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**Evolution and Education: A hermeneutical study of the
genealogy and nature of evolutionary theorising in education
based on the works of Spencer, Dewey and Vygotsky**

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Abstract

This thesis looks at the relationship between evolutionary theory and educational theory. The core objectives are, firstly, to contribute to the gap in knowledge regarding evolutionary underpinnings in influential educational theories, and, secondly, to enhance our broader understanding of the core concepts constituting different evolutionary paradigms and approaches in education. This is relevant because even though evolutionary ideas, terms, and concepts are circulating in educational discourses today, there exists little knowledge as to the nature of those arguments, thus limiting critical discussion. Through the hermeneutical analysis of the evolutionary underpinnings of the educational theories of Herbert Spencer, John Dewey, and Lev Vygotsky, this thesis not only provides a novel reading of these thinkers, but also sheds some light on the nature of evolutionary educational theory as an intellectual tradition with relevancy for educational theory, practice and policy today.

The genealogy of evolutionary educational theorising presented in this study spanning from Spencer to Dewey and Vygotsky sheds some light on the versatile nature of the concept of adaptation in the context of educational theorising, while also underlining its potency in informing core educational concepts. While all three thinkers apply an evolutionary lens to their educational concepts and theories, they each present highly different understandings of the process and aims of education, learning, and teaching. In particular their diverging concepts of adaptation, as this research shows, inform those profound differences. Spencer's passive and unidirectional conception of adaptation based primarily on biological inheritance engenders an understanding of education as a process of the subject adjusting to her/his environment. Dewey's idea of adaptation as a process of simultaneous growth of individual and environment in experience, in contrast to Spencer, fosters an understanding of education as a never-ending, contingent reciprocal interaction between the learner and her/his environment. Finally, Vygotsky's post-adaptation paradigm opens a perspective for thinking about education not in adaptive, but primarily transformative terms.

In closing, the thesis critically analyses the global educational discourse surrounding the OECD's Programme for International Student Assessment (PISA)

In the context of PISA, the notion of 'adaptation' is a highly frequented and yet largely undefined concept. Based on the study of Spencer, Dewey and Vygotsky, the thesis contributes to a gap in knowledge by offering a conceptual apparatus for analysing current educational discourse such as PISA, in a way that provides insight for future educational research, policy and practice.

Lay summary

While the most obvious association between evolution and education might lead one to science education, and the teaching of evolution in biology classes, there is more that connects these two: Evolutionary principles like natural selection and adaptation were popular amongst certain modern 19th and 20th Century educational thinkers. For these thinkers, conceiving of development and learning as dependent on changes in the environment provided an interesting perspective to many, for reflecting on the nature of education, its processes and aims.

Selection and adaptation allow us to think of education functionally, that is, as a process of forming the individual in relation to demands posed by the environment. While early pre-Darwinian thinkers like Spencer thought of adaptation as a passive activity of the individual adjusting to external changes, later thinkers like Dewey and Vygotsky expanded adaptation to mean both the adjustment of the individual to her/his surroundings and the individual's active changing of that environment. Education from an evolutionary perspective, it can be gathered, can both mean a passive alignment with sovereignly existing external facts, or a reciprocal relationship of a learning subject that is also an agent in forming her/his surroundings. Distinguishing different understandings of evolution as they inform educational ideas is, therefore, significant – even more so considering the recent popularity of evolutionary terminology in global educational discourses. If ideas like 'learning as adaptation' are not clarified, their meaning remains obscure which makes it difficult to discuss them critically.

This research contributes to the clarification of evolutionary principles informing concepts important to education – such as learning, development, teaching – by analysing the evolutionary foundations in the educational theories of Herbert Spencer, John Dewey and Lev Vygotsky. Additionally, in this thesis the current influence of these three evolutionary educational theories is illustrated with a study of the concept of adaptation adopted by the OECD's Programme for International Student Assessment (PISA) – a programme which is currently producing the most influential educational discourse enforcing a neo-liberal market agenda throughout different educational contexts.

Signed Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgment, the work presented is entirely my own.

Date: 23rd of August 2019

Signature:

A handwritten signature in black ink, appearing to read 'A. Nardo'.

Aline Nardo

Acknowledgments

And now, after the hard work of learning, what must I unlearn.

Elena Ferrante

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1. Introduction

Evolutionary theory and educational theory have, at first thought, not much in common. In this thesis, however, I shall argue that evolutionary theories have significantly shaped important educational concepts and theories while, at the same time, being severely underappreciated by educational research. I seek to demonstrate that evolutionary educational concepts and ideas, like ‘learning as adaptation’, are highly influential not only historically, but continue to shape current educational discourses, without being conceptually clearly defined. Through the critical hermeneutical analysis of Herbert Spencer, John Dewey, and Lev S. Vygotsky, I seek to enhance our understanding of the ways different evolutionary frameworks have informed – and keep on informing – educational concepts, theories, and discourses. I aim to demonstrate that acknowledging underlying evolutionary foundations in educational theories contributes to a novel and enriched reading of those. Moreover, I will use the insights produced about the nature of evolutionary theorising in the context of education to assess the prevalence of the evolutionary notions in PISA (Programme for International Student Assessment) documents in the last part of this thesis. Overall, I seek to contribute to the development of an analytic apparatus for educational philosophers and practitioners to better understand evolutionary concepts in current educational discourses that significantly shape educational policy and practice.

1.1 *Gap in research*

Evolutionary ideas have been integrated into educational theories over centuries in the form of analogised language or metaphors, as educational theories drawing ‘eclectically’ from evolutionary concepts, or in the shape of evolutionary pedagogies fully committed to an evolutionary framework (Andresen&Tröhler 2001; Baader 2005; Müller&Müller 2001; Bernstorff 2009; Glick 2010, Bellmann 2007a). In this thesis, I focus on the second category: Educational theories and philosophies that draw from theories and concepts of evolution, yet without explicitly naming themselves ‘evolutionary’. With that focus I intend to respond to a gap in research

surrounding the influence of evolutionary ideas and concepts on well-known educational thinkers, such as Dewey and Vygotsky. These 'eclectic' theories stand in contrast to explicitly evolutionary paradigms like behavioural ecology, evolutionary educational psychology, or evolutionary pedagogies, which, due to their explicit evolutionary framing, do not bear the same potential for conceptual ambiguity as the latent evolutionary frameworks of Spencer, Dewey, and Vygotsky.

As of yet, there exists no theoretical account of the argumentative patterns, conceptual nature, and epistemological functionality of evolutionary reasoning in the context of these well-established educational theories. The evolutionary underpinnings in these key thinkers are often mentioned in a footnote, or labelled generically as 'evolutionary', or 'Darwinian'. What exactly those categorisations mean, however, remains unclear, presenting a prevailing hurdle for a more nuanced understanding of the concepts drawing from evolutionary frameworks. While studies about evolutionary theorising in a non-science context exist in other social science disciplines like sociology, or anthropology, the extent to which they are applicable in the context of educational theory is limited; they lack the educational focus necessary to reflect upon the particularities of the intersection of evolution and education. Based on the analyses of Spencer, Dewey, and Vygotsky, I want to contribute to the development of a conceptual apparatus to allow for a better understanding of the meaning and implications of evolutionary notions and ideas in educational theories and discourses.

The rich tradition of the integration of evolutionary terms, ideas, or concepts into educational theories has been appreciated by a number of historical studies (Bernstorff&Langewand 2012; Nipkow 2002; Müller&Müller 2001; Becker 2011; Baader 2005; Andresen&Tröhler 2001). The phenomenon of evolutionary theorising in an educational context has, however, not been discussed comprehensively by philosophers of education. While these historical studies provide vital points of reference for such a philosophical focus, they cannot make up for the lack of systematic theoretical knowledge about evolutionary argumentation in educational theory. Enhancing our systematic understanding of evolutionary reasoning in educational theory, however, is important for a set of reasons. The lack of such an analytic framework, I argue, first and foremost hinders a critical assessment of evolutionary ideas in educational theory, which has led to the underappreciation of

evolutionary underpinnings in highly influential educational thinkers, as well as what appears to be a historically informed general aversion to naturalistic perspectives in educational theory.

The reflective void caused by the lack of an analytic framework also hinders a theoretically founded discussion of the potential fruitfulness of evolutionary frameworks for educational theory and research (Nipkow 2002, 670; Lüders 2004, 236; Becker 2011, 225). While there might indeed be factors offering a synthesis of evolutionary theory with educational thinking, such as the shared problem of ensuring continuity across generational change (Bellmann 2007a, 106), there are also inherent problems to that theoretical synthesis that remain problematically undiscussed in the light of the prevailing lack of an analytic apparatus. The integration of evolution and education brings with it a fundamental mismatch between the inherent normative nature of educational theory, and the naturally non-normative and descriptive nature of evolutionary theory. Educational theory necessarily goes beyond a descriptive account of educational processes. It has necessarily a normative component, or as Biesta (2006) called it, an account of “purpose” (22). The theory of evolution itself, in contrast, is non-normative. A look into the intellectual history of evolutionary thinking suggests that this inherent non-normativity of the evolutionary principle is connected a certain proneness to normative charging (Runciman 2009). Throughout history, the evolutionary principle was used internationally to naturalise and justify political, social, cultural, and ideological causes and purposes along the political spectrum. Even the more troublesome is that in the philosophy of education in particular, silence reigns regarding evolutionary perspectives and their theoretical premises.

1.2 Structure of the thesis

In this thesis I present a historical narrative of the genealogy of evolutionary thinking in the discipline of education, as well as an analysis of the core concepts, questions, and arguments constituting evolutionary educational theory. Based on the analytic framework developed, in closing this thesis I will critically analyse the use of evolutionary concepts in the current educational discourse surrounding PISA

and sketch out alternative potentiality of an evolutionary framework in educational theory.

In chapter 2 I develop the scientific-conceptual framework that enables us to understand the evolutionary educational approaches studied in this thesis. Therein, I will sketch out the relevant scientific history of the term and concept of evolution pre-Darwin, during the so-called Darwinian revolution, and in the recent debates surrounding Neo-Darwinism and anti-adaptationism. Knowing the basic concepts and assumptions forming these different evolutionary paradigms is crucial for understanding different evolutionary paradigms in the context of education. Additionally, I will discuss how the evolutionary principle was integrated into social theory through these different paradigms and highlight the philosophical challenges that accompanied that theoretical synthesis. In closing chapter 2, I present a catalogue of key questions and concepts constituting difference amongst different evolutionary paradigms and discuss the characteristics that allows us to differentiate different types of evolutionary reasoning.

Based on this analytic framework, I then ensue to hermeneutically analyse three evolutionary approaches to educational theory spanning from the late 19th to the mid-20th Century. In chapter 3 I analyse Spencer's Lamarckian understanding of evolution and discuss how it paved the way for this intellectual tradition by first introducing an evolutionary paradigm to educational thought. Chapter 4 is concerned with Dewey's criticism of Spencer's approach and the way he sought to develop a more intricate account of human evolution in relation to education with his concept of growth. In chapter 5, finally, a Vygotskian understanding of development, education and teaching is explored. While the analysis of Spencer, Dewey and Vygotsky produces important insights into some of the history and theoretical width of evolutionary educational theory, it is nonetheless a cross-section presenting merely a selection that is by no means exhaustive. The rationale for selecting these three thinkers is, on the one hand, the criteria of difference regarding the evolutionary paradigms they draw from. The fact that Spencer, Dewey, and Vygotsky all hold rather fundamentally different assumptions about the nature of evolution makes it possible to explore a wide spectrum of evolutionary educational concepts. Dewey and Vygotsky, on the other hand, remain highly prevalent in current educational discourses which makes the aspired novel reading with an

evolutionary focus a significant and timely contribution to knowledge. Spencer, while being a widely forgotten figure in educational discourses today, has significantly shaped the intellectual tradition of evolutionary theorising in the context of education. Spencer also presents a fruitful contrast to Dewey and Vygotsky that enriches my account of their approaches.

In chapter 6 I draw together the findings of the hermeneutical analysis in order to develop a concept of evolutionary educational theory that fills the gap in knowledge about the nature of evolutionary argumentation in the context of education, as well as the problems and potential benefits of evolutionary frameworks applied to educational matters. My contribution to knowledge is the identification of core concepts of the theoretical synthesis of evolution and education and clarify their meanings. This shall contribute to an informed assessment and criticism of evolutionary ideas entering educational theory. It shall also raise awareness for potentially fruitful paths of evolutionary reasoning in the context of education.

One of the core concepts of evolutionary theorising in the context of educational theory that I will be focusing on in this thesis is the concept of adaptation. Adaptation transpires as a, if not *the* key principle informing the synthesis between evolutionary and educational theory. All three thinkers studied in this thesis use concepts of adaptation, yet, based on their diverging concepts of evolution, mean highly different things by it. The differences in their understanding of adaptation affect profoundly how they come to define learning, teaching, and the aims of education. By making their different concepts of adaptation explicit, I aim to make at least two contributions: Firstly, understanding their concepts of adaptation may enrich our reading of these thinkers. While, for example, it is broadly acknowledged that Spencer and Dewey draw from evolutionary frameworks, the nature of those frameworks is rarely discussed. Because the differences in their evolutionary theories are disregarded, their evolutionary terminology might be equalised. This leads to misunderstandings. An example for such a misunderstanding is Egan (2002), who in his book *Getting it Wrong from the Beginning* identifies Piaget and Dewey with Spencer based on the insight that they all use a naturalistic/evolutionary framework. However, such a unification happens in broad disregard of the unequivocal nature of the principle of evolution and, in

particular, of the different concepts of evolution formulated by these three thinkers (Zebrowski 2008). Secondly, differentiating between different educational concepts of adaptation may enhance our ability to assess and critically discuss current and future evolutionary ideas and frameworks entering the discipline of education. The reflective gap prevailing when it comes to evolutionary concepts in education theory has led to problematic ambiguities in popular notions like ‘learning as adaptation’.

To create an analytic perspective that goes beyond a historical perspective on evolutionary reasoning in education, in the second part of chapter 6 I use the findings of this thesis regarding the nature of evolutionary theorising in education to shed some new light on the recent discourse produced by and surrounding the OECD’s Programme for International Student Assessment (PISA). PISA is highly influential in the way it informs international educational thinking, policy, and practice. Nonetheless its use of the term ‘adaptation’ remains undiscussed at the expense of clarity and criticality.

2. The Principle of Evolution

2.1 Introduction

In this chapter I aim to provide the historical, scientific and theoretical background necessary to better understand paradigmatic, conceptual, and argumentative differences amongst different evolutionary approaches in educational theory. Today, the term 'evolution' describes the process of descent with modification based on natural selection. This meaning stems from a Neo-Darwinist understanding of evolution, which gained wide acceptance as the leading evolutionary paradigm in the 1930's scientific discourse integrating Mendelian genetics with Darwinian natural selection (Ayala 2005, 1). However, the term, concept, and theory of evolution have a complicated history. Even though Darwin is probably the most popular name associated with the theory of evolution, the Englishman was by no means the only, or even the first one to develop a theory of organic evolution. While thoughts on evolutionary principles date back as far as Aristotle, in this thesis, I aim to focus in on the intellectual history of evolutionary thought beginning in the 19th Century, when some of the core concepts of modern evolutionary thought – such as 'adaptation' – were coined.

Since the 19th Century, evolutionary theory has changed and mutated in manifold ways, creating a rich variety of ideas, concepts, and sub-theories that were not merely of biological importance, but also consistently accompanied – and at times even informed – by social and cultural ideologies. The complicated history of the evolutionary principle and its constituting concepts still today contributes to resistant misinterpretations of key evolutionary ideas that obstruct the analysis of evolutionary foundations prevalent in educational thought (Ruse 2012; Mayr 1991, 122). Further complicating an understanding of evolutionary underpinnings in education is the wide omission of these foundations (Baader 2005, 74; Bernstorff&Langewand 2012, 1f.; Rogers 2012; Bellmann 2007a) – if hermeneutical studies of educational thinkers mention evolutionary references at all, they tend to be overly simplified, and frequently reduced to a footnote. This analytical practice is detrimental to a wider understanding of educational theories drawing from

evolutionary notions. That is, because evolutionary ideas are strikingly varied in their meaning, depending on historical and socio-cultural context, as well as political agendas and social ideology. A clarification of the nature of the evolutionary foundation of educational theories, is, thus, necessary. It tells us about the fundamental understanding of nature, culture, human nature, and their relationship. However, such an in-depth analysis of different evolutionary approaches in the context of educational thinking presents a gap in research.

The aim of this chapter is to provide the required scientific and ideological background for the analysis of the diverging evolutionary underpinnings of the concepts of education by Herbert Spencer, John Dewey and Lev S. Vygotsky. I seek to develop an analytic framework that allows me to study the evolutionary foundations of these thinkers in a substantial way. So far, such a substantial study is missing. When analysing and discussing evolutionary framed educational arguments the discipline is either forced to remain highly generic, without an acknowledgment of the rich variety of definitions within different evolutionary paradigms, or, has to studies about evolutionary theorising in the social sciences, or historical accounts of evolutionary ideas entering educational discourses. These generic social science frameworks, however, lack a genuine educational, pedagogic perspective. The development of an analytic framework tailored to an educational context, therefore, is an important contribution.

The chapter consists of three parts. The first part is a historical narrative outlining how the biological theory of evolution developed historically and how the core concepts like adaptation and natural selection have emerged and changed over time. This will allow me to later locate the educational thinkers historically, as well as identifying the evolutionary foundations they draw from. The second part of this chapter leads over to the socio-cultural bearings of the evolutionary principle. Specifically, I will sketch out how, historically, evolutionary notions have 'spilled over' back and forth between the natural and social sciences and, therein, created new evolutionary concepts, categories, and arguments. In the final part of this chapter, in preparation for the detailed analysis of Spencer, Dewey and Vygotsky, I will summarise the parameters constituting difference between diverging evolutionary approaches and point towards the philosophical challenges emerging

in regard to the theoretical synthesis of evolutionary theory with educational questions.

2.2 Evolutionary biology – genesis and paradigms

In this part of the chapter I will provide an intellectual history of evolutionary biology. This historical approach is grounded in the assumption that a systematic understanding of what constitutes the theory of evolution and its core philosophical challenges cannot be sensibly detached from its coming-into-being (Ruse 2012). The evolutionary concepts we use today are not ahistorical scientific statics, but rather carry a history of meaning (Ruse 2012; Mayr 1991, 122). Over the course of the last few centuries, the concept and term of evolution repeatedly changed its meaning in fundamental ways – from ontogeny to phylogeny – and in more subtle ways – according to the exact definition that was given to it within different theories of evolution. Before different evolutionary paradigms incorporated the term ‘evolution’ and assigned their own meaning to them, evolution, in fact, was not associated with natural history at all.

