absolute proximity, and whether they are large or small, inferior or superior, none of them participates more or less in being, nor receives it by analogy. Univocity of being thus also signifies equality of being. Univocal being is at one and the same time nomadic distribution and crowned anarchy.

In other words, the reason why we are equal in education of difference-becoming is that all of us participate actively in the creation of difference education and all of us become a unique presence both today and tomorrow. From this point of view, I argue that education of becoming and Bernstein can be considered similar enough in terms of pedagogical effort for equality despite the different educational philosophical basis. Bernstein's efforts to struggle to grasp the hidden social forces and control behind the inequalities in the school can now be extended through posthumanism to a new definition of ethico-onto-epistemological stereotypes.

In the high-tech ecological mode of human and non-human as an in-between, Braidotti (2016) requires that we need to be prepared for cases that non-human things (despite their inability to know or judge *a priori*) involve various forms of vulnerability. Furthermore, she urges to experiment with new practices that allow the diversity of the different routes of becoming possible. She looks at the processes of accelerated change and asks how we can find differences in the flow of change and transformation. Single or static models can never provide answers. She argues that the need for more open endings is needed and that there is a need to diversify possible strategies. And the starting point is trans-species egalitarianism. She frequently refers to Zoe-egalitarianism in her book (2013) as a most attractive way to escape from anthropocentrism, especially as a core, and as a possible alternative to radical change and subdivision and scholarly development. Her passion for equality as a new starting point or as a possibility becomes intra-activity with the passion of posthuman as well as the passion of Bernstein. We can add this to Barad's point of view and call it trans-species egalitarianism. Posthumanism and Bernstein, who share the same aim and passion, read each other responsibly through each other in two dimensions. Bernstein offers a new insight into egalitarianism education by the concepts of extended boundaries and strengthened causality through posthumanism and posthumanism also offers a new insight by 'making it visible' to reduce the hidden distribution of power through Bernstein.

On the other hand, reading Bernstein and critical posthumanism diffractively could help us to re-think where inequality occurred. In Bernstein's view, it is necessary to have an accurate classification because it arises from social class differences, but in the posthumanism sense, the existence of boundaries itself causes inequality. If Bernstein had grasped inequality in the power relationship through a social apparatus, then all the apparatuses in the posthuman world will become phenomena, and all the apparatuses will be internally constructed with other apparatuses through intra-action, so the boundaries no longer exist. In the iterative reconfiguring of the apparatus of bodily production, there is only constantly intra-action. What we should be aware of is the fact that these relationalities are entangled in this ongoing intra-activity. As Barad points out: "The primary ontological units are not "things" but phenomena—dynamic topologicareconfigurings/entanglements/relationalities/(re)articulations. And the primary semantic units are not "words" but material-discursive practices through which boundaries are constituted" (Barad, 2003:818).

The idea that posthumanism offers us is the fact that the relationality between the two beings, the relationality between the other two beings, and the various entangled relationalities co-exist together. And Braidotti opened the possibility of all trans-species egalitarianism by distributing the transversal forces across these relationalities to all non-humans. All materials, as well as working classes and middle classes, and non-human participate in this intra-activity.

In sum, inequality should not be seen as a relationality between two things, but rather from the abyss of relationalities. Inequality that occurs in reality does not occur because it renders the boundaries of the relationship between the two beings strong and also because it blurs the boundary. Rather, it can be seen from the entanglement of another relationality within the relationalities from the level of entanglement that we cannot, to be honest, grasp. Thus, we must concentrate not on where inequality arises but on the fact that inequality already carries equality through relationalities that are entangled at the point of origin of all inequalities. In classroom activities, it is important to note that all human and non-human are participants who can draw

transversal forces and bring about equality relationalities in the entanglement of unequal relationalities. We can do this through intra-activity.

## CONCLUSION

My aim in this paper is to seek another view of egalitarian education. In the dominant modern 'education of difference', many varieties and differences are acknowledged and respected, but there is a greater tendency to make the differences more confined than connected. In this respect, Bernstein's view that such an educational tendency is reproducing inequality in society is a notable aspect of inequity. Posthumanism, however, tells the story of another inequality based on newly discovered quantum physics, biology, relational ontology and global issues. It is the oppression and power that emerges due to fixed and specific assumptions for example, the assumption of man as the measure of all things. I read those two perspectives as a diffraction and described the desire for trans-materials egalitarianism education. In conclusion, I would like to refer to the 'natural inaction' (what is so of itself) of Lao Tze (B.C. 606- B.C. 531), which, in Eastern philosophy, has dealt with the world from a very similar perspective to that of posthumanism. I wish to do this because I want to show as a Korean, that this trans-materials egalitarianism has already existed in the East for a long time. 'Natural inaction' is a concept that denies the system or practice that is established and practised by human intellectual errors, and it is not 'not doing anything at all'. The nature of which he speaks is neither the nature of the physical world nor the naturalism of Western philosophy. Nature is the freedom of the mind, the self of self, the independence of the mind that does not depend on anything, and the spiritual origin that is obtained by the realisation and unification of things. In other words, life without living things and doing it by yourself is 'natural inaction'. Lao Tze says:

*知其雄, 守其雌, 爲天下谿, 爲天下谿, 常德不離, 復歸於嬰兒, 知其白, 守其黑, 爲天下式, 爲天下式, 常德不斂, 復歸於無極, 知其榮, 守其辱, 爲天下谷, 爲天下谷, 常德乃足, 復歸於樸, 樸散則爲器. 聖人用之, 則爲官長, 故大制不割.*