The term ‘evolution’ circulated in biology since the 18th Century but was initially used to describe the development in embryos. Stemming from the Latin word *evolvere* – which means to unfold or to unroll – the term captured the idea of a process of a germ unfolding that matched the largely predefined developmental process studied and described by 18th Century embryology (Bowler 2010a, 18). Natural history, on the other hand, at the time was called *transformism* or *transmutationism* – ‘evolution’ remained reserved for embryology for an extended period (Ruse 2005, 31; 2012, 4).

Ontogeny, i.e. the development of the individual – was first associated with the development of species, i.e. natural history, when Ernst Haeckel's recapitulation theory became popular in the late 19th Century, suggesting that the process from gestation to hatching recapitulates the stages of natural history, i.e. phylogeny (Müller 2005, 89; Müller&Müller 2001, 767). Before Haeckel made this connection, however, ‘evolution’ signified embryologic development unfurling from the germ to its full form. The term evolution received its current connotation – as the development of species based on descent – not until after Darwin. It was in fact

Herbert Spencer who first used 'evolution' to describe natural history; Darwin followed him in the later editions of his own works (Bowler 2010a, 19).

Besides this fundamental shift in meaning that the term 'evolution' underwent, a significant part of the intellectual history of the principle of evolution is its incorporation into a variety of different evolutionary paradigms. I will now sketch out the paradigmatic history of the principle of organic evolution, drawing out how diverging evolutionary paradigms have developed over time, redefining, refuting and adding evolutionary concepts. This paradigmatic history begins approximately at the point where the meaning of the term 'evolution' transformed from embryology to natural history. This historical narrative will be roughly divided into three sections: (1) theories of evolution before Darwin, (2) the Darwinian revolution, and (3) the current landscape in evolutionary biology.

2.2.1 Theories of evolution before Darwin

Despite the fact that today pre-Darwinian theories are widely regarded as mere artefacts of the history of biology, they remain relevant for this study as they introduced crucial ideas and concepts that influenced Darwin's works and in that have contributed significantly to the development of modern evolutionary biology (Bowler 2010a; 2010b). As pointed out above, it was the German thinker Ernst Haeckel who first linked the findings from embryology with natural history, furnishing biology convincingly with a theory that accounted for similarities in growth amongst different species. In that, he induced the fundamental shift in meaning of evolution from ontogenesis to phylogeny (Müller 2005, 89). However, the embryological perspective lacked a scientific explanation for how new species emerge. The reason for this gap was the lack of a concept of descent in pre-Darwinian theories of transformation/transmutation; each species was believed to evolve separately, from lower forms to higher forms, on a constant path towards perfection (Bowler 2010a, 19). To compensate for the lack of scientific explanation for how new species come about, these early pre-Darwinian theories of evolution by Erasmus Darwin, Ernst Haeckel, or Jean-Baptiste Lamarck resorted to a set of metaphysical assumptions (Ayala 2016, 8; Wuketis 2005, 81). Such assumptions were the belief in a natural

tendency to progression, the idea of spontaneous generation of new species, or the speculation about inorganic matter turning into organic matter (Ruse 2005, 31).

The progressivist ideology underpinning pre-Darwinian evolutionary thinking, entailing the idea of a natural tendency to improvement, is unsurprising considering the teleological nature of contemporary evolutionism. Teleology is "the philosophy of the purposefulness of processes" (Mittelstrass 1996, 228; translation mine). Arguably, when the meaning of 'evolution' shifted from ontogeny to phylogeny, part of the implied unfolding, pre-determined trajectory of the originally embryological concept was carried along with it (Ruse 2012, 1). Pre-Darwinian evolutionism, moreover, was still very much tangled up with religious notions; evolutionary concepts were often rendered compatible with the idea of nature as God's work, supposing either a creator-figure external to nature guiding it, or, a pantheism that located the perfecting force inside the matter (Mayr 1991, 57; see also Midgley 1992). "For all those who have been willing to accept evolution, but at the same time unwilling to renounce the concept of cosmic teleology – with humans still in the centre of nature – evolution has become a new religion" (Wuketis 2005, 81). According to Bowler (1989, 90) the progressivist underpinnings of pre-Darwinian evolutionary thinkers like Lamarck has to be understood within the socio-cultural context they emerged: Social progress was "a standard theme for nineteenth-century thought" (Bowler 1989, 90) that significantly informed the rise of science.

Marking an important turning point in the concept of evolution's transformation into what we understand it to be today is the introduction of the idea of adaptation. Adaptation was first introduced by Jean-Baptiste Lamarck to describe a species' ability to adapt to the environment and therefore develop relative to the environment, rather than as a mere unfolding of a pre-destined developmental trajectory inherent in the germ. Due to the lack of an account of descent or common ancestry, however, pre-Darwinist thinkers like Lamarck saw evolution as a process of natural history concerning each species separately, i.e. they were studying *anagenesis*. The French naturalist Lamarck used the concept of adaptation to explain how a species changes over time, and, specifically, how species improve over time. From Lamarck stems the popularised idea that giraffes have long necks because with each generation stretching their necks to harvest food from high trees, the neck grows longer, and the elongated necks then get passed on to the next generation

and so forth. Adaptation for Lamarck, thus, was hereditary and thus contributing to the improvement of the species (Bowler 2010a, 19). In that, each generation was believed to add a new step to the ladder, which turned progress into law and perfection inevitable (Bowler 2010b, 21). His theory, thus, was a typical pre-Darwinian theory of evolution in its teleological nature. On a Lamarckian view, a species improves through individuals adapting to their environment (Popp 2007, 31). Applied to the human species this has profound implications, in particular regarding the educational formation of individuals that, on a Lamarckian view, gains profound importance on the scale of the species' evolution (Turner&Maryansky 2015, 94f.). Lamarckism, i.e. Lamarck's theory of the heritability of adaptations, was broadly applied – in fact long after Darwin. Spencer, who we will get to know in depth in chapter 3, for example was a convinced Lamarckian and derived his theory of education from Lamarckian adaptation.

From this historical overview over pre-Darwinian evolutionism, we can gather that despite the fact that the way pre-Darwinian evolutionary are hardly comparable with what we understand evolution to be today, their contribution to the history of the concept and theory of evolution is significant. They induced the shift of 'evolution' from ontogeny to phylogeny and in that set the groundwork for a new focus for further research. Understanding the way this fundamental shift in meaning of the concept of evolution informed the origin of core concepts constituting evolutionary theorising is not of mere historical interest: It has been argued that a hint of pre-determinism stemming from the origin of the term of 'evolution' in embryology, as well as the intellectual context that some of the most central concepts of evolutionary theorising have been developed in, have left a permanent imprint modern evolutionary theory that seems hard to shake (Ruse 2012). The teleological heritage stemming from the scientific origins of the evolutionary principle in embryology, as well as the religious connotation of many of the principle's key concepts are some of the major marks that the complex intellectual history of evolutionary thought brings into the equation when functioning as a theoretical framework (Mayr 1991, 5). Even though today we understand the process of evolution to be guided by the environment-relative mechanism of natural selection rather than any sort of pre-defined purposeful trajectory, teleological notions in

evolutionary arguments are persistent, manifesting in teleological 'language' using terms like purpose, progress, aim and function (Bowler 2010a, 18).

The historical account of pre-Darwinian evolutionary theory has shown, furthermore, that counter the popular status of Darwin in the history of evolutionary biology, many core concepts and ideas that Darwin used to build the theory are actually not Darwin's own (Wuketis 2005, 62). And yet, pre-Darwinian theories had significant gaps that demanded for further research (Bowler 2010a, 19). While Lamarckism had furthered the shift in meaning of evolution from individual to phylogenetic development induced by Haeckel, it lacked a concept of descent. Hence, while Darwin definitely was not the 'inventor' of the theory of evolution, he was able to complement existing theoretical attempts in important ways that I will come to now (Ruse 2005, 29).

2.2.2 The Darwinian Revolution

When Darwin published his evolutionary writings in the second half of the 19th Century, several evolutionary theories had already been developed; Darwin reused many of the evolutionary concepts developed by his predecessors. Nonetheless, his theory was fundamentally new in the way it opposed to the idealistic philosophy of his contemporaries and rejected the speculative elements that were used to fill the scientific gaps (Wuketis 2005, 57). Darwin's account of evolution was different in many crucial ways, justifying that his contribution is often described as revolutionary (Ayala 2016, 3; Bowler 1989, 1). In the following section I will introduce Darwin's two main contributions to the concept and theory of evolution. These were, firstly, the expansion from pre-Darwinian anagenetic theories of descent by integrating a notion of common ancestry, and, second and most importantly, the replacement of a creating purposeful force with natural selection (Schmitt 2010, 3f.).

As indicated above in the history of pre-Darwinian theories, early evolutionary theorising stalled in trying to explain how new species emerge, respectively, how they emerge from existing species and resorted to cosmological, spiritual and teleological explanations instead. Pre-Darwinian accounts of evolution laid the focus on developmental laws and how they contributed to constant progress

within the same species; this meant that a scientific explanation for similarities between different species was lacking which made a recourse into metaphysical speculation necessary. Darwin was the first to provide a genealogical view of evolution combining all living matter in one process that he processed scientifically (Bowler 2010a, 19). In that, he created a new paradigm for evolutionary thinking, causing a shift in meaning in some of the main pre-Darwinian concepts of evolution (Ruse 2005, 29; 2012, 101; Ayala 2016, 145).

One of these core concepts that Darwin integrated in his theory while also redefining it fundamentally was 'adaptation'. In a Lamarckian concept of adaptation, there exists a direct causality between the life of the individual and the evolution of the species; ontogeny and phylogeny, thus, are directly connected in a relationship of perfectibility (Bowler 2010a, 19). This teleological perspective, characterised by "reasoning from purpose" (Midgley 1992, 9) was typical for pre-Darwinian evolutionism. Core element of the Darwinian shift in how evolution and its functionality were perceived was the retrospective orientation of Darwin's thinking (Toepfer 2005, 42). In contrast to his predecessors, Darwin assumed that a species' current form could only be understood in retrospect, i.e. that there was no pre-determined developmental trajectory guiding phylogeny (Bowler 2010a, 19). Post-Darwin, adaptation is not teleological – it is not 'meant' to make anything 'perfect'. Rather, Darwinian adaptation determines fitness as a "measure of the reproductive efficiency" (Ayala 2005, 11) of a phenotypical characteristic. Crucially contributing to this renewed view of evolution was the concept of natural selection (Mayr 1991, 122; Ayala 2005, 15).

Natural selection describes the fact that evolution is driven by constant population increase and limited environmental resources, which demand for the selection of the fit over the unfit in the struggle over these limited resources (Ruse 2005, 34; Offer 2010, 308). The novel concept was important for the shift in meaning of evolution away from teleological *anagenetic* phylogeny – i.e. the largely pre-determined progressive fate of each species separate – to a genealogical view of evolution as natural history shared by all living matter. Natural selection is a mechanism that accounts for evolution 'judging' developments, e.g. adaptations, posteriori. Due to the fact that natural selection selects in retrospect, the mechanism does not allow predicting what adaptation will be useful in the future (Mayr 1991, 58);

this changed the trajectory of evolutionary theorising fundamentally (Bowler 2010a, 19; Ruse 2010a, 9). Lamarckism assigned inherent dynamic properties to matter. With Darwin's causal explanation of evolutionary processes via natural selection, the theological or metaphysical explanations of this "idealistic morphology" (Levit et al 2005, 276) were contrasted with a revolutionary scientific alternative.

2.2.3 Post-Darwinian evolutionary paradigms

The Darwinian revolution, as has been noted above, further developed the evolutionary principle in two major ways. Firstly, Darwin introduced a genealogical perspective that allowed species henceforth to be studied in their ancestry with other species which cleared up some of the questions in pre-Darwinian theories regarding the emergence of new species. Secondly, Darwin redefined adaptation. Instead of designative as a progressive improvement that would be passed on from generation to generation, in Darwin, adaptations were retrospectively valued in natural selection. He thus, put emphasis on the contingency of the environment and, therein, rendered the idea of evolutionary progress relative. Despite the fact that he lacked the knowledge about genetic inheritance, Darwinism also introduced an alternative idea of descent that was related to fitness in natural selection, rather than, as in Lamarck, to the inheritance of adaptation.

However, even after natural selection was eventually accepted as a "legitimate scientific theory" (Mayr 1991, 119) in the 1930's to the 1950's – when, in the so-called modern synthesis Mendelian genetics were integrated with Darwinian natural selection –, many of Darwin's contemporaries retained their idealistic mind-set, either reinterpreting natural selection, or deeming it wrong or insignificant (Wuketis 2005, 62). Still in the 20th Century discourse in evolutionary biology, disagreements about the role and significance of natural selection and adaptation are at the core of what distinguishes different schools and paradigms. Broadly, even though this is an admittedly simplified and rather rudimentary cross section of a highly complex and vast landscape of evolutionary biology, two opposing paradigms can be identified over this disagreement: Neo-Darwinism and anti-adaptationism.

Neo-Darwinism appears to be the most influential Darwinian scientific naturalism in current evolutionary discourse. It emerged from the evolutionary

synthesis of the 1930's and 40's, combining genetics, taxonomy, ecology and molecular biology (Mayr 1991, 166; Krohs 2005, 304). Extreme positions within Neo-Darwinism perceive natural selection as the only evolutionarily active mechanism, and adaptation to selective pressures is considered omnipresent. Within this paradigm, every trait of the organism can be explained in terms of selective pressure and adaptation as a reaction to it (Offer 2010, 306). Proponents of such a "selectionary extremism" (Mayr 1991, 170) consider every trait of the phenotype as adaptive. Also, adaptation is understood as adaptation to external demands, i.e. improved adjustment to surroundings.

In criticism of a neo-Darwinian paradigm, Vecchi (2012, 226) argues that Darwin's Darwinism was more pluralistic than this orthodox selectionary understanding of evolution held by proponents of Neo-Darwinism. Other forms of selectionary pressure – such as sexual selection –, as well as traits that are by-products of adaptations rather than adaptive themselves, are disregarded (Brigandt 2010, 5). Hence, despite its remaining influence, Neo-Darwinism is not infrequently described as dogmatic and fundamentalist (Mayr 1991), and "Darwin's Church" (Vecchi 2012, 227), therefore, presents a matter of dispute in evolutionary biology today. Nagel (2012, 3), in addition, claims that Neo-Darwinism relies on speculative and reductive Darwinian explanations.

Anti-adaptationism emerged in the 1980's as a reaction to the selectionary paradigm of Neo-Darwinism (Mayr 1991, 170). The controversy was initiated by Stephen J. Gould and Richard Lewontin in the 1980's, who emphasised the existence of evolutionary mechanisms other than natural selection, such as genetic correlations – meaning that some genes in correlation can manifest in the phenotype without an environmental stimulus – and genetic drift – meaning the change in frequency of a gene due to the random event that has nothing to do with adaptive fitness (Stegmann 2005, 287). Anti-adaptationists claim that adaptation is not 'perfect'; that some characteristics of the phenotype cannot be explained in terms of individual adaptive fitness.

It is important to point out that anti-adaptationism does not entail a total rejection of Darwinian adaptation, but rather a rejection of the neo-Darwinian interpretation of Darwinian adaptation. The anti-adaptationist critique actually draws

from Darwin to point out flaws of Neo-Darwinism. First of all, with sexual selection, Darwin presented another selectionary mechanism that follows a different selectionary bias than natural selection. For example, some birds develop highly unpractical plumage that grant them no adaptive advantage at all, but they contribute to reproductive fitness because they are favoured in sexual selection (Brigandt 2010, 5). Second of all, as agreed upon in modern evolutionary psychology, through kin selection and altruism the organism does not strive for its individual adaptive fitness, but rather contributes to the fitness of others (Ayala 2005, 17).

Besides this broad criticism, some distinct anti-adaptationist theories developed, amongst others *niche construction theory* and *gene-culture coevolution*. Niche construction theory is part of the anti-adaptationist critique of Neo-Darwinism's externalism because it refutes the concomitant passivity that is assigned to the adapting organism (Wuketis 2005, 76f.). As the name suggests, niche construction theory deals with the way that organisms modify selective environments. On that perspective, the organism is not merely reacting passively to environmental pressure, but rather constructs its own environment and in that alters natural selection. Niche construction theory is widely understood to be part of Lewontin's 1980's critique of adaptationism (Laland et al 2016, 192).

Also committed to an anti-adaptationist paradigm is gene-culture co-evolution theory (Keuchle&Rios 2012, 211). The theory proposes an alternative evolutionary active mechanism: Co-evolutionists think of culture and nature both equally influencing the evolutionary process (Offer 2010, 321). Instead of thinking of cultural and social evolution as mere by-products to biological, i.e. gene centred, evolution, the dual inheritance model of this position presupposes that culture is evolutionarily active, i.e. is able, just like genetic variation and inheritance, to change the phenotype and that these culturally induced changes are transmitted socially, i.e. via learning (Lachapelle 2000, 344). Hence, in a sense it is both a biological theory of evolution, integrating Darwinian principles, and an evolutionary socio-cultural theory (Durrant&Ward 2011, 363).

In summary, Darwinism marked the change from essentialism to a dynamic worldview, contributing to a turn in science from metaphysical explanation to

materialism (Wuketis 2005, 57). He reinterpreted evolutionary concepts formed in the 19th Century, like adaptation, and used them to furnish his own theory. Not only did Darwin reject the teleological and progressionist underpinning of his predecessor's accounts of evolution, but he also was dissatisfied with the non-scientific explanations they resorted to in filling gaps in their theories. With natural selection, Darwin introduced a new paradigm that fundamentally changed the way natural history was seen. Completion found Darwin's theory in the 1930's to 1950's in the so-called modern synthesis, where natural selection was integrated with genetics. The result of that completion was Neo-Darwinism, which is, until today, probably the most mainstream evolutionary paradigm. Neo-Darwinism is focused on adaptation; the underlying "extreme externalism" (Godfrey-Smith 1996, 45) has given rise to a new evolutionary paradigm: anti-adaptationism. The critics of Neo-Darwinism argue that because of the omnipotence that is given to environmental adaptive pressure, other important strategies that define the organism-world-relationship are omitted. They seek to develop, in consequence, a more pluralistic evolutionary framework.

2.3 Evolutionary socio-cultural theory

It appears to be the case that within the current discourse in evolutionary biology as discussed above – and, specifically in the anti-adaptationist critique of Neo-Darwinism –, the boundaries between science and socio-cultural theory are becoming increasingly blurry. Particularly within anti-adaptationist positions, culture receives an increasingly important role. The conceptual proximity between questions about human biology and human culture, however, is not a novel appearance. Despite the perhaps common assumption that socio-cultural theories of evolution were informed by biological concepts, this is actually historically incorrect. Darwin's concept of natural selection, for example, which, as discussed above, is doubtlessly one of the most important evolutionary concepts, Darwin derived from the economist Thomas Robert Malthus. Malthus, in 1798, developed a theory about the growth of populations that maintained that population increase and resources multiply at different arithmetical patterns and thereby produce a misalignment that throttles back unlimited population growth (Bowler 1989, 23; Sarasin 2010, 34). From Malthus' population principle, Darwin derived his concept

of natural selection. This interesting origin of Darwinian natural selection in social science, demonstrates that from the beginning evolutionism was more than a mere descriptive biological theory. Moreover, it points towards the entanglement of evolutionary theorising with social issues and political ideology from the outset.

From the beginning, evolutionary theorising was accompanied with ideological issues – at time explicitly, as amongst most pre-Darwinians, and at times more implicitly. The evolutionary perspective opened up questions about human nature "since essences have become precarious" (Kronfeldner et al 2014, 642). This bore significant philosophical challenges that I will discuss in this part of the chapter. I begin this discussion with the origins of evolutionary socio-cultural theory, where I draw out some of the key movements in the intellectual history of evolutionary reasoning outside of biology. After having introduced the current landscape of socio-cultural evolutionary theory, I will end this second part of the chapter with a characterisation of different ways evolutionary concepts inform socio-cultural theory.

2.3.1 The intellectual history of evolutionary in socio-cultural theory

I will now discuss two different evolutionary traditions that emerged in the social sciences in the early period of evolutionary theory, from shortly before the publication of Darwin's *Origins of Species* until the end of the 20th Century. *Social Darwinism* and *sociobiology* emerge from a Neo-Darwinist paradigm; a Marxist-Darwinism can be seen as an example of a pluralist, non-reductionist ontology. These two traditions are by no means the only ones, or even objectively the most important. They are chosen here, firstly, because of their big divergence. In this thesis, I pursue a focus on difference within evolutionary paradigms, arguments and traditions in order to enable a study of difference amongst the currently categorically named 'evolutionary' or 'Darwinist' underpinnings in Spencer, Dewey, and Vygotsky. Secondly, social Darwinism and Marxist-Darwinism present the relevant intellectual contexts for the thinkers chosen for this study.

2.3.1.1 *Neo-Darwinist social theory: Social Darwinism and Sociobiology*

Social Darwinism emerged in the 1850's, i.e. before Darwin. Darwin (1859/1998) himself had used the notion of 'struggle' rather cautiously, emphasising: "I should premise that *I use this term in a large and metaphorical sense*, including dependence of one being on another, and including (which is more important) not only the life of the individual, but success in leaving progeny." (50, emphasis mine) Despite this note of caution to think of the notion of 'struggle' metaphorically, when the metaphors of struggle and competition were translated back into the social sciences, the result was a ruthless Social Darwinism.

Social Darwinism is most frequently associated with the works of Spencer, who coined the competition-focused idea of Social Darwinism as well as its two leitmotifs 'struggle for existence' and 'survival of the fittest'. The socio-cultural and historical context's influence on the development of this strand of evolutionary thought was significant (Bowler 1989). According to Ruse (2005), early evolutionists were largely "enthusiasts of the chief secular philosophy or ideology of the age: progress." (28) Combining idealistic embryological morphology, recapitulation theory, and Lamarckian inheritance, these early theories of evolution saw progress as a direct consequence to the adaptation of the individual (Ayala 2016, 145; Midgley 1985, 7). This understanding of evolution significantly informed the constitution of the theory of evolution as, in parts at least, a reaction to urbanization, industrialization, and the accompanied societal and economic challenges. From the fear of the "threatening decay of German culture" (Bernstorff 2009, 108, translation mine) in that socio-cultural context, emerged utopian dreams of not only making a "new human", but rather a "new society" (Herrmann 1995, 125, translation mine). Within this intellectual climate of the early 20th Century evolutionary theories were associated or specifically formed in service to race theory and eugenics (Ruse 2012, 226f.; Schmuhl 2010, 373).

Throughout its history, Darwinism was associated with political agendas and ideological causes. One of the most harmful association was the connection made between Darwin, genetics, eugenics and the holocaust. In the German era of national socialism, Hitler used Darwin's idea of natural selection to underline his claims of racial superiority. This association has discredited Darwinism for many

and, still today, fosters general suspicions against Darwinian socio-cultural theory (Schmuhl 2010, 368). Weindling (2010, 2) also emphasises, however, that the way Darwinism was used in Nazi propaganda does not hold up scientifically and that the association of Darwin with Hitler is an example for the importance of carefully look at how evolutionary concepts are interpreted in each case.

In the decades after WWII, an evolutionary perspective on society was widely abolished due to its connection to national socialism (Kronfeldner 2010, 111). In the 1970's, however, sociobiology revived evolutionary social theory (Merz-Benz 2010, 318). 'Sociobiology' is sometimes used as a label for all current evolutionary approaches to the study of human behaviour, society and morality. Here, with 'sociobiology' I refer to the work of O. Wilson and his immediate followers in the 1970's. O. Wilson was a Harvard evolutionary biologist interested in insect sociality. The main assumption of his theory was that altruism is not part of human's genetic endowment, or 'nature'.

Sociobiology stands in the tradition of Neo-Darwinism in evolutionary biology. It seeks to explain behaviour in terms of its adaptive benefits, i.e. reproductive advantages. Culture is seen as being "held on a leash" (Wilson 1978, 1 cited from Dugger 1981, 221), or, in other words, determined by genes. On that view, social practices and institutions that build on the assumption of altruism fundamentally counteract 'human nature'. The approach faced severe criticism. While the findings and methods of sociobiology itself have been broadly been deemed valid, the "reductionist claims put forward by E.O. Wilson in the name of 'consilience'" (Runciman 1999, 146) have been challenged within socio-cultural evolutionary theory. Sociobiology was further associated with eugenic ideology (Alcock 2017, 383), and accused of false causation by deriving ethics from biology (Ruse 2012, 29).

Midgley (1985, 7) puts sociobiology in direct intellectual ancestry with Social Darwinism. And indeed, Social Darwinism and sociobiology share core epistemological assumptions. Firstly, they are both striving for bottom-up – i.e. biological – explanation for human behaviour (Kingsland 1988, 181). Secondly, both theories assume – and this is what makes them 'Darwinist' – that the evolution of human social behaviour and morality function according to the principle of natural

selection. They attribute the development of morality, religion and social practices and institutions to the advantage in competition, i.e. fitness, they granted in human evolution (Schmuhl 2010). Consequential to the shared fundamental Darwinist epistemology, Social Darwinism and sociobiology also face some common philosophical challenges. Both theories had to grapple with the question of how adaptation and natural selection relate to progress. That is, because they both assume that in the process of evolution, consisting largely of adaptation and selection, the 'better' will survive and the 'weak' or 'unfit' will die. However, and it is here that the two theories seem to diverge from each other, Social Darwinism and sociobiology came up with considerably different solutions to the issue of defining progress and its relation to evolution.

The notion of 'progress' in the context of evolutionary theorising is complex, and therefore demands further attention. The principle of evolution, being a theory of movement and development inherently connotes ideas about trajectory, directionality and purpose (Mayr 1991). While these normative questions tend to be implicit in theories of biological evolution, in the case of theories of socio-cultural evolution, explicit normativity seems unavoidable, because even if a theory of socio-cultural evolution merely describes processes of social and cultural development, there emerges a normative element about how society and culture ought to develop. According to Ruse (2010b) progress as a "social doctrine or ideology" (1) was, from the outset, attached to the idea of organic evolution, describing "the idea or hope that humans through their own efforts can make things better – socially, educationally, in health care, in knowledge and understanding." (1) Progress, on this understanding, inherits a notion of directionality, of 'betterment'. Ayala (2016) also defines progress as occurring "when there is a directional change toward a better state of condition." (147) This 'better state', naturally, requires a normative judgement about what is better and what is worse, "according to some axiological standard." (Ayala 2016, 147)

Darwin himself explicitly refuted any directional notion being attached to progress. He thought of perfection not in absolute terms, but rather in the sense of specialisation. While Lamarck had understood as adaption as 'becoming better' for Darwin adaptation was related to fitness, i.e. situational temporary adaptation to an ever-changing environment (Bowler 2010b, 21). This functional understanding of

adaptation includes specialisation in all directions, i.e. increasing complexity, 'broadening, reduction, or even degeneration. However, Darwin did not reject all notion of progress. As Ruse (2012) remarks, Darwin "was a child of the Industrial Revolution" (103), embracing a progressivist ideology. Especially in *Descent of Man* (1872), Darwin aligned with contemporary progressivism when he maintained that it was adaptation that brings about progress (Radick 2000, 479). And indeed, already in *Origin of Species* (1859), Darwin (1859/1998) writes: "And as natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection." (368) Nonetheless, Bowler (2010a, 19) maintains that Darwin's notion of 'perfection' differs significantly from his contemporaries' as he explicitly refuted all notion of 'higher' and 'lower' in evolution.

This normative judgement, in the context of an evolutionary framework, in particular before Darwin, was connected to ideas of the 'natural' versus the 'unnatural'. It was believed that "the human race cannot be confidently expected to evolve further in a literal biological sense. Human social arrangements, even in simple cultures, block normal natural selection." (Midgley 1992, 8) The result of the normative contrasting of the supposedly natural with the supposedly unnatural was, following Kronfeldner et al (2014), deep "fears (bestiality) and hopes (salvation)" (642). Those hopes and fears induced an interventionist utopianism instrumentalising economic competition and eugenics as deliberate selection as a 'support' for nature's trajectory. The result was Social Darwinism, an, as Midgley (1985) calls it, "escalator-type" (37) evolutionism that functioned as dogma justifying social interventionist policy making. Practically, this perspective induced a laissez-faire attitude towards nature and a negative connotation of everything unnatural, i.e. societal or cultural. The ideological charging of 'progress' as a predetermined upwards movement and counter-pole idea of social degeneracy had implications for social politics and helped the rise of eugenics.

There are, however, notable differences between Social Darwinism and sociobiology. While Social Darwinism sought to actively influence social 'progress', sociobiology pioneer O. Wilson explicitly pointed out the unforeseeable risks of social planning. This makes sociobiology significantly less directly interventionist (Kingsland 1988, 196). Furthermore, due to advances in evolutionary science, sociobiology is less speculative and more scientific than Social Darwinism could be

at the time it emerged. Second of all, the strong notion of altruism and kin selection that sociobiology contrasted the strong social Darwinist individualism with, has important theoretical repercussions for how competition is understood – while in Social Darwinism everyone struggles against everyone, in sociobiology the concept competition is widened to group competition (Kingsland 1988, 191f.).

2.3.1.2 Pluralist, non-reductionist evolutionary ontologies in social theory: Marxist-Darwinism

Social Darwinism and eugenics were aimed at social change – either theoretically in the case of the former, or in the form of 'applied' interventionist science in the case of the latter (Kingsland 1988, 195). While some of Darwin's contemporaries were optimistic and assumed that evolution entailed constant improvement by 'weeding out' of the undesirable, for others, this hope turned into fear accompanied by a "pessimistic gloom and doom scenario of large-scale degeneracy" (Schmuhl 2010, 369; translation mine). For the pessimistic, natural selection in society was problematic in its ways of allowing the morally "less favoured race" to procreate more than the virtuous individual who "passes his best years in struggle and in celibacy, marries late, and leaves few behind him", to use the words of (Darwin 1872/2013, 134). With reference to eugenics pioneer Galton, Darwin (1872/2013) remarks further: "If the prudent avoid marriage, whilst the reckless marry, the inferior members will tend to supplant the better member of society." (645) The result was strong advocacy of some of Darwin's contemporary evolutionists for eugenics and human breeding in order to support natural selection.

A fundamentally different early evolutionary socio-cultural theory was presented by a Marxist Darwinism. Social Darwinism and sociobiology had seen culture as an externally induced adaptation, and therefore developed socio-cultural theories in the argumentative logics of biological concepts and ideas. In Marxist-Darwinism, in contrast, this expansion of Darwinism for the purpose of explaining culture and society was seen as unjust (Krementsov 2012, 5). Similar to Social Darwinism, Marxist-Darwinism formed not primarily as a scientific theory, but rather as a political instrument; it was used to further a Marxist agenda in and after the Bolshevik revolution. In early 20th Century Russia, Darwinism had sparked a great

deal of interest, both amongst scientists and in the public. Marx's *Das Kapital* (1867), however, did not. To further a Marxist socialist agenda, in the Bolshevik revolution of 1917, the popularised Darwinism was integrated into Marxism; revolutionaries like Trotsky pushed for that association that, after the revolution became increasingly popular (Krementsov 2012, 6). Darwinism, within that process, became increasingly subsumed by Marxism and seen as a useful biological theory. Following Krementsov (2010) Marxist-Darwinism then functioned "as an influential cultural resource" (22) to further broader socio-cultural and political agenda of socialism in the Cold War.

On the view of Marxist-Darwinism, there is a qualitative difference between the evolution of nature and the evolution of culture. While the former works according to Darwin's principles, the latter emerged from nature with its own rules and functionalities. Culture, on a Marxist perspective, is the result of the human struggle with the material and social world. It does not function according to natural selection and adaptation, but rather according to the active transformation of the world according to chosen purposes. This difference, at first sight, seems marginal. However, in particular if we begin to ponder what these perspectives mean for questions of human agency, freedom, or social progress, the difference is important. Following Dawson (2002, 43), while in a Darwinist perspective on culture, the argumentative focal point is biology, in a Marxist idea of cultural evolution, the focus is on ecology, i.e. on the relationship formed between individuals and the socio-cultural and material environment, rather than on heredity and phylogeny. In a Darwinist perspective, we follow, human agency is reduced to a biological function; a non-Darwinian perspective on culture, in contrast, leaves more (potential) space for rationality and agency.

A Marxist perspective, "has consistently rejected Darwinian interpretations of culture and has tried to explain cultural evolution without any recourse to the conceptual furniture of evolutionary biology." (Dawson 2002, 43) This argumentative tradition falls into the broad categorisation of anti-adaptationism. It builds the foundation of the American cultural materialist school that has signposted a "radically divergent path to the understanding of cultural evolution" (Dawson 2002, 43) to Darwin. How a Marxist-Darwinism plays out in the context of educational theory, we will discuss in Chapter 5 of this thesis on Lev S. Vygotsky. Marxist-

Darwinism, however, is by no means the only, or even the most dominant anti-adaptationist socio-cultural theory. Evolutionary anthropologists, for example, oppose a neo-Darwinian paradigm, while at the same time maintaining a fundamentally different definition of culture based not on conflict and struggle, but on cooperation and solidarity as the main characteristics of human culture. I have chosen to discuss Marxist-Darwinism rather than other anti-adaptationist traditions in socio-cultural theory firstly because the focus of this thesis lies on difference between diverging approaches. This leads me to resort to the 'extremes' on both ends. Secondly, with Vygotsky being a core resource for this study, the tradition of Marxist-Darwinism receives a key role.

2.3.2 The current landscape of evolutionary socio-cultural theory

Two important traditions of evolutionary socio-cultural reasoning have been identified – Social Darwinism/sociobiology and Marxist-Darwinism. It has been established that these two main paradigms gave rise to highly divergent interpretations of nature, culture, and their relationship that are connected to their ontological footing in Neo-Darwinism and anti-adaptationism. While socio-cultural theories that stand in the tradition of Neo-Darwinism focus on the conceptual and explanatory framework of evolutionary biology, anti-adaptationist socio-cultural approaches, despite also using an evolutionary framework, develop alternative categories and theories with the aim of developing novel evolutionary mechanisms that are genuinely cultural. Both traditions have demonstrated a striking tendency for political exploitation.

Today, evolutionary social science appears to be more popular than ever (Durrant&Ward 2011, 362). The two main traditions identified above can still serve as a useful model to get an overview over the vast and diverse field of evolutionary socio-cultural theory: On the one hand, while Wilson's work has faced strong criticism and seems to have widely vanished from recent publications, the externalist underpinning of his sociobiology and the perspective that it introduced to the study of human nature after the discovery of the genome, remain influential nonetheless. Stepping into the tradition of Social Darwinism – epistemologically, not in terms of claims – and sociobiology are, what Runciman (2009) calls, "ultra-

Darwinians" (6) who maintain that evolutionary social science has to be applied biology in order to qualify as 'evolutionary' at all. On that view, the evolution of culture and nature is unilinear. The main example for the ongoing prosperity of a neo-Darwinian socio-cultural paradigm are the Santa Barbara School evolutionary psychologists Tooby and Cosmides (2007), dual inheritance theorists and behavioural ecology. I also count the 'unificationists' Mesoudi, Whiten and Laland (2006) to this group as they also share the common proposition of an ontological reductionism and advocate for the epistemological unification of evolutionary biology and social science. Within this reductionist epistemology, lower-level explanations are developed based on the assumption of a bottom-up causation (Lachapelle 2000, 332). This means that human behaviour, including social behaviour, religious belief, or morality, are explained in terms of the adaptive advantage they granted within natural selection.

On the other hand, there is a wide field of pluralist evolutionary epistemologies drawing eclectically from different concepts within diverging approaches in evolutionary biology, adding their own concept and understanding concerning social or cultural evolution as a separate – or at least largely separately functioning – kind of evolutionary development. According to Haines (2007), evolutionary approaches committed to the rationality of explanatory pluralism can be summarised methodologically as using "evolutionary biological theory as the primary analytical tool for their work." (249) These approaches differ from neo-Darwinian epistemological reductionist paradigms that do not use biological theory as an analytical tool, but rather as the theoretical framework. Within pluralist epistemologies, nature and culture evolve in a discontinuous manner, i.e. they are not part of the same lineage, but either different from the outset, or taken apart at some point in biological evolution. These pluralist epistemologies in evolutionary socio-cultural theory also tend to focus on rationality and agency which further reinforces their resistance to Darwinian natural selection as an explanatory principle for culture (Dawson 2002, 54).

Within the pluralist line of evolutionary thought there seems to be a broad consensus about cultural and social evolution being more than mere 'sidekicks' to biological evolution and therefore have their own explanatory requirements that have to be accounted for theoretically (Lachapelle 2000, 331). These thinkers are

putting the applicability of a neo-Darwinian paradigm to the social sciences up for debate and severely challenge "the tendency to accept too uncritically and appealing but rather simplified vulgate of Darwinism." (Vecchi 2012, 225) Runciman (2009, 34f.), for example, maintains that all the core Darwinian notions – selection, adaptation, heritability – have to be reconceptualised for each particular level of evolution. He argues that a reductionist ontology that works under this assumption of all levels of evolution underlying natural selection, is not necessary for a consistent Darwinian socio-cultural theory that acknowledges "the disanalogies between the successive levels of what is nonetheless a continuous process." (Runciman 1999, 147) This basic assumption that culture and society evolve independently from natural selection on genes, through heritable variation and competitive selection of their own kind, has produced a rich landscape of perspectives opposing the Neo-Darwinist perspective tying onto the epistemic project of sociobiology to explain human social behaviour exclusively in adaptive terms. These perspectives have sought to add an explanatory framework to the landscape of evolutionary thought in socio-cultural theory that does not rely on biological explanation for non-biological phenomena (Lachapelle 2000, 350f.).