*Using the male, being female, Being the entrance of the world, You embrace harmony. And become as a newborn.*

*Using strength, being weak, Being the root of the world, You complete harmony  
And become as unshaped wood.*

*Using the light, being dark, Being the world, You perfect harmony  
And return to the Way.<sup>1</sup>*

Humans are born through the uniting of man and woman. Thus, the human inherits both man's and women's attributes. In other words, it is possible to unite a man and a woman in order for a single creature to be born. At this time, the born object is not born with only one of these two attributes. Humans have both attributes. Therefore, if man knows that he is a man and possesses the attributes of a woman, he will be the source of the valley of the world. The 'Tao'<sup>2</sup> is not far away. You can find it in your own body. This understanding of relativity is very similar to Bohr's complementary principle, and Bohr actually used the pattern of the Taegeuk<sup>3</sup> based on the idea of Lao Tze in his oriental philosophy as his personal pattern.

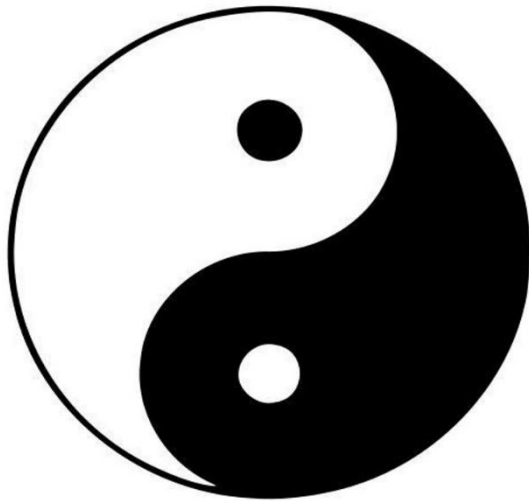
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<sup>1</sup> <http://chsjinok.egloos.com/m/11071345>, In book '*Lao-tzu's Taoteching: with Selected Commentaries of the Past 2000 Years*' (1996).

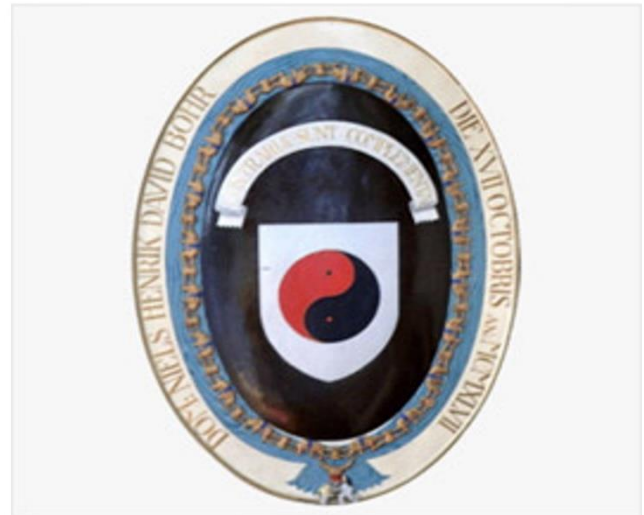
<sup>2</sup> In oriental philosophy, 'Tao' is a 'Taegeuk'. Tao is the fundamental body of all things. Through the Taegeuk, all things are changed and created.

<sup>3</sup> Taegeuk is the energy that is the basis of the universe. It is nothing, but it is Taegeuk (Taegeuk does not have color, shape, spirit, nature. It just has a movement/motion. The Taegeuk exercises and gives birth to a (+), and when the movement reaches the extremity, it reaches calm and gives a birth a (-). When calm reaches the extremity, exercise again. Once exercised and calmed once, they become the root of each other, and they are divided into a (+) and a (-), and the (+-) is established. Everything in this world has a yin (+) and yang (-), and the yin and yang come from the Taegeuk. Taegeuk is a movement in which the yin and yang are constantly interacting. Taegeuk means that Everything that comes into being is not the only one. Everything involves two (+ and -). It is just that it is **well-exposed** and **unexposed**.

For example, the hot representing summer and the cold representing winter are not separate from each other but always coming together and with each other. We feel that there is only hot in the summer, but there is a cold that keeps the heat down. If there is no cold, we will be burned and died. We feel that there is only cold in the summer, but there is a heat that suppresses the cold. If there is no heat, we will be frozen and died. We do not recognize the cold when the hot is strong, and when the cold is strong, we cannot recognize the hot, but they are always together. The wave pattern of Taegeuk shows that some things are well exposed and others are not. But the two (well-revealed and not) always work together.



The pattern of the Taegeuk shows symmetry in which two coexist.



Neil Bohr's Personal pattern

***Figure 4: The shape of the Taegeuk and Neil Bohr's personal Glyph<sup>4</sup>***

Many of Lao Tze's educational concepts and methods, are familiar to me educated in the East, but they are unfamiliar in Western education. Long practised in the East they have many empirical outcomes. I expect that the development of trans-species egalitarianism in education in the post-human era will be achieved by reading Eastern and Western education as a diffraction. We often used to climb up the mountain during class time, sit down with our hands closed, close our eyes, listen to the wind and the trees, smell the earth, and meditate.

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<sup>4</sup> <https://namu.wiki/w/%EB%8B%90%EC%8A%A4%20%EB%B3%B4%EC%96%B4>

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