A pluralist evolutionary epistemology combines evolutionary biology with an evolutionary socio-cultural theory that is not simply a derivative of a methodologically and explanatorily unified evolutionary theory encompassing nature and culture, but rather introduces its own concepts and functional principles. Examples for such a pluralist evolutionary epistemology present Verbeek (2005, 267), who sees culture as affected by selectionary pressures from both outside and inside of the cultural realm.

Similarly, Mayer (2004, 136) distinguishes between primary socio-cultural institutions that have emerged as a result of natural selection – due to the human capacity for language, emotions, etc. – and secondary socio-cultural institutions that have emerged from their primary 'ancestors' and follow their own set of rules, i.e. develop separate 'social' selective pressures. According to this distinction, primary institutions are universal elements of human culture, occurring in all societies. Examples are religion, kinship, or incest taboos. Secondary institutions consist of a set of more or less dynamic rules. They emerge from the abilities that these cultural universalities grant but are subject to social transmission and transformation within

separate societies instead of natural selection (Mayer 2004, 139). Examples are family and school.

Birch (2017b, 9f.) also maintains that in cultural and social evolution, secondary selective mechanisms become effective. Besides granting an adaptive advantage to the human species in evolution that is second to none, Birch (2017b) argues, the ability for culture and social behaviour introduced its own selective pressures. Those 'secondary' selective pressures are widely decoupled from natural selection and bring with them their own rules of adaptation and fitness. This 'cultural fitness', so Birch (2017b) has even become more relevant in modern human evolution than biological fitness: "In early hominins, biological fitness differences would still have been the primary driver of adaptive change; but, as our ancestors evolved ever more sophisticated capacities for social learning, the relative significance of cultural as opposed to genetic variation [...] would have gradually increased." (12) This underlines the profound way in which biological, cognitive, social, and cultural evolution are connected.

Likewise, within the moderate, selective synthesis of pluralist approaches to evolutionary socio-cultural theory, a set of theoretical and methodological challenges has been acknowledged (Turner&Maryanski 2015, 94). One main challenge seems to be the persistence of false or inept analogies: Evolutionary socio-cultural theories struggle theoretically with lacking social science analogies to biological mechanisms, and in turn social science mechanisms that cannot be matched with a biological mechanism (Derksen 2005, 144). There are also anti-Darwinian critics that challenge the appropriation of biological concepts by social theory per se, claiming a concomitant necessarily implied ontological reductionism to evolutionary socio-cultural theorising – a position that Runciman (1999) disputes.

2.4 Systematics of an evolutionary framework

It was the aim of this chapter to develop the conceptual and historical framework for the analysis of the evolutionary foundations in Spencer's, Dewey's, and Vygotsky's educational theories. To that end, I have analysed different biological evolutionary paradigms as well as the traditions of evolutionary socio-cultural theory emerging from these paradigms. After summarising the findings of

that analysis, in terminating this chapter, I will develop an analytical framework for the succeeding analysis of evolutionary approaches in the context of educational theory.

The analysis has shown that the relationship between biological, socio-cultural and psychological evolutionary concepts is complex. The evolutionary paradigm is – against the reasonable expectation – not primarily a biological theory. Some of the core concepts of evolutionary theory – such as natural selection – stem from a social science context. Over the course of the intellectual history of the evolutionary principle, concepts, ideas and sub-theories have spilled over back and forth between biology and social sciences. Despite this complexity that challenges a simplified narration, there can be observed patterns and dynamics that allow us to sketch out categories of evolutionary reasoning.

The key narrative that has stood out from this analysis is that within the landscape of evolutionary theories of the 20th Century – which is the relevant timeframe for the analysis of the three educational thinkers to be discussed in this thesis – we can broadly distinguish between neo-Darwinian approaches, and anti-adaptationist perspectives. The former are characterised by a ‘bottom-up’ epistemology. These approaches use evolutionary biology as the explanatory focal point, which reduces culture, society and individual behaviour to the principle of biological adaptation. Reductionist ontologies reject attempts to develop new concepts and categories specifically for socio-cultural evolution. The most prominent socio-cultural theory traditions emerging from the neo-Darwinian paradigm are social Darwinism and sociobiology. On the other end of the spectrum, there have been identified pluralist approaches that seek to expand a reductionist ontology of neo-Darwinian socio-cultural theories. These approaches see culture as something distinct from biology and use an evolutionary framework as an analytical and conceptual tool, yet without presupposing that biological evolution is the only type of evolution. Anti-adaptationist perspectives promote pluralist perspectives that either integrate Darwinian concepts eclectically or use evolutionary principles to describe novel forms of evolution that are genuinely cultural. The unifying characteristic of pluralist epistemologies in evolutionary socio-cultural theory is the idea that theories of social and cultural evolution have to add something to the picture of evolutionary biology that the latter cannot provide.

The historical narrative of the emergence and development of evolutionary paradigms and theoretical traditions has shown that *the* theory of evolution does not exist. In comparison to biology, where despite controversy Darwinism has been widely agreed upon as the leading paradigm, such clarity is lacking in the social sciences. Different evolutionary social and cultural theories are not necessarily mutually exclusive, but rather complementary as they study different layers of evolution, or at least to exclusive to each other as they deal with different questions and methods (Durrant&Ward 2011, 363; Birch 2017a, 4). Evolutionary concepts carry a rich history of meaning that makes them applicable in highly divergent contexts, and for highly divergent purposes. The ideological and political exploitability of evolutionary theories has accompanied their intellectual history from the very start. One of the reasons of the close ties between evolutionary theorising and ideological and political instrumentalization is due to, what Krementsov (2010) calls, “certain general principles involved in the transformation of scientific knowledge into a cultural resource.” (25) In the process of becoming popularised, scientific knowledge “is simplified, fragmented, and reduced to a few, often disjointed general statements.” (Krementsov 2010, 25) There is, however, also an inherent tendency to evolutionary theories to spark ideological debate. The evolutionary principle, in its unique capacity to raise existential and philosophical questions affecting the very foundation of human existence has demonstrated to be an attractive ideological instrument. It is an instrument easily exploitable, once it has lost its embeddedness and conditionality and is reduced to popularised formulas. This effect is probably most strikingly shown in social Darwinism that has succeeded greatly in reducing Darwinian notions to phrases and applying them to novel contexts. Therefore, to understand evolutionary arguments not in their ‘disjointed’ manifestation, but as embedded into scientific concepts and traditions of socio-cultural theory is indispensable.

2.4.1 An analytic framework for evolutionary educational theory

Different paradigms and traditions have highly diverging implications for conceptions of nature, culture, society and human nature. One core point of contention between these different paradigms is the question of human agency in the process of cultural and social evolution. The concomitant debates about

determinism and freedom are also of particular relevancy for the assessment of evolutionary frameworks in the context of educational theorising. Depending on the underlying evolutionary paradigm, human activity and development are seen as more or less pre-determined; this makes educational practices more or less effective in the development of the individual, as well as the evolution of culture and society.

In the light of these systematics of evolutionary theorising, a conceptual apparatus that allows me to discern the different evolutionary foundations in educational theories is needed. The focus of that analytic framework, thus, is to be put on difference. That is because, as this chapter has shown, terms and ideas can mean highly different things relative to the evolutionary paradigm and theoretical tradition they are drawn from. To understand that difference in the context of different educational theories drawing from an evolutionary framework – in order to then understand the ethical, normative, practical and broader philosophical implications of that difference – is the aim of this thesis.

The historical, socio-cultural and intellectual context has an important impact on the constitution of evolutionary theories. As this chapter has shown, there are 'eras' of evolutionary reasoning discernible that provide a first clue as to what understanding of evolution is held. The historical period, furthermore, gives some indication of the 'epistemic expectations' tied to an evolutionary framework. According to Ruse (2012, 103), evolutionary theories are very much connected to the broader socio-cultural climate. While Darwin, for example, carefully rejected prevalent ideas about purpose within evolution, emphasising the role of randomness in evolution, "he was a child of the Industrial Revolution" (Ruse 2012, 103) who embraced a progressivist ideology, particularly in *Descent of Man* (1872). Before Darwin, these progressivist tendencies of evolutionary theorising were even more explicit – Lamarck's notion of the inheritance of adaptive traits was progressivist in every aspect. Ideas of purpose and evolutionary trajectory have played different roles throughout the intellectual history of evolutionary thought. But what does 'progress' in evolution mean? From the comparison of a pre- and post-Darwinian understanding of progress in and through evolution, we can gather that a distinction between a functional improvement that is relative to circumstance, and a teleological

understanding of progress in the sense of gradual advancement of organisation has to be made (Bowler 1989, 9).

Teleological notions of progress entail the idea of a determined trajectory of evolution that is either defined externally, in the form of an external creator figure, or from within, in the form of a pantheist germ-like unfolding. Such a notion of progress necessarily entails a preliminary normative decision about what the trajectory is, and what happens in the case of deviation from that trajectory. A naturalised interventionism immediately suggests itself to that notion of progress. A functional understanding of progress can either mean improvement, or specialisation in regard to specific environmental conditions. Within this understanding, adaptation can functionally only lead to progress, when sustained environmental conditions allow for the kind of complexation that comes from continuous accumulative adaptation. Hence, it is the happenstance of sustained environmental conditions that allow for increasingly complex adaptations, and, in that, enabling progress in the sense of 'x getting better at y over time'. Given that environmental conditions are changing, adaptation cannot lead to accumulative improvement or specialisation in that sense, which makes functional progress temporary and relative.

The idea of progress and its normative charging are particularly relevant in the context of the synthesis of educational theory with the principle of evolution. That is because education differs from other social science disciplines in its inherent normative component. Whereas sociology or psychology know theoretical traditions that are – or at least aspire to be – primarily descriptive, in the discipline of education this is unfathomable. Educational theory is never a mere descriptive account of an educational process. It has necessarily a normative component, or as Biesta (2006) called it, an account of “purpose” (22). This account of purpose prompts reflections about ‘where to’ educational activity ought to be directed, and how these aims are to be reached. This produces notions of telos, as well as directionality and trajectory. How an evolutionary framework is used argumentatively in the context of thinking about educational purposes, is significant. If progress, for example, is thought of in as a process of pre-determined unfolding, education most likely receives a more passive, ‘negative’ role. If, in contrast, progress is thought of in relative terms then the educational formation of the individual is a matter of active environmental engagement and situational learning. Hence, the underlying

understanding of evolutionary progress is key to an in-depth understanding of these argumentative dynamics.

Another aspect to be considered is the broader intellectual and philosophical context. The thinkers analysed in this study do not necessarily draw from exclusively from an evolutionary framework. It is more likely to assume that other social theories and philosophical traditions inform, supplement and alter their interpretation of evolutionary paradigms.

Different historical periods gave rise to different evolutionary paradigms and theoretical traditions. On a conceptual level, different evolutionary paradigms diverge how evolution is defined, based, in turn, on how the main concepts associated with the principle of evolution are understood. At the heart of what divides two main paradigms of evolutionary theorising – namely Neo-Darwinism and anti-adaptationism – stands the concept of adaptation and its wider significance within evolution. The concept of adaptation, as discussed above, marks the origin of modern evolutionary theory. According to Mayr (1991, 159f.) adaptation is also one of the most confounded evolutionary concepts. This might be related to its roots in Lamarckism, as well as its conceptual proximity to natural selection, which itself has a long history of teleological charging. Lacking alternative explanations, Lamarck assumed that adaptations are directly inheritable from one generation to the next. This notion of inheritance of acquired characteristics named Lamarckism was highly influential for a variety of evolutionary theories developed in the 18th and 19th Century. For the concept of adaptation this Lamarckian connotation meant that it was perceived as an evolutionary active mechanism, i.e. a mechanism causing evolutionary change over time. This meaning changed with Darwin who associated adaptation with natural selection, reintroducing it as a mechanism that is not directly evolutionary effective (Ruse 2005, 34).

According to Gould (1997), Darwin's emphasis on natural selection lead to an adaptationist constitution of Neo-Darwinism and affiliated disciplines such as evolutionary psychology. Yet, as Offer (2010, 307) maintains, Neo-Darwinist selectionism misunderstands Darwin, who did not exclude non-selectionary evolutionary effective mechanisms. In evolutionary socio-cultural theory within the ontological tradition of Neo-Darwinism, behaviours, strategies, developed structures,

etc. are perceived as adaptations (Durrant&Ward 2011, 365; Pigliucci 2011, 51). The anti-adaptationist critique challenges this view's underlying focus on adaptation, pointing out that inferences drawn from adaptations about the selective pressure they were responding to, is speculative. Furthermore, anti-adaptationists argue that to conceptualise everything in terms of its adaptive value means failing to account for non-adaptive by-products (Pigliucci 2011, 55).

These different understandings of evolution are crucial as they lay the foundation for how the relationship between the organism and the world is defined. In the context of evolutionary theorising in the discipline of education, the nature of the evolutionary paradigm is, therefore, a primary concern. As it has been established in this chapter, the concept of adaptation takes on manifold meanings. When Lamarck introduced the concept of adaptation, the emphasis laid on the significance of the organism's ability to react to environmental pressure. Lamarckian adaptation, thus, was very much an externalist conception of adaptation, thinking of the organism as primarily reactive. After Darwin, in Marxist-Darwinism, for examples and some anti-adaptationist perspectives, such as niche-construction theory, a conception of adaptation emerged that understood behaviour not as merely reactive, but as entailing possibility for the purposeful transformation of the environment. These different ideas about adaptation that also significantly influence core educational concepts, such as learning. A concept of learning as adaption has been increasingly popular in recent educational discourses (Bellmann 2007a). It matters vastly, however, if adaptation is understood to be passive adjustment to external pressures, or if adaptation includes the agentive and purposeful transformation of the environment.

Directly related to the evolutionary paradigm are epistemological considerations. These theoretical traditions stand on diverging epistemological grounds making them different argumentatively. In a neo-Darwinian paradigm, evolutionary biology provides the theoretical framework. The bottom-up epistemology informs the reduction of culture to a part of nature, rather than an entity with its own functionality. This has consequences for concepts of education formed within that framework. If culture is understood as an adaptation within a Neo-Darwinist, unilinear perception of evolution, education is most likely approached bottom-up, applying the methods and concepts of evolutionary biology. This might

have important implications for questions of freedom/determinism, individual agency, and the 'power' of education within biological laws. If, on the other hand, a pluralist evolutionary framework is used to study education, society and culture are perceived as evolutionary movements functionally separate from organic evolution. Education, most likely, therein also receives a functionally different role than it does in biological theories. Therefore, making the epistemological nature of an approach explicit is important to understand the broader impact of a particular evolutionary framework on educational matters.

2.5 Conclusion

By shedding light on different ways of conceptualising evolution and forming evolutionary theory, I aimed to develop a framework for the successive analysis of different evolutionary epistemologies in education. Understanding the way that questions regarding epistemology, ontology, and normativity are being weighed, incorporated, or left out within different evolutionary approaches, is key for understanding the nature of the approach, as well as its philosophical and practical implications.

This chapter has shown that there is no such thing as *the* theory of evolution. Rather, there are various sometimes mutually exclusive, sometimes adjoined evolutionary paradigms circulating both the biological and social science discourse. These paradigms build on diverging understandings of many factors, such as what evolution is, what drives it, to what extent its trajectory is predetermined, as well as epistemological issues coming with the different evolutionary paradigms. Consequently, the divide between scientific and socio-cultural evolutionary concepts cannot be sensibly upheld. That is because, firstly, evolutionary concepts like selection, adaptation are not only fluid in their meaning and realms of application in and outside the realm of natural science inquiry, but, secondly, they also frequently carry inherent notions pointing towards meaning, purpose and aims of evolutionary process, which makes them susceptible to ideological and normative charging. For the analysis of educational theories drawing from evolutionary frameworks this means that the broader scientific paradigms at its foundation are as important as the socio-cultural traditions it steps into. Across these broader scientific paradigms,

furthermore, the concept of adaptation has been identified as a point of analysis to identify difference amongst different evolutionary as it is used across evolutionary paradigms meaning highly different things.

In the following chapter I will unpack the evolutionary underpinnings in Spencer's educational works. Using the conceptual apparatus developed in this chapter, I will discuss Spencer's understanding of evolution and explore how he applies his evolutionary concepts to elaborate on the aims of education, the nature of family and formal education, as well as the broader connections between moral education and social evolution.

3. Herbert Spencer

3.1 Introduction

In the previous chapter I developed an instrument to analyse evolutionary frameworks in education. Building on the insights gained about evolutionary theorising, in this chapter I study the nature of the evolutionary underpinnings in Herbert Spencer's thinking and discuss in depth how it influences his concept of education.

The first objective of this analysis is to enhance our understanding of the detailed meaning of the evolutionary concepts that Spencer used for his theory of education. As the past chapter has shown, evolutionary concepts like 'adaptation' or 'progress' hold diverging meanings that have to be extrapolated from the broader theoretical traditions and evolutionary paradigms that a specific theory taps into. The recent discussion raised by Egan (2002) makes apparent that such a clarification is important beyond a mere historical interest. Egan – in, what I consider to be an overt disregard of the broader locating of Spencer's evolutionary ideas – argues that Spencer's evolutionary idea of progress has not only been the main theoretical and ideological thread in the American New Education movement of the early 20th Century but is still dominantly underlying current educational theory. Eminent educational thinkers such as Piaget and Dewey are, so Egan (2002, 12), merely repeating Spencer's principles. This assimilation of Spencer with other educational thinkers, levelling all theoretical differences amongst these thinkers under the label of 'evolutionary progressivism', can only be upheld if the strikingly different evolutionary traditions that these thinkers draw from are ignored. A reappraisal of the detailed nature of these evolutionary frameworks makes an important contribution to this discourse.

The second aim of this chapter is related to the broader objective of this thesis to understand how evolutionary ideas have emerged in educational discourses and 'evolved' over time. Spencer is, according to Trompf (1971), "the beginner of the evolutionary movement in education" (185), which makes him a key

figure to begin the main part of this thesis. From the beginning of his intellectual journey, Spencer demonstrated a particular interest in educational concerns; before he began his major work *Synthetic Philosophy* (1862-93) or presented his first monograph *Social Statics* (1850), Spencer published several letters and magazine articles on education. These articles were concerned with national education and its boundaries and appeared in the dissenter magazine *Nonconformist* (1842). It was not until 1861 that Spencer collated his educational works into four essays and published them in his volume *Education* (Trompf 1971, 185f.). Due to the fact that his book became a bestseller in Britain and the US in the 1880's and he published on the subject in teacher journals and newspapers in parallel, Spencer's educational thoughts were widely known. An unknown author writes in 1865 in the *Massachusetts Teacher and Journal of Home and School Education*: "There are few writers at the present day whose works are eliciting more attention, and whose views are the subject of more discussion" (372). By the late 19th Century Spencer's *Education* had been translated into thirteen languages and was used as a textbook in educational studies (Aleck 1931, 206).

While Spencer's educational works appear to have been of considerable significance in his own time, today he seems to be a somewhat forgotten figure. This can be deduced, for example, from the striking lack of recent literature on Spencer. Silberman (2003), therefore legitimately asks: "And yet, who reads Spencer today?" (85) I argue that even though Spencer might be of less direct current importance, his legacy as the first thinker to attempt to synthesise an evolutionary framework with educational theory provides an important background for the study of the more prominent works of Dewey and Vygotsky. As the so-called 'father' of Social Darwinism, Spencer is a key figure of the intellectual history of evolutionary theorising in a social science context. Spencer's dubious fame in connection with Social Darwinism, however, also makes him relevant for education today due to the recent neoliberal leaning within education policy making and practice that critical pedagogy thinker Apple (2016) deemed a resurgence of social Darwinist thinking in education.

The study of Spencer's evolutionary educational concepts consists of two parts. First, based on the framework developed in the previous chapter, I study of intellectual, ideological and theoretical roots of the evolutionary epistemology that

Spencer adopts, as well as the core concepts and assumptions constituting it. Throughout the analysis of different layers of Spencer's evolutionary theory, I highlight potential issues emerging for a theory of education. This bridges over to the second part of this chapter, where I study the translation of Spencer's evolutionary thought into educational theory. In concluding this chapter, I critically discuss the implications of Spencer's location of educational practice within his idea of evolution and assess its broader usefulness from an educational perspective. This shall provide perspective on the kinds of evolutionary concepts, paradigms and argumentative traditions are educationally fruitful, and which prove to be problematic.

3.2 *Spencer's evolutionism*

Spencer was, first and foremost, an evolutionary theorist. His major work *Synthetic Philosophy*, a collection that he worked on for decades from mid-1800 onward, is essentially a theoretical experimentation into the cosmological applicability of the universal laws of evolution. Spencer wrote on a range of social phenomena besides education. Nonetheless, Spencer dedicated numerous essays to the matter of education, which, eventually, made him popular as an educational thinker. This suggests that his interest in education was probably at least partially founded in his broader quest to explore the universal applicability of his evolutionism, rather than the phenomena of education itself (Andreski 1971, 7f).

Because Spencer's theory and concept of evolution build the foundation to his educational works, I begin this analysis with an outline of his understanding of the evolutionary process on the example of his social philosophy. Building upon this, I discuss epistemic assumptions, expectations, and claims with which Spencer equips his evolutionary theory. Finally, I delve into the normative components of Spencer's evolutionary arguments.

3.2.1 Spencer's theory and concept of evolution

Spencer's evolutionism is based on a bottom-up, reductionist and unilinear ontology. This means that he assumes that all processes in the cosmos function according to the same simple principle: Spencer (1892c) emphasises "that there are

not several kinds of Evolution having certain traits in common, but *one Evolution going on everywhere after the same manner.*" (546; emphasis mine) On Spencer's view, everything is connected in one movement guided by the same natural laws, and, therefore, can be explained through one and the same mechanism.

Because for Spencer evolution is a principle functional an inorganic, organic, and super-organic level, his evolutionism can be described as *cosmological*. He uses the analogy of a biological organism as a functional principle for all levels of evolution, i.e. to "Inorganic" (astronomic and geological), "Organic", and "Super-organic" (Spencer 1892b, 3) evolution. While he describes slight differences between organic and supra-organic organisms in *The Principles of Sociology* (1892b, 116f.), he makes no factual difference regarding the direct analogy between the two. Spencer goes as far as to describe these subtypes described as artificial constructs with mere descriptive purpose, as a distinction between them would in fact be obsolete (Spencer 1892c, 8; 1892b, 4).

The evolutionary process, for Spencer, is guided by three natural laws: 1) the law of the integration of mass, 2) the law of increase in structure, and 3) the law of growing heterogeneity (Spencer 1892c, 307f.). Evolution, thus, is a movement advancing "from the simple to the complex, through a process of successive differentiations", and "from an incoherent homogeneity to a coherent heterogeneity" (Spencer 1893b, 91). This movement of evolution, on Spencer's (1893b) view, terminates eventually in equilibrium as it is accompanied by "the dissipation of motion and integration of matter." (92) The driving force of evolution, i.e. the force that causes change, according to Spencer, is adaptation. Spencer defines adaptation as the movement or restructuring according to these three laws of evolution; adaptation and re-adaptation are induced by movement. This movement can be caused externally, by changed environmental conditions, or internally, by growth of mass.

3.2.2 Social evolution

Spencer's social theory is based on exactly that principle. Through the collection of families into tribes, or the simple growth of the population, the social organism increases in mass (Spencer 1876, 109; 1893a, 68). Due to this increase in

mass, the 'organs' or entities of the social organism are forced to move and re-adapt. This re-adaptation can either mean splitting up or restructuration (Spencer 1876, 109). In the rare case of splitting up, for Spencer the evolutionary process ceases – dissolution for Spencer is the opposite of evolution (Spencer 1892c, 555). Spencer's rejection of an idea of evolution as anything else than increase in mass or structure is important, because it indicates that for Spencer, evolution is directional. His evolutionism lacks a concept of regression, de-evolution, or even stagnation.

While the social organism grows, the units of the social organism go through a process of increasing structural differentiation and functional individuation (Spencer 1892b, 438). The units form an operative structure and position themselves hierarchically, according to the function they fulfil within the organism (Spencer 1889, 42). These structures become more and more complex as the units adapt to each other and develop an increasing mutual interdependency (Spencer, 1892b, 450). With increasing mutual interdependency movement ceases and the need for re-adaptive restructuring declines. Adaptation ceases once equilibrium is reached, i.e. when the organism has perfectly coordinated its units and sub-units into a system of perfect interdependence (Spencer 1850, 148). Spencer's concept of adaptation, it transpires, is teleological. This means that it leads to a certain endpoint. While it is relative to the environment to some extent, it ceases to be so once adaptation is 'perfect', meaning, when a relationship with the environment is attained that no longer demands for adaptation.

If we begin to think about the implications of this view of society for a theory of education, important issues emerge. Most fundamentally, before even going into the conceptual study, Spencer's argumentation raises the question to what extent his educational thought ultimately qualifies as genuine educational theory. As mentioned above, Spencer was first and foremost an evolutionary thinker, who seemingly had a primarily instrumental interest in the matter of education (Andreski 1971, 7f). This has to be critically assessed when reading Spencer as an educational thinker, which – as the considerable influence he had on the early late 19th, early 20th Century discourse in education indicates – he definitely has been. From Spencer's evolutionary concepts, further important questions transpire. How can we fathom, for example, the role of school in a society that follows a terminating trajectory? And who is the educated subject if, like in this organismic view of society,

the focus lies on the emergent functions of the 'body' rather than on the 'organs' being? And what does it mean for his educational theory that his evolutionism is progressivist, i.e. knows no notion of regression or stagnation? This leads us over to a closer examination of the normative component of Spencer's evolutionism.

3.2.3 Normative components in Spencer's evolutionary perspective

As noted above, Spencer's concept of evolution does not have a concept of de-evolution or regression. The Spencerian laws of evolution movements are essentially laws of growth, of accumulation of increase, be it in mass or structure or heteronomy. This makes Spencer's concept of evolution inherently progressivist. And it is progressivist not in an environmental-relative sense of the word 'progress', but it is absolute and teleological. Once the progressive movement stops, according to Spencer, the process of evolution has effectively ceased. For his social philosophy, this has at least two important consequences.

Firstly, it normatively charges inequality and power division as 'natural' and necessary element of progress. Effectively, Spencer (1889) claims that the process of evolution, if it is to 'succeed', i.e. reaches termination, necessarily has to go hand in hand with a permanent societal stratification: "It is a truth in sociology comparable to the biological truth, that the first step in the production of any living organism, high or low, is a differentiation whereby a central portion becomes distinguished from a peripheral portion." (41) In that, Spencer not only naturalises a society of inequality – of, as described in the quote above, central and peripheral portions –, but also charges it normatively by tying it as a necessary premise to evolutionary progress.

Secondly, the progressivist underpinning of his social philosophy implies that every state before the equilibrium can only be considered as an imperfect state of transition, a period of transition that has to be endured by all in order to ensure eventual progress. Spencer (1850) thought – resonating popular hypothesis of Neo-Darwinian evolutionary psychology – that humankind is not adapted to modern social life because they are still "fitted for his original predatory life." (30) Hence, there is a considerable period of ill-adaptation, where "there must be an

inconsistency between the perfect law and an imperfect state.” (Spencer 1850, 75) With time, Spencer (1850) maintained, this inconsistency between human conduct and the ideal state would decrease: “Man will eventually become completely suited to his mode of life. [...] Progress, therefore, is not an accident, but a necessity.” (31) In that, Spencer’s evolutionism evokes a future oriented perspective that renders the present into a mere state of transition that is to be overcome.

How can education as a social practice of transmission be thought of in this view on society and the present? Progress being a necessity for Spencer, puts the role of education within the formation and re-formation of society up for question. If evolution is a process determined by laws, the role of human agency, and the overall influence that education can have, becomes doubtful. Furthermore, the future orientation of Spencer’s social philosophy severely challenges the value of education for the individual life, while also contesting any notion of the efficacy of education. The question is thus what education’s role is in a society that is, in a sense, merely enduring the status quo, waiting for the laws of nature to ensure progress.

These issues, emerging from an educational perspective on Spencer’s evolutionism, circulate around Spencer’s concept of the individual in relation to this idea of the ‘natural’, objectively ideal constitution of the state to which human nature ought to be adapted to. In order to further clarify Spencer’s view on this relationship between the individual and the ideal constitution of the state, it is worthwhile to look into his idea of morality. Understanding the evolutionary foundation of his moral philosophy draws out a crucial connection between Spencer’s evolutionism and his theory of education. That is because, as explained in the following, the way Spencer conceptualises and locates education is crucially connected to his evolutionary theory of morality.

3.2.4 Spencer’s theory of morality

Society, for Spencer, functions like an organism (1892b, 436). This analogy entails an important distinction between individuals – the ‘organs’ – from the functionality of society – the ‘body’. Instead of thinking of society as a mere accumulation of individuals, Spencer assumes that society is emergent, i.e. that it

inherits its own functionalities that go beyond the accumulation of each of its 'organ's' abilities (Spencer 1892b, 114). Connected to this conception of society that constructs the individual regarding its function as an 'organ' are the three moral standards that Spencer derives from his evolutionary-utilitarian perspective on society.

The utilitarian background to Spencer's philosophy, and in particular his evolutionary take on it, profoundly shaped Spencer's idea of human nature and morality profoundly. For Spencer, the aim of life is happiness. Spencer defines happiness as being dependent of the free expression of the individual's endowed tendencies (Spencer 1893b, 490). Liberty of action, thus, in Spencer is instrumental to happiness. From this connection of the freedom to act and the purpose of life in individual happiness, Spencer derives his ideas of morality and justice. Just like Mill, Spencer assumed that society shall be guided by the utilitarian concept of equal freedom (Weinstein 1998, 120). Equal freedom is an individual right that emerges from Spencer's notion of the freedom to exercise one's "faculties" (Spencer 1850, 44). Spencer used the principle of the greatest happiness for the greatest number of people as a heuristic to assess the moral integrity of political decisions and actions. Spencer also maintained that happiness could only be strived for individually and not be transferred to others (Spencer 1850, 40f.). From this assumption, Spencer (1893b) derived his first, basic moral principle that "there remain to be equally distributed nothing but the conditions under which each may pursue happiness. The limitations to action – the degrees of freedom and restraint, shall be alike for all." (222) This means that for Spencer an equal society is a society that ensures equal distribution of the conditions for everyone to pursue happiness. Once this is ensured and everyone has an equal opportunity to adapt one's faculties as well to one's environment as possible, the ideal state would manifest as a "system of equity" (Spencer 1850, 58).

On Spencer's (1850) view, in this society of equity, everyone grants the same freedom and rights to adapt as well as possible to everyone else. "Every man has freedom to do all that he wills, provided he infringes not the equal freedom of any other man." (54) The prerequisite to this society is that individuals pursue their own rights, while not limiting the rights of others. Hence the second moral principle that Spencer (1850) derives is that "liberty of action being the first essential to

exercise of faculties, and therefore the first essential to happiness; [...] it follows that the liberty of each, limited by the like liberties of all, is the rule in conformity with which society must be organized." (44) What guides this "law of equal freedom" (Spencer 1850, 203) is *sympathy*. With increasing mutual dependency in society, human nature changes as selfish, anti-altruistic behaviour is increasingly negatively rewarded, which induces a re-adaptation of behaviour (Spencer 1893b, 490).

In a system of equity, or in any context of sociality for that matter, liberty of action demands for the conceptualisation of rights, in order to not defy itself. In contrast to Mill, however, Spencer thought of rights not as dynamically evolving, but as fixed. On Spencer's view, certain kinds of actions would necessarily – even universally – lead to happiness, or unhappiness, independently from the effect they have on others. This was a matter of contention between Spencer and Mill, who deemed Spencer an anti-utilitarian, an egoistic hedonist whose theory had no bearings on a theory of morality (Weinstein 1998, 136). And indeed, the hedonistic nature of Spencer's morality becomes, I argue, obvious when going into his writings. This is important for his definition of education. Spencer's assumption of the universality of what individual happiness ultimately means, I associate with his teleological evolutionism. Spencer had a fixed idea of societal equilibrium and the kind of moral conduct necessary to achieve and uphold that equilibrium.

Educating the young generation, both in the family and in formal pedagogical arrangements, in this society can take but one role: to ensure the first two moral principles, i.e. ensuring a system of equal distribution of conditions to pursue happiness for everybody, yet, without limiting each other's freedom to do so. Sympathy, as the "recognition of the moral law" (Spencer 1850, 76) granting individual freedom to strive for happiness, in this conception of education, would become a core aim of education; it is the universal moral codex that, according to Spencer's teleological utilitarianism, would lead to societal equilibrium i.e. the end of evolution.

Spencer's notion of sympathy, however, is not to be confounded with a selfless altruism. Sympathy, according to Spencer, is to be directed only to the pursuit of personal happiness (Weinstein 1998, 130). Sympathy as an aim of education, thus, inherits an instrumental role; it ensures societal equilibrium, where

everyone strives for personal happiness "not only without hindering other individuals from doing the like, but while giving aid to them in doing the like." (Spencer 1893b, 44) This means that sympathy, according to Spencer, in this 'system of equity' takes a one-dimensional role; it is supposed to only prevent the disturbance of everyone's ability to strive for happiness, yet without actively helping each other to improve these abilities either. That is, because Spencer (1850) believed that progress relied on obedience to "the natural order of things", which ensures that "society is constantly excreting its unhealthy, imbecile, slow, vacillating, faithless members" (148). Hence, sympathy ought to be only influencing one's behaviour towards others, if it is related to their ability to adapt: "There is unquestionably harm done when sympathy is shown, without any regard to ultimate results." (Spencer 1850, 203) Thus follows, that for Spencer (1893b) "personal well-being, considered apart from the well-being of others" (282) are to be favoured over social ethics, which are "judged as good or bad mainly by their results to other" (282) in all cases except when one is in danger to limit the other person's ability to adapt his "constitution to conditions" (Spencer 1850, 27).

Ultimately, all of Spencer's moral principles are directed towards enabling the necessary period of disequilibrium, "the temporary 're-barbarization' of mankind" (Mack 2001, 1637). The temporary 're-barbarization' of humankind in ruthless competition, for Spencer (1850), is a requirement for progress: "The worse the condition of society the more visionary must a true code of morality appear." (75) Free moving disequilibrium enables increased adaptive movement through which "the human faculties [will] be moulded into complete fitness for the social state; so surely must evil and immorality disappear; so surely must man become perfect." (Spencer 1850, 31) In this final state, the gap between social and personal ethics will be closed, as "the ultimate man should be one who can obtain happiness without deducting from the happiness of others." (Spencer 1850, 232) There would be an ideal balance between egoism and altruism (Spencer 1893b, 238). And once "all desires inconsistent with the most perfect social organization are dying out, and other desires corresponding to such an organization are being developed" (Spencer 1850, 256), the "weeding out" (Spencer 1850, 203) would cease as human nature would be perfectly adapted to the conditions that formerly enforced selection.

From this conception of a society following the natural order, Spencer derives the conviction an over-emphasis or wrong directing of social ethics would actually stall societal progress and in that prolong the period of ill-adaptation that causes suffering. Thus, not to practice undirected sympathy in the sense that Spencer describes, becomes a moral standard itself (Spencer 1850, 201). Spencer discusses at length in his *Social Statics* (1850) how these moral standards play out practically in terms of social practices and policies. He maintains that the state should refrain from intervening in the societal structuring process – in equal manner to the way that individuals shall limit their helping of others outside of the realms of the 'law of equal freedom' (Spencer 1850, 143). Spencer claims that the benefit of this procedure will ultimately overrule the suffering it causes to the one's subjected to the “purifying process” (Spencer 1850, 146). Moreover, he deems the national poor-laws and the interventions of "well-meaning" (Spencer 1850, 148) philanthropists immoral and cruel in themselves, as they prolong suffering and "merely postpone what must ultimately be done" (Spencer 1850, 149). Any kind of formal education, consequently, would have to inherit a predominantly passive role, the role of the referee who ensures that nobody cuts anybody else's right to seek happiness. From the organismic view of society, connected with the progressive evolutionism that Spencer assumed, he derives assumptions about the ideal state and the ideal human condition capable of bringing about this ideal state. This builds a crucial link between his evolutionism and educational concept: Educational practice is connected to moral education, which, in turn, he derives from his evolutionary utilitarian ethics. This is connection between his evolutionary morality and his theory of education, I will argue in the second half of this chapter, is crucial for his concepts of education and pedagogical direction.

3.2.5 Key themes of Spencer's evolutionary theory

Before unpacking the detailed nature of the connection between Spencer's evolutionary approach and his educational theory, I summarise the key themes emerging from the first part of this chapter. In the three previous sections, Spencer's concept of evolution, his social theory, and his moral philosophy has been analysed. I have characterised Spencer's evolutionism as unilinear, ontologically reductionist, teleological and aspiring to be of cosmological applicability. The three laws of

evolutionary change at the heart of Spencer's teleological evolutionism are laws of growth, of increase and accumulation. Applied to his social philosophy, the inherent progressivism yields important consequences, in particular for a locating of educational practices within Spencer's theory of the social.

Firstly, Spencer's evolutionism assumes the lawfulness of progress, given all evolutionary movements are allowed to unfold according to the natural laws of growth. This progressive determinism puts the role and efficacy of education up for question. Accompanying this progressivism, secondly, Spencer's idea of evolution is largely future-oriented as its aim is the termination of evolutionary movement in equilibrium. Spencer used this evolutionary framing of society to form his own utilitarian morality, in which he defined the law of equal freedom as the pinnacle of human activity. Spencer's utilitarian moral philosophy, thus, is based on the assumptions of a fixed moral conduct that leads to social equilibrium. The equilibrium is a distant aim for the development of human society; the individual is not 'important' in this phylogenetic perspective. This utilitarian framing of evolutionary laws and the concomitant future orientation, thus far, gives no indication about the educational formation of the individual beyond the aim of allowing the process of 'weeding out' to occur freely: "The state of transition will of course be an unhappy state. [...] The process must be undergone and the suffering must be endured." (Spencer 1850, 148)

The first moral standard derived from Spencer's application of his particular evolutionary framework to questions of individual conduct within the broader aim to eventually achieve societal equilibrium is directed towards every individual's rights to have the necessary conditions to strive for happiness met, i.e. the necessary conditions to adapt to her environment. The second moral principle is the law of equal freedom, i.e. is directed towards every individual's rights to strive for happiness to the same extent as everyone else. The third moral standard can be seen as the counterpart to the second principle, the law of freedom: Spencer claims it not only to be futile, but rather immoral to help one another to adapt to life in society beyond the realms of the first and second principle, i.e. beyond enabling each other to have the conditions to strive for happiness and having the freedom to strive for it to the same extent like everyone else. That is, because he deems it

unnatural and therefore hindering in terms of progress, which for Spencer is a natural necessity, a law itself.

Thus, what Spencer (1893b) wanted was a society where "each citizen pursues his own happiness independently, not to the detriment of others but without active concern for others" (227). This is a highly individualistic society, only 'social' in terms of mutual dependence. In this process, society would become increasingly more capable of serving the individual due to an increasing alignment of society to the individual. This would ultimately lead into a complete overlap between the two, with the individual living in freedom amongst others. Or as Deering (2001) put it, "humans learn to adapt to their new circumstances, acquiring characteristics suitable to his/her environment, which are subsequently passed on to future generations. [...] humans' adaptation to their circumstances results in a progressively altruistic, social being as society becomes more manifold and people more interdependent." (146)

Spencer's emphasis on freedom as a crucial part of the ideal state, is potentially deceptive and covering the underlying highly conservative, or even despotic nature of his social theory. Spencer assumes that state authority is necessary as long as the members of society revolt against the naturalised stratification – the state reinforces the societal order until it is accepted by everyone as their own, until the desires of the individual are moulded into fitness. His fundamentally negative anthropology enforces his view of the need of the state to restrain the fundamentally flawed, ill-adapted human nature. He assumed that human nature was fundamentally selfish and in that in conflict with the social organism that requires co-operation. Only once the perfectly adapted and integrated individual emerges that voluntarily accepts its subordination under the then to be permanent hierarchical structure of society, state authority can cease to exist and the beforehand militant society – where coordination is compulsory (Spencer 1876, 160) – evolves into an industrial society, consisting of a perfectly coordinated division of labour, where "multiform beliefs voluntarily accepted" (Spencer 1876, 163) and there is no opposition. "Adaptation to the social state must in time produce a nature such that the needful labour will be pleasurable" (Spencer 1893b, 490).

All in all, Spencer was a 'progressivist conservative', meaning that he believed in societal progress and individual happiness as a crucial element of the ideal society. However, his concept of the ideal society is deeply conservative and ultimately undemocratic and aristocratic. That is because as a progressivist, when envisioning the ideal society, Spencer talks about the future, about an end-state, an equilibrium. At the same time, he conceptualises adaptation merely as a process of the individual adapting to the societal structures and in that reinforcing them. Thus, when Spencer demands that society ought to exist for the benefit of the individual and not the other way around, Spencer talks about the composition of the eventual end-state of society in perfect equilibrium. However, on the way towards the ideal society, the individual hardly matters, especially if it does happen to not fit into the increasingly inflexible structure of society.

3.3 Spencer's educational theory

In the preceding part of the chapter I have outlined the cornerstones of Spencer's evolutionism and discussed the way his concept of evolution informs his social and moral philosophy. Spencer's evolutionary cosmology and the accompanying social and moral philosophy also provide the foundation for his educational theory. From the analysis of Spencer's evolutionary theory, a set of issues emerges regarding a theory of education. Firstly, due to the high epistemological aspiration of Spencer's cosmologically oriented evolutionary concept, it has to be put up for question to what extent his theory of education can be considered truly 'educational', or whether his educational works were more exemplary for the universal applicability of his evolutionism. In other words, are Spencer's educational works of educational interest at all? Secondly, due to the nature of Spencer's concept of evolution, the possibility of a useful concept of education has to be challenged – what can the role of education be in a process that is largely determined by natural laws while at the same time is following trajectory? Thirdly, in Spencer's organismic view on society, he focuses on the emergent properties of the organism rather than on the existence of the individual organs. This makes an educational subject difficult to fathom. Fourth, some profound ethical issues emerge from Spencer's third moral principle for a theory of education. If so-called sympathy "without any regard to ultimate results" (Spencer 1893b, 203), is

considered a breach of desirable moral conduct in an ideal society, then formal education can in principle only act passively, enabling competition amongst students, rather than helping both weaker and more able students to reach their best potential. Basically, this means that education has to be degraded into provider of an even battlefield.

With these questions in mind, I now move on to analyse the bearings of Spencer's evolutionism on his concept and theory of education. In particular, I aim to critically discuss the connection that has been drawn out in the previous part of this chapter between Spencer's evolutionary moral philosophy and the aim, function, and concept of education. I begin this analysis with Spencer's concept of education and his idea of educational practice.

3.3.1 Spencer's concept of education

First to the broader locating of education within Spencer's evolutionary cosmology. In Spencer's theory of evolution, education is a societal practice directed at the adaptation of the individual to society with the purpose of reaching social equilibrium. Recalling the first part of this chapter, Spencer defines adaptation with reference to the laws of evolutionary movement. If the cosmos is allowed to unfold according to the evolutionary laws, progress and the eventual equilibrium are inevitable. Because of these laws, adaptation is strictly passive in the sense that it is compliance with the status quo, rather than intervention of transformation of society. Spencer (1850) emphasises: "Let us never forget that the law is - adaptation to circumstances, be they what they may." (174) Spencer's notion of adaptation, it can thus be noted, is one-directional, i.e. it does only entail the individual's adaptation to society, and not the other way around. Adaptation, on that view, means compliance with these laws. The purpose of this adaptation, and the educational practices directed at it, we can note, is at first instance not related to the development of the individual, but instead to the progress of the societal organism, i.e. phylogeny.

On the level of ontogeny, the aim of pedagogical practices is defined by Spencer's moral philosophy. The objective of educational practice is directed at the pedagogical formation of the younger generation within the broader objective of societal equilibrium. In Spencer's moral philosophy the attainment of societal

equilibrium is tied to a certain fixed kind of individual conduct. This conduct is guided by sympathy directed at the upholding of the law of equal freedom. That is because the law of equal freedom ensures the undisturbed progression of the laws of evolutionary movement towards equilibrium. From this follows that the aim of the education of the individual is also fixed in the moral standards derived from the law of equal freedom. In other words, the ontogenetic aim of educational practice is defined by the wider cosmological trajectory towards equilibrium.

3.3.2 Educational practices and institutions

Education understood as the formation of the individual in alignment with the laws of cosmological evolution is an important component of the overarching evolutionary trajectory toward equilibrium. Educational practices are involved in the process of moulding human nature into a fully equilibrated social order that allows for the process of restructuration to cease. In the light of the centrality of education within his evolutionary cosmology, it made sense for Spencer to write about education extensively. In these writings, Spencer focused mainly on two matters: Firstly, the issue of how educational practices can support each individual's adaptation according to the 'law of equal freedom', and, secondly, how societal organs – of which educational institutions are a part – are to be shaped to ensure that they would allow for the necessary period of transition on the path to societal equilibrium. Within the social organism, Spencer locates the educational formation of the individual both in formal arrangements, and the family. I will now discuss Spencer's perspective on both these contexts, focusing on how his evolutionism informs this perspective.

Spencer was convinced that the ultimate flaw of national education was its artificiality – schools provide “factitious circumstances” that lead people to “adapt themselves to these instead; and will, in the end, have to undergo the miseries of a re-adaptation to the real ones.” (Spencer 1850, 174) In Spencer's view, these 'real circumstances' are defined from an evolutionary viewpoint as the circumstances that allow for the evolutionary movement to unfold freely. Real circumstances present themselves outside of a sheltered educational institution, in the 'real' society founded on the utilitarian principle of the greatest happiness for the greatest number

of people, where everyone is free to pursue their individual happiness in free competition against each other, with the only limitation of the law of equal freedom. These circumstances have to be unrestricted to allow for this free movement which is directed only by a utilitarian morality. As discussed above, according to Spencer's utilitarian morality, each individual strives for happiness while complying with the law of equal freedom and the concomitant idea of directed sympathy.

On Spencer's (1889) view, national education misused its influence to transmit widely useless "ornamental knowledge and attire that brings societal advantages" (25). Instead of attempting to foster adaptation by introducing students to the prevalent cultural reality of society, or what Spencer called 'ornamental knowledge and attire', he believed national education should be focused on individual needs, on "knowledge which conduces personal well-being" (Spencer 1889, 22). National education he perceived to be a "ramified network of restraints by which society is kept in order" (Spencer 1889, 25), veiling the natural order of things with an artificial order. In this artificial order, "instead of just unfolding ourselves to 'full living', we try to find our place in the societal order and in that give in to its rule." (Spencer 1889, 26) In doing so, in Spencer's view, national education is doing the exact opposite of what it ought to be doing – instead of allowing for adaptation to the status quo and thus allowing the evolutionary laws to do their 'progressive magic', national education is involved in the development of alternative, non-utilitarian forms of people relating to each other. Spencer, in contrast, advocates for a national education aimed at equipping every individual with knowledge that allows them to improve their own nature, and to compete against others through that.

Spencer's concept of evolution informed these concerns about adaptation to 'real' and 'artificial' circumstances significantly: As a Lamarckian, he believed that "structural changes thus caused by functional changes are inherited." (Spencer 1891, 435) Assuming that an individual's adaptations are inherited to the next generation, fuelled Spencer's conviction that school's attempts to improve children superficially, had to be futile as long as their deeper nature, i.e. their deeper constitution that they inherited biologically, was so fundamentally flawed:

The truth is, that the difficulties of moral education are necessarily of dual origin – necessarily result from the combined faults of parents and children. [...] Evidently, therefore, the general

practice of any ideal system of discipline is hopeless: parents are not good enough. (Spencer 1889, 169)

This means that even if parents give their personal best effort to enforce 'complete living' and know what this endeavour comprises of – their own nature, during the transitive period of mal-adaption, simply is not allowing them to accelerate progress. School's 'unnatural' attempt to accelerate societal progress via reform has to fail, for, according to Spencer (1850), "reforming men's conduct without reforming their natures is impossible." (172)

At the core of Spencer's critique of the ineffectiveness of educational intervention is his conviction that there are natural developmental laws that guide a child's process of growing up and learning. These laws cannot be accelerated, and foreseen developmental trajectories cannot be altered – at least not without hampering societal progress. Understanding the psychology of individual learning, therefore, is a crucial element of an educational theory aligned with the natural order, i.e. an educational theory that instead of intervening positively with the natural order supports the individual's right to exercise her human faculties fully and freely and in that ultimately ensures progress: "Grant that the phenomena of intelligence conform to laws; grant that the evolution of intelligence in a child also conforms to laws; and it follows inevitably that education can be rightly guided only by knowledge of these laws." (Spencer 1889, 60)

Spencer's psychology of learning is largely a copy of his evolutionary cosmology: "If the doctrine of Evolution is true, the inevitable implication is that Mind can be understood only by observing how Mind is evolved." (Spencer 1892a, 291) Hence, for Spencer (1892a), the development of intellect is a process of environmental adaptation understood as "an adjustment of inner to outer relations" (389). This adjustment, however, must not be understood as a process involving agency, problem solving, multiple pathways, or anything of the like. Learning as adaptation in Spencer's understanding is guided by natural laws.

Spencer was one of the few remaining evolutionists after Darwin who stuck to the Lamarckian principle of inheritance:

We have already seen, that individual organisms become modified when placed in new conditions of life – so modified as to re-adjust the powers to the requirements; and though there is great difficulty in disentangling the evidence, we found reason for thinking, that structural changes thus caused by functional changes are inherited. (Spencer 1891, 435)

According to Freeman (1974, 213f.), Spencer's Lamarckian background is crucial as it rendered biological inheritance into the main cause of progress and in that emptied any other concepts of societal transformation, such as culture, democracy or political reform. In fact, due to his subscription to the theory of recapitulation, cultural transmission becomes actually impossible, because everything has to be learned by experience (Deering 2001, 310). The ideal society, as well as the path towards it, is conservative: it is not based on rationality, agency, or cultural reform, but rather relies on everyone's obedience to the status quo (Deering 2001, 145)

Spencer's evolutionist stance crucially informed his criticism of national education. He was convinced that society could not be formed rationally or intentionally, but rather progresses according to a natural order (Deering 2001, 151). In *Education* (1889), Spencer writes: "We are satisfied that though imperfections of nature may be diminished by wise management, they cannot be removed by it." (165) Spencer believed that national education – just as the much-despised poor laws (Spencer 1850, 213) – in its attempt to interfere with societal growth positively actually halted progress. "The establishment became the insidious symbol of the 'unnatural'." (Trompf 1971, 204) Because, from his evolutionary perspective, he deemed national school education as not only futile but actually detrimental to the development of society, Spencer resorted to family education to conceptualise an educational practice that was in alignment with what he deemed 'natural'.

Spencer assigned high relevancy to family education. Parenting, Spencer conceived to be one of the most challenging tasks in a human's life. At the same time, he maintained that the significance of the task is widely unacknowledged by parents and its purpose overlooked in society – a fact that he partially assigned to a lack of insight into the crucial role of education within the cosmological scale (Muhri 1991, 299). The prevailing artificial standard in national education also impacts family education. Spencer (1861a) was deeply concerned about the "monstrous"

(26) lack of preparation that individuals receive in school regarding the rearing of their future children. The curricular lack of the "laws of life" and the "psychological laws" (Spencer 1861a, 26) would have profound negative consequences regarding societal progress: "The training of children – physical, moral, and intellectual – is dreadfully defective. And in great measure it is so, because parents are devoid of that knowledge by which this training can alone be rightly guided." (Spencer 1889, 62)

It can be noted that Spencer used an evolutionary framework to form a normative account of 'unnatural' to criticise educational practice, in both these realms. Analogously to state/national education, education within the context of the family is, more than anything else, a threat to societal progress. While in institutional education Spencer was apprehensive regarding any 'artificial agenda' that would interfere with the evolutionary trajectory, in family upbringing he fears sheer incompetence on the side of the parents. This incompetence, on Spencer's view, is largely ascribed to a lack of knowledge about the evolutionary trajectory and the associated moral principles.

3.3.3 Moral education

The normative foundation of Spencer's theory of education is based on a combination of utilitarian moral philosophy and a notion of an evolutionary trajectory towards equilibrium. As a result, free conduct and unrestricted competition emerge as the core principle of Spencer's concept of education and inform his thoughts on moral education. Free conduct that is merely limited by the 'law of equal freedom' allows for the necessary period of transition that ensures progress and ultimately leads to equilibrium. Hence, enabling the full expansion of each individual's capacity to adapt to the status quo – and therein compete with others – is a necessary condition for Spencer's notion of progress. Society's attempts to improve the status quo, by, amongst other things, helping the poor, or supporting less abled students in school, are not only futile and ineffective – considering the law-directed trajectory of societal evolution –, but ultimately opposing the third of his three moral principles that forbids to positively trying to compensate for individual's disadvantages in successfully adapting to the status quo. That is because as soon as this

disadvantage does not interfere with the first two moral principles, which ensure that everyone can participate in society, and that nobody's attempts to adapt interferes with anyone else's right to do so, positive support of individual's actual capacity to compete is ultimately immoral:

We must call those spurious philanthropists who, to prevent present misery, would entail greater misery on future generations. [...] Blind to the fact that under the natural order of things society is constantly excreting its unhealthy, imbecile, slow, vacillating, faithless member, these unthinking, though well-meaning, men advocate an interference which not only stops the purifying process, but even increases the vitiation - absolutely encourages the multiplication of the reckless and incompetent by offering them an unfailing provision, and discourages the multiplication of the competent and provident by heightening the difficulty of maintaining a family. (Spencer 1850, 148)

Describing contemporary national education, Spencer (1889) deemed moral education to be the "most glaring defect in our programmes of education." (161) Following his own psychology of learning, he maintains that moral education shall be mainly guided by natural consequences (Spencer 1889, 173). Again, positive influence of the natural trajectory, Spencer deems to be ineffective (Silberman 2003, 99). Drawing from the theory of recapitulation he writes:

Do not expect from a child any great amount of moral goodness. During early years every civilized man passes through that phase of character exhibited by the barbarous race from which he is descended. [...] Hence the tendencies to cruelty, to thieving, to lying, so general among children - tendencies which, even without the aid of discipline, will become more or less modified just as the features do. (Spencer 1889, 207)

What Spencer emphasises here, again, is the ineffectiveness of positive educational intervention as discussed above and demand for an educational practice that does not intervene, but merely maintains the conditions for the development of higher moral faculties via natural consequences (Aleck 1931, 208). In this "natural system of discipline" pure justice would be the leading principle and only "the ultimate standards by which all men judge of behaviour." (Spencer 1889, 175)

Spencer assumed, based on the Lamarckian underpinnings of his evolutionism, ideal morality would eventually become organic (Spencer 1850, 87). In

every generation, humankind would move one consecutive step away from the moral constitution which fitted man for his original predatory state and align increasingly better with the social state. Yet, this improvement of human nature relies on the negative selection of individuals that are less successful or in any way prove to be 'undesirable' in the free competition with others. Trying to help less fortunate individuals, therefore, is immoral – learning the moral self-restraint to not do so, therefore, is a core aim of moral education. This, of course, from a current perspective has to be described as barbaric. In Spencer's educational vision that is founded on "a most extreme form of laissez-faire liberalism" (Trompf 1971, 204) children would grow up learning to not feel empathy for others – at least no empathy that goes beyond the 'law of equal freedom' – and perceive other's failures and struggles as a sign of progress.

3.3.4 Education for 'Complete living'

Spencer translated his evolutionarily derived moral philosophy into a theory of education. He uses the evolutionary-cosmological perspective on education, to justify a methodical standard, a "measure of value" (Spencer 1889, 30) to determine what knowledge education is supposed to transmit. This measure of value is opposed to the immediate empirical evaluation of the knowledge taught in families and schools, or 'traditional' knowledge. For Spencer, this measure is the evolutionary principle itself. Following the laissez-faire philosophy, Spencer (1889) argues that "to prepare us for complete living is the function which education has to discharge; and the only rational mode of judging of any educational courses is, to judge in what degree it discharges such function." (31)

Complete living, for Spencer, consists of five hierarchically structured core activities of the human condition. These activities are 1) direct self-preservation, 2) indirect self-preservation, 3) the rearing of offspring, 4) maintenance of social and political relations, and 5) leisure. For his theory of education, Spencer defines the kind of knowledge that the full expansion of these activities requires. Predominantly, this knowledge consists of recognising one's cosmological role and embracing one's moral duties within the evolutionary trajectory. This entails learning about healthy living in order to avoid becoming a burden to society by committing "physical sins"

(Spencer 1889, 283), become able to gain one's own livelihood, learning how to rear children effectively – by understanding the laws of growth and learning – and appropriately – by understanding their role within the cosmological trajectory –, and learn how to live completely without neither infringing the 'law of equal' freedom, or suspend the evolutionary trajectory by practising "sympathy [that] is shown, without any regard to ultimate results" (Spencer 1850, 203).

Spencer's notion of 'complete living' as the aim of education aligns with his theory and concept of evolution and the crucial role that allowing free movement and competition between individuals during the necessary period of mal-adaptation inherits therein. Free striving for happiness of all individuals, only limited by the law of equal freedom, in Spencer's theory of evolution, makes progress not only likely, but a matter of natural law. Conformable to this law, the movement causing the social organism to restructure, would cease gradually and eventually result in social equilibrium. This equilibrium – which functionally comes about through the natural "weeding out" (Spencer 1850, 203) of the weak, allowing human nature increasingly being improved by the increased propagation by the more desirable – manifests in the ideal adaptation of human nature to the structure of society.

3.4 Key themes of Spencer's approach to education

In this chapter I have analysed the evolutionary foundation in Spencer's educational theory based on the analytic framework developed in chapter 2 of this thesis. In concluding this chapter, I summarise the findings of this chapter regarding these theoretical connections made and discuss the contribution of Spencer's perspective to educational theory.

3.4.1 The 'ultimate man' and the impossibility education

Spencer's evolutionary educational theory can be characterised by its triadic connection of Spencer's concept of evolution, the normative and moral assumptions he derives from that concept, and the concomitant location of education within evolution: Spencer constructs his naturalistic moral philosophy as a direct derivative of his scientific concept and theory of evolution. He then locates the purpose and aim of education as a social practice is functionally within his moral philosophy. The

way Spencer uses his evolutionism to naturalise his moral philosophy, and to develop his educational theory is interesting as it shows us one distinct way of evolutionary concepts influencing educational theorising.

From his conception of evolution as a process guided by biological laws of growth and inheritance, Spencer derived a normative account of what 'natural' society looks like and how human nature constituting this society manifests. He used his normative account of the 'natural' for a general critique of the 'unnatural' socio-political apparatus that forms an 'unnatural', artificial human environments. According to Spencer (1889), as individuals "find [their] place in the societal order and in that give in to its rule" (26), they are adapting to this artificial environment. This causes a halt in the natural progressive trajectory.

Informed by this critique of contemporary national education, Spencer developed an account of education as a social practice that complies with his vision of evolutionary progress. For Spencer, national education, instead of seeking to reproduce artificial culture by integration the young generation into the socio-cultural reality they growth up in, shall ensure that a period of genetic transformation – in the form of temporary re-barbarization in ruthless competition of individuals – is possible (Spencer 1850, 172). The role of educational interaction, therein, is to morally 'form' the younger generation according to Spencer's utilitarian morality, which is aligned with the wider evolutionary trajectory towards societal equilibrium.

Spencer deemed any kind of positive educational intervention futile. For Spencer (1850), the purpose of education was non-interference. Trying to take influence on the biological processes underlying the unfolding progressive trajectory of society is ineffective, and ultimately harmful as it disregards the law-guided evolutionary trajectory: "Reforming men's conduct without reforming their natures is impossible; and to expect that their natures may be reformed, otherwise than by the forces which are slowly civilizing us, is visionary." (172) The central role that Spencer assigned to Lamarckian inheritance and the law-like conception of the evolutionary process present a key problem in a Spencerian educational theory. Because he located the change-effective mechanisms on the level of biological evolution, education's role is reduced to the maintenance of these closed processes.

The aim of education for Spencer, following this chapter's analysis, is the formation of the individual according to the law of equal freedom. Spencer's law of equal freedom is the result of the synthesis of Spencer's teleological evolutionism with a utilitarian moral philosophy describing everyone's right to strive for happiness only limited by the other's rights to do the same. If the law of equal freedom is upheld, the evolutionary laws of progress can proceed freely and, over the generations, lead to the moulding of human nature into a form that allows for societal restructuring to cease in equilibrium. At the heart of this progress is the 'weeding out' of the weak, which due to Lamarckian inheritance leads to the gradual overall improvement of humankind. Within that process, as I see it, education takes the role of short-term preparation, and long-term attainment of the 'right kind' of human nature, for the 'right kind' of society. In contrast to other utilitarian thinkers, arguably due to the teleological evolutionism he used to frame it, Spencer thought of this human nature as fixed. Spencer writes on that fixed shape of the ideal human nature in connection to the 'ultimate man':

The ultimate man will be one whose private requirements coincide with public ones. He will be that manner of man who, in spontaneously fulfilling his own nature, incidentally performs the functions of a social unit; and yet is only enabled so to fulfil his own nature by all other doing the like. (Spencer 1850, 256)

Spencer's idea of 'the ultimate man', I argue, can be associated with the idea of the 'educated man'. Putting the gendered language aside, the idea of the 'ultimate man' describes human existence after the end of evolution. The 'ultimate man' is fully compliant with a utilitarian morality and, thus, does not require any further adaptation. The 'ultimate man', therein, is also, in a sense, the 'educated man': He does not need any further moral education towards that compliance as he has been fully integrated into the structures of societal equilibrium.

At the same time, the 'ultimate man', is not directly a result of education. Education can – by natural law – not influence the formation of the 'ultimate man', as the 'ultimate man', in Spencer, is the product of biological inheritance over many generations. 'He' cannot be shaped by educational efforts. Education, I thus argue, on Spencer's view only has a preparatory and preventative role. While it is a practice with crucial significance on an evolutionary/cosmological scale by ensuring the undisturbed unfolding of the evolutionary trajectory toward equilibrium,

education does not have any objectives concerning the individual's life in its own right. The formation of the individual in the sense of the law of equal freedom is instrumental to the construction of the conditions necessary for the biological process of selection to occur.

3.4.2 A Spencerian theory of education?

I argue that Spencer's interest in education is founded in his broader quest to formulate a naturalistic ideology of progress. In Spencer's philosophy, education – as a societal practice manifesting both in the context of the family and the state – takes the role of maintaining the law of equal freedom that allows societal structures to move freely, and eventually substantiate in equilibrium. Due to the Lamarckian underpinnings in Spencer's thinking, and the lawful concept of evolution, education, had no influence on the development of individuals or society. The aim of education is to ensure the conditions of a 'natural order' by adapting the young generation to the status quo in society, as well as morally educating them to not interfere with the law of equal freedom. Although merely passive, education is in direct servitude to the evolutionary progressive trajectory by allowing it to run its natural evolutionary course.

There are several issues with Spencer's educational theory. First of all, because of the reductionist ontology, and the concomitant bottom-up epistemology, it is unclear whether Spencer's educational theory is 'truly educational', or whether the perspective on education that it provides is in fact 'alien' and therefore, educationally speaking, useless. At the heart of this issue is the vast epistemological expectation that Spencer ties to his evolutionism – he sought to provide a theory of everything that can be summarised in "the most abstract conception, to which science is ever slowly approaching, [...] that merges into the inconceivable or unthinkable, by the dropping of all concrete elements of thought." (Spencer 1892c, 104). This breadth comes at the price of considerable generalness. As Silberman (2004) points out, "Spencer's evolutionary naturalism overreaches" (104) leaving no space for culture, diversity or contingency. By naturalising the whole educational process in this manner and neglecting a functional notion of culture, Spencer did not leave any space for education as a cultural process (Silberman 2004, 108).

Second of all, Spencer's evolutionary perspective on education lacks an educational subject. Spencer's take on the subject and its role within the societal organism is ambiguous. At times, he indeed emphasises that "society exists for the benefit of its member, not its members for the benefit of society." (Spencer 1876, 119) However, in his later writings, Spencer articulates:

We are met by a fact which forbids us thus to put in the foreground the welfares of citizens, individually considered, and requires us to put in the foreground the welfare of the society as a whole. The life of the social organism must, as an end, rank above the lives of its units. (Spencer 1893b, 133)

This quote illustrates the important impact of utilitarianism on Spencer's thinking; the subject is defined exclusively regarding the function it inherits within the social organism. From an educational standpoint, this dissolved subject is a problem. It leaves the question of the nature of pedagogical relationships between teachers and learners unresolved; in a sense, they are entirely irrelevant to Spencer's notion of education. While Spencer focuses on the idea of the evolutionary trajectory towards societal equilibrium, he leaves pedagogical practices with immediate or long-term educational objectives for a learner unspecified; any immediate educational objectives are always oriented toward something outside of the individual's lifetime and pedagogical practices are rendered invisible.

The formation of the individual according to the moral and social standards of the ideal society – which, in Spencer is a society following the utilitarian law of equal freedom – is instrumental to the overarching societal aim. Consequently, the educational subject dissolves leaving no basis for a pedagogic relationship. This has profound consequences for pedagogic responsibility. Spencer writes:

After home education has ceased, and [...] the youth is entering upon the business of life idles away his time and fulfils slowly and unskillfully the duties entrusted to him, there by-and-bye follows the natural penalty: he is discharged, and left to suffer for a while the evils of relative poverty. (Spencer 1889, 176)

I argue that what we see here is the direct implication of Spencer's dissolution of the individual within societal purposes. Due to Spencer's evolutionary informed omission of an educational subject, combined with the cosmological purpose of education – which is, as worked out in this chapter, 'equipping for battle', and

‘maintaining an even battlefield’ – no responsibility for the learner’s success or even well-being exists. Responsibility exists only for the evolutionary principles to be respected and enabled.

A third issue is that in Spencer’s conception of education as mere adaptation and acceptance of the natural order, individual agency on a societal level becomes not only unfathomable, but also undesirable. Compliance with the status quo becomes part of Spencer’s notion of progress itself. This holds a strong inherent conservative potential. Adapting to societal demands by learning ‘useful’ skills to participate in society is worthwhile and undoubtedly contributes to a good life. However, from a critical humanist standpoint, this notion of education driven by economic demand seems all too familiar as it touches upon the issue of the broader aims of education and the independence of educational institutions from economic and political agendas. Spencer’s concept and theory of education provide no grounds for sheltering educational institutions against such instrumentalising tendencies, which puts them on shaky ethical territory. As Eddy (1969) points out, evolutionary theory and educational theory share the common characteristic of being neutral in principle, which makes their potentiality for ideological charging an inherent issue. Muhri, in an attempt to detach Spencer’s theory from the Social Darwinist legacy claims:

It would not be misguided to think of Spencer as an outstanding pioneer of modern educational theory. However, after he was increasingly associated with social Darwinist ideology [...] not only himself, but also his fruitful and educationally not fully exhausted evolutionary theory faded into obscurity. (Muhri 1991, 309)

Muhri implies that Spencer was unjustifiably associated with social Darwinist idea in retrospect. Based on what we learned about his evolutionism in this chapter, I refute this overly generous reading of Spencer’s association with Social Darwinism as accidental.

3.5 Conclusion

Due to the underlying utilitarian morality, the epistemological nature, the lack of any notion of contingency, openness, or diversity, and the absence of a subject

that Spencer's evolutionism inherits, I conclude that Spencer fails to provide a desirable framework for educational theorising. Based on the understanding of Spencer's evolutionism developed in this chapter, and the analysis of how it translates into his educational thought, I argue, that in its application to the educational context, Spencer's evolutionary epistemology fails to provide a useful account of education – both regarding practice, and the philosophy of education. The severe lack of intricacy and openness, combined with the absence of any functional concept of culture inherent to his overreaching naturalism, means that it must fail to grasp the complexity of educational practice.

Because Spencer denies education any transformative power for either individual or society, in his works, education is reduced to the passive preparation of predefined conditions. Spencer's notion of moral education has the aim of preventing disturbances of the evolutionary movement; it does not only refute the efficacy of educational practice in influencing said evolutionary trajectory – which, following his Lamarckian evolutionism, is a process driven by adaptation and biological inheritance – but also it denies the possibility of transforming the learner in a meaningful way. In Spencer, the formation of the individual is a biological process that, if undisturbed, unfolds naturally. Education does not have any direct impact in the individual's formation, which cannot be accelerated or influenced in its trajectory, but, at most, be ensured to unfold freely and undisturbedly.

Spencer, instead of being concerned with the development of the learner in his theory of education, focuses on the *disabling* of the individual's learning-transformation, which he fears would hamper natural selection. While, seemingly, in his concept of 'complete living' an educational objective emerges, in the light of the evolutionary framing of his concept of education, 'complete living' transpires as a concept not concerned with the individual learner, or even the broader society the learner moves in. Rather, 'complete living' finds its purpose in preparing free competition, and thus enabling the biological process of natural selection to work as efficiently as possible.

Connected to Spencer's instrumental concept of education is the lack of an educational subject in Spencer's evolutionary educational theory. Spencer leaves the pedagogical relationship utterly undefined. By instrumentalising educational

objectives for his utopian vision of the 'ultimate man' brought about by a biological process 'purifying' society, Spencer does not only sacrifice any notion of culture and human agency, but also human dignity by degrading individuals into organs with their worth defined regarding the function they inherit within the organism. Spencer's idea of the 'ultimate man' further underlines the futility of education; education is nothing more than preventing interferences with a utilitarian hedonistic morality fostering individualism and ruthless competition. Human nature can only improve through physical inheritance and the 'ultimate man' is a product of that inheritance. Education ceases to be necessary at this stage of human phylogeny because the evolutionary movement has ceased and, therein, made further adaptation unnecessary. Educational formation, however, in Spencer, has nothing to do with the end of education, with the formation of the 'ultimate man'; the end of education is biologically determined.

In the following chapter, Spencer's approach will be contrasted with Dewey's educational philosophy. Dewey, just like Spencer, applied an evolutionary framework to questions of human nature, development, and the nature of learning and education. In both their approaches, the evolutionary concept of adaptation takes a crucial role informing their perspectives on the meaning and role of education for the development of the individual and social evolution. Adaptation, however, is also the concept that sets these two thinkers most apart. Dewey, as I will argue, expands Spencer's conservative, one-sided concept of adaptation with his notion of growth, focusing on the open-endedness of development and individual agency in the process of sociocultural evolution. This difference yields important implications for how we can think of the concept of education, the aim and purpose of education, the relationship between education and learning, as well as the role of teaching in those processes.

4. John Dewey

4.1 *Introduction*

In this chapter I will use the analytic framework developed in chapter 2 to draw out and analyse the evolutionary notions influencing Dewey's educational thinking. These evolutionary foundations are still widely neglected in the educational discourse around Dewey, which has led to, as some have argued, the evolutionary underpinnings in core Deweyan concepts being "overlooked, underappreciated, or denied." (Rogers 2012, 4; see also Popp 2007, Perricone 2006, Fesmire 2015). Specifically, I will study Dewey's concept of growth.

Growth is one of the core concepts of Dewey's educational philosophy (Stitzlein 2017; Popp 2007). Growth is also, as I will argue in this chapter, fundamentally Darwinian and therein of particular interest for this study (Nardo 2018). I argue that growth captures Dewey's account of human adaptation and embodies the way he came to think of the relationship between the subject and her/his environment based on a Darwinian worldview embracing contingency, anti-dualism and open-endedness. With his concept of growth, I contend, Dewey sought to expand the way evolutionary frameworks, and the concept of adaptation in particular, can be used to think about human development, sociocultural evolution, and education in particular. Just like in Spencer's approach, education as a social practice facilitating adaptation through the integration of the younger generation into a certain societal reality – or, to be more precise, an imagined ideal social reality in the case of Spencer – received a key role in Dewey's philosophy. While for Spencer, however, 'adaptation' described the subject's adjustment to predefined externalities, Dewey understood adaptation to be more complex, involving the individual's 'adaptation to' the environment as well as the individual's 'adaptation of' her/his surroundings. This more intricate understanding of adaptation also enriches Dewey's concept of education which, in growth, describes the individual's becoming in formal education, as well as in everyday experiences and interaction.

In this chapter I aim to draw out the essential evolutionary quality of Dewey's particular evolutionary concept of education. This analysis shall enlighten the epistemological mechanisms of the synthesis of evolutionary concepts and educational theory and, therein, make an important contribution to this thesis' aim to enhance our understanding of the workings of evolutionary theorising in the context of education. First, I situate Dewey's evolutionary thinking historically and philosophically. I will argue therein that Dewey's opposition to Spencer is a frequently forgotten factor in the development of Dewey's evolutionary thought, and his turn away from Hegel towards Darwinism. After having explored what Dewey was 'up against' with his concept of growth, I will discuss the theoretical foundations of growth, namely a Darwinian worldview, and, specifically, the way William James applied Darwinism to his theory of mind. Second, I unpack the nature of Dewey's concept of education as growth. Therein, I focus on the meaning of education in the context of individual growth, introducing Dewey's notion of educative experiences and their social dimension. Then I will lead over to the ways in which different elements of Dewey's philosophy of education – such as educative experiences and habit reconstruction – connects individual development with the progress of society, and, shed particular focus on the evolutionary underpinnings of that connection. Third, in terminating this chapter I discuss the pedagogical dimension of education understood as growth. This will entail an examination of what follows from Dewey's understanding of growth for the pedagogical construction of educational environments as well as a discussion of the role of the teacher within the process of growth.

4.2 *Dewey's evolutionism*

In this first part of the chapter I will contextualise Dewey's evolutionism by discussing the major intellectual traditions that informed the integration of Darwinism into his philosophy, and the conceptualisation of growth in particular. First, I will talk about Dewey's turn away from Hegel and his rejection of Spencer. Adding on to these areas of criticism that set the stage for the construction of Dewey's philosophy, secondly, I will talk about how Darwinism and James's pragmatism influenced the formation of his concept of growth.

4.2.1 The Hegelian deposit in Dewey's thinking

It is not this thesis' aim to provide a comprehensive account of the detailed nature of Hegelian traces in Dewey's work, or even to display the wide array of different positions within that discourse. What is of interest here, are some of the particular points in Hegel's philosophy that Dewey took issue with and that informed his shift away from Hegel, towards Darwinism.

It is a matter of broad agreement that Hegel influenced Dewey's thinking profoundly. In his early years as a scholar, Dewey studied Hegel intensively. In that period, Dewey adopted a set of Hegelian ideas that would remain of fundamental significance in Dewey's thought, even after he "drifted away from Hegelianism" (Dewey 1930/2008, 155) later in his intellectual biography. Dewey (1930/2008) emphasises "that acquaintance with Hegel has left a permanent deposit in my thinking." (155) This deposit is visible in the uncompromising focus on process and "dialectical change and development" (Greene 1988, 42) that Dewey derived from his studies of Hegel and later incorporated in his concept of growth (Renault 2016, 225). Furthermore, according to Metz (1961, 181) and Good (2008, 579), Dewey's fundamental rejection of Cartesian duality – which presents another central pillar of growth – can be traced back to his studies of Hegel. What Dewey disagreed with in Hegel, was the "perfect telos to development" (Reich et al 2016, 1001) that Hegel presupposed and the way this notion of development reduced development to an internal process of unfolding, rather than through interaction. For Hegel, development is the "movement of Spirit to the Absolute end of history" (Reich et al 2016, 1002). Dewey opposed to this teleological notion of development.

Dewey's shift away from Hegel has been associated with a number of reasons, namely the historical context of WWI and his associated turn away from German philosophy (Renault 2016), and also his increasing intellectual involvement of Dewey with James's pragmatism (Hickmann 2008). The factor I want to explore more closely here, is Dewey's shift away from Hegel in relation to his increasing turn towards Darwinism. The compatibility of the Hegelian deposit in Dewey's thinking with his attempts to integrate Darwinian framework is a point of controversy (Bellmann 2007a, 16; Saito 2005, 21; Biesta 2016, 162; Garrison et al 2012). But even amongst Dewey scholars who assign Hegel a key, or even dominant role in

Dewey's thought, Darwinism is characterised as significant influence in Dewey's philosophy (Good 2008; Good&Garrison 2010). It is broadly agreed upon that Dewey to some extent or the other set out to "translat[e] Hegelian insights into the naturalistic terminology that was coming into vogue because of the influence of Darwinian biology and experimental psychology" (Good 2008, 578). Rorty (1979) argues that Dewey used a Darwinian framework in order to "construct a naturalized version of Hegel's vision of history" (5). This estimation of the relationship of Dewey to Hegel in his later works, also resonates in Greene's (1988, 42) reading of Dewey that associates Dewey's 'drifting away' with the incompatibility of Hegel's notion of world spirit and the concomitant idea of a cosmic order with, what Good (2008) calls "the challenge of Darwinian biology" (578).

What transpires regarding the relationship between Dewey and Hegel is the narrative that Dewey employed a Darwinian framework to 'answer' to the lack of a scientific base to Hegelianism (Bellmann 2007a, 49), as well as to deconstruct some teleological and absolute elements in Hegel (Reich et al 2016, 1001). Looking at the discourse outlined above, this characterisation of the intellectual context of Dewey's evolutionary thinking is doubtlessly valid and crucial. However, in this chapter, I want to add to this narrative that associates Dewey's shift from "absolutism" towards "experimentalism" (Biesta 2016, 165) with his turn away from Hegel, by exploring Dewey's opposition to Spencer.

4.2.2 Dewey's criticism of Spencer

Dewey's explicit and repeated opposition to Spencer is often lacking from accounts of Dewey's evolutionary thinking (Bellmann 2007a; Dalton 2002; Popp 2007). Greene (1988) is one of the few to point towards Spencer, without mentioning him by name, in her statement that Dewey found "different meanings in Darwinian theory than had [...] the so-called Social Darwinians" (42). I want to reinforce this point that Greene raises by showing that Dewey opposed to virtually all of Spencer's claims regarding the theory of evolution and its bearings on ethics, social philosophy, and education. The recurring and unequivocal opposition is a widely overlooked element influencing the development of Dewey's evolutionary thought. This neglect has led to confusion, especially so in a recent educational

discourse stirred by Egan's book *Getting it Wrong from the Beginning* (2002), where it is claimed that Dewey and Spencer are ideologically interchangeable contributors to the Progressive Education Era. Zebrowski (2008) has pointed out that such a characterisation of the two thinkers happens in absolute disregard of their diverging ideas of evolution. Therefore, the focus on how Dewey's opposition to Spencer informed his evolutionary thinking is a new and important contribution to the discourse within educational Dewey scholarship, and, in particular, to the understanding of the evolutionary underpinnings in Dewey's thinking.

Throughout Dewey's works, Spencer is a recurring point of critical reference. In his essay *The Philosophical Works of Herbert Spencer* (1904/2008), Dewey delves into the depths of his disagreement with Spencer. In parts, the essay conveys Dewey's contempt with Spencer as a scholar, which resonates in his verdict of Spencer's scholarly inability stemming from "the straightforwardness of Spencer's own life, and its seclusion, its remoteness, its singular immunity from all intellectual contagion" (Dewey 1904/2008, 196). Mainly, however, the essay is a critical review of Spencer's philosophy. Dewey (1904/2008) contends that "Spencer's system was a system from the very start. It was a system in conception, not merely in issue. It was one by the volition of its author, complete, compact, coherent" (196). He deemed Spencer's evolutionary philosophy to be artificially constructed, overly abstract, and ultimately, from a Darwinian perspective, false (Dewey 1904/2008, 209; 1922, 205). I will now look into Dewey's disagreements with Spencer in more detail in order to clarify the differences between these thinkers' educational concepts related to their diverging concepts of evolution.

Spencer and Dewey were part of a specific development in intellectual history that contributed significantly to their opposing views on the process of evolution. On the verge of the so-called 'Darwinian revolution' (see chapter 2), Spencer was pre-Darwinian, Dewey, on the other hand, Darwinian. Spencer accepted the premise of Lamarckism suggesting the heritability of acquired characteristics from generation to generation. Individual conduct, on that view, is biologically effective in evolutionary change. Dewey, as a Darwinian, accepted the principle of natural selection as the basis of his own evolutionary thought (Popp 2007). In a natural selection paradigm, traits that the individual acquires are not heritable; evolutionary change is affected by adaptations only indirectly, regarding the functional advantage they grant in a

specific environment. This paradigmatic misalignment – between Lamarckism and Darwinism – set the two thinker's concepts and theories of evolution apart fundamentally in terms of how they conceptualised evolution.

The first point of disagreement is Spencer's and Dewey's opposing ideas of evolutionary trajectory and the related notion of progress. For Spencer, progress is not only a biological fact – due to the lawful nature of the evolutionary process and Lamarckian inheritance – but it is also a pre-defined, and, most importantly, leading to an attainable final state (Spencer, 1893, 31). Dewey rejected contemporary evolutionary theories like Spencer's that presuppose the existence of a pre-determined end to the evolutionary process, fostering "ideals of a Utopian millennium" (Dewey 1908/2008, 57;). In *Ethics* (1908/2008), Dewey deconstructs the teleological premise of Spencer's evolutionism and the way it translates into social theory and ethics. He describes Spencer's attempts to formulate an evolutionary theory of ethics as "literary versions of science" and a "parody of the real facts" (Dewey 1908/2008, 335). Spencer used an evolutionary framework to conceptualise progress as a natural law and normative force in order to justify an idealisation of competition and laissez-faire social policy. The process of evolution, in Spencer, receives a certain inevitability; if undisturbed in the present, evolution is an unfolding process towards a final future end-state. Dewey, rather than thinking of evolution as a path toward attainable perfection, conceptualises evolution with focused on the process of perfecting itself; a back and forth between the attainable and unattainable: "Perfection as perfecting with no fixed ends." (Saito 2005, 53). With this notion of 'perfection as perfecting' at the core of Dewey's evolutionary thinking, the process, rather than the end state, moves to the centre of attention. On Dewey's view of evolution, moral activity is not a fixed category: "The better is the good; the best is not better than the good but is simply the discovered good." (Dewey 1922/2008, 193). Thus, being situated in the Darwinian line of thought, for Dewey, instead of progress meaning approximation of a fixed endpoint, progress means the continuous enhancing of functionality and flexibility, 'discovering the good' in interacting with the environment.

The second main feature of disagreement that follows from Dewey's and Spencer's diverging concepts of evolution, and the way these set up the relationship between the subject and her/his environment is the process of adaptation. For both

thinkers, adaptation is a key principle of the evolutionary process. Dewey and Spencer are, what Godfrey-Smith calls 'externalists', meaning, they accept the premise that the environment – to varying extent – defines the development of the organism (Godfrey-Smith 1996, 4). Spencer was an "extreme externalist" (Godfrey-Smith 1996, 45); in his conception of the evolutionary process, the environment has a direct, causal influence on behaviour. Adaptation, on that view, knows two modalities – either objectively 'good', or objectively 'bad' in relation to an all-powerful environment. Even though Dewey, in accordance with Spencer, thought that "life activities flourish and fail only in connection with changes of the environment." (Dewey 1916/2008, 133), he had a highly different concept of what that meant. In contrast to Spencer, Dewey is, in Godfrey-Smith's (1996) words, a "very moderate" (60) externalist, defining adaptation as "quite as much adaptation of the environment to our own activities as our activities to the environment." (Dewey 1916/2008, 53) In *The Quest for Certainty* (1929/2008), Dewey lays out these two sides of adaptation that grant stability in a contingent world. First, "appeasement with those powers that decide our fate", and second, "changing the world (rather than oneself) through practical action" (120). Notably, throughout his works, Dewey uses four terms to describe human adaptation: 'adaptation', 'adjustment', 'assimilation', and 'accommodation'. What remains a consistent motive, however, is the dialectic nature of adaptation describing both the individual's adaptation *to* the environment and the individual's adaptation *of* the environment to him- or herself. In this definition of adaptation lies one of the most fundamental differences between Spencer's and Dewey's evolutionary approaches.

Following the significant differences in their concepts of adaptation, Dewey and Spencer developed opposing views on the mind, cognition, and knowledge. Associated with Spencer's concept of adaptation exclusively meaning the adjustment of the "inner to outer relations" (Spencer 1892a, 389), is the idea of correspondence between mind and nature. Spencer's correspondence-hypothesis stood in line with what Dewey had come to reject in contemporary American materialism, namely the sharpening of the Cartesian divide between mind and body, making the recourse into metaphysical explanation necessary (Dalton 2002; Fesmire 2015). Dewey notes:

If one starts with the assumption that mind and matter are two separate things, while the evidence forces one to see that they are connected, one has no option save to attribute the power to make the connection, to carry from one to the other, to one or the other of the two things involved. (Dewey 1925/2008, 210)

What Dewey criticises here is how traditional materialists reinforced the dualism between the mind and 'the world', or matter, leading them to consequentially integrate a notion of inherent correspondence between mind and matter to explain cognitive developments as results of adaptive processes triggered by the external. The same is the case for Spencer, who thought of the environment as a causal stimulus to the organism and therein rendered nature, on Dewey's view "teleological all the way through" (Dewey 1886/2008, 104). On Dewey's assessment, Spencer, by breaking-up "a continuity of historical change into two separate parts" with his concept of evolution had to bring forth "some device by which to bring them together again." (Dewey 1925/2008, 211).

This act of rekindling mind and matter "at the naturalistic bent in American thought" (Hatfield 2001, 1) was undertaken by the psychology of behaviourism. Behaviourist psychologies focused on behaviour "as an objective expression of mind" (Hatfield 2001, 2). Mind was "understood as a linear causal sequence, with external sensation stimulating the inner image or idea, which in turn caused the motor response." (Bredo 1998, 452) In the context of his opposition to all 'reflex arc psychologies', Dewey also came to criticise Spencer, because, as Bredo (1998) points out: "Any psychology that begins with entities defined independently of organismic activity [...] is subject to his [Dewey's] criticism." (462) Spencer's acceptance of the correspondence-hypothesis which thinks of the mind as, in Godfrey-Smith's (1996) words, "a mirror of nature" (166) furnished a mechanistic premise in his own account of psychology and learning. For Spencer, "knowledge is, in a sense, simply the result of one structure imprinting on another." (Bredo 1998, 449) Dewey criticised how Spencer "unconsciously assumed that scientific knowledge could be communicated in a ready-made form." (Dewey 1916/2008, 230) He also disagreed with the normative implications of a conception of knowledge as 'objective', or 'true' in relation to the idea of correspondence. While Dewey indeed agreed with the behaviourist notion that behaviour is an expression of the mind, he rejected the mechanistic underpinnings of this first-generation behaviourism that

rendered the relationship between mind and behaviour teleological. For Dewey, purpose arrives from the need of the organism to adapt; mind, thus, had to be integrated into an explanation of human evolution (Hatfield 2001, 12). Dewey thus opposed to a psychology based on the idea of a “stimulus-response ‘reflex’” (Bredo 1998, 452) and sought to break this causal chain with the notion of purpose. Dewey thought of purpose in evolutionary terms.

For Spencer, evolution was “largely a mindless process” (Bredo 1998, 450) assuming an unfolding the trajectory without the interjection of an intelligent agent. For Dewey, in contrast, “the method of intelligence in discovering and utilizing new methods, tools, and resources” (Dewey 1909/2008, 336), forms the heart of human evolution and adaptation. While adapting, the organism actively transforms its environment; thoughts are instruments to action in a complex environment, breaking up the chain between environmental stimuli and individual response with the element of intelligent selection: “Purely external direction is impossible. The environment can at most supply stimuli to call out responses. These responses proceed from tendencies already possessed by the individual.” (Dewey 1916/2008, 31) Humans, in Dewey, have evolved the intellectual capacity to “direct our activities with foresight and to plan according to ends-in-view, or purposes of which we are aware.” (Dewey 1933/2008, 125) The mind, therein, is an agent of adaptation in this ongoing process as it allows “the adult [to use] his powers to transform his environment, thereby occasioning new stimuli which redirect his powers and keep them developing. Ignoring this fact means arrested development, a passive accommodation.” (Dewey 1916/2008, 56). The mind functions not only as a connecting instance between the individual and the environment, but is a stimulus itself: “The physical process awakens the mind, it incites it to action; the mind, thereupon, spontaneously and by its own laws develops from itself a sensation.” (Dewey 1886/2008, 107) The body functions as a stimulus for the self-developing activity of the mind, which in consequence transcends it (Dewey 1898/2008, 45f.). “Given this goal-directed view of behaviour, stimulus and response are mutually constituted”, Bredo (1998, 454) points out. In contrast to a behaviourist account of ‘stimulus’, in Dewey, stimuli are not merely external events ‘entering’ the mind, but rather “the product of an act of perception” (Bredo 1998, 454). The conception of the mind as the heart of the subject’s relating with her/his environment breaks up the

Cartesian dualism, while at the same time assigning agency to the individual outside of mere adaptation understood as aligning with the environment. Rather than being forced to follow our first impulse, we are able to bring it “into connection with other possible tendencies to action so that a more comprehensive and coherent plan of activity is formed.” (Dewey 1938/2008, 41) This ability is, what allows us to act intelligently, select stimuli, and not based on trial and error alone – it is at the basis of our ability to learn, and, ultimately, our ability to be educated.

4.2.3 Dewey’s integration of Darwinism

I have argued above that Darwinism was a significant contribution to Dewey’s deconstruction – and reconstruction – of Hegel. Yet, the influence of Darwin on Dewey’s philosophy, and whether his adoption of Darwin was in fact ‘Darwinian’ at all, are matters of ongoing disagreement in Dewey scholarship. Fesmire (2015), Dalton (2002) and Popp (2007) present comprehensive Darwinian readings of Dewey’s thought. They consider Darwinism to have been of fundamental importance for the development of Dewey’s thinking. Similarly, with specific regards to Dewey’s concept of adaptation, Godfrey-Smith (1996) argues that “Dewey was (as far as I can tell) a straightforward Darwinian.” (114)

In contrast, while Saito (2005), Noddings (1998), and Biesta (2016) acknowledge Dewey’s interest in Darwin, they put up for question the compatibility of the ‘Hegelian deposit’ in Dewey’s thinking with his attempt to integrate Darwin. A key point of controversy regarding Hegel and Dewey is the compatibility of idealistic Hegelian elements in Dewey’s thinking with Dewey’s Darwinian conceptualisation of ethics, psychology, and society (Bellmann 2007a, 16; Saito 2005, 21; Biesta 2016, 162; Garrison et al 2012).

Throughout his works, Dewey uses Darwinism to scientifically re-enforce what he already thought to be true from reading Hegel, namely the focus on process rather than telos. In *The Influence of Darwinism on Philosophy* (1910a/2008) he writes: "Doubtless the greatest dissolvent in contemporary thought of old questions, the greatest percipient of new methods, new intentions, new problems, is the one effected by the scientific revolution that had found its climax in the *Origins of Species*." (14) What Dewey verbalises here is the profound ideological impact that

Darwin yielded on philosophical inquiry and the sciences – a point view, which he had begun to develop even earlier on in his works:

The influence of Darwin upon philosophy resides in his having conquered the phenomena of life for the principle of transition, and thereby freed the new logic for application to mind and morals and life. (Dewey 1910a/2008, 8)

Darwinism, it seems, for Dewey, was the scientific confirmation for a philosophy of transition; it was the fundamental underpinning for his philosophy of growth. The most central Darwinian concept that informed Dewey's conception of growth was natural selection and the way it informed Dewey's notion of adaptation.

'Natural selection' is the core premise of Darwinian evolution (see chapter 2). It replaces the 'mechanistic metaphysics' of pre-Darwinian, teleological, lawful evolutionary theories in the sense of Spencer, with a functional principle that explains the process, yet leaves its trajectory non-predetermined. 'Natural selection' is the process of certain traits in an evolutionary entity (genes, subjects, groups, some even think ideas, or 'memes') being negatively selected, and others contributing to the entity's fitness in a way that leads to its ability to survive and procreate. What trait is negatively selected, and what trait is relevant for selection in the first place, is dependent on the fitness it grants the evolutionary entity in a specific environment. What natural selection adds to Dewey's philosophy, is a conception of the evolutionary process as contingent, and driven by functionality. I will now begin to explain what I mean by 'functionality' in the context of Dewey's idea of social evolution and further expand on it in the context of Dewey's integration of James's theory of mind and consciousness.

As discussed in detail in chapter 3 of this thesis, in Spencer's lawful account of evolution, there is no account of individual agency. For Spencer, evolution is genetic, rather than cultural; it is a matter pre-determined unfolding towards a fixed end-point. This is also the case for Spencer's theory of the evolution of society and morality. He assumed that ideal morality was objective and an attainable state that would naturally emerge in social evolution. In contrast, on Dewey's Darwinian perspective, social evolution is contingent. This means that its trajectory is non-predetermined and dependent on 'what works'. What is functional, therein, is

defined within an ever-changing environment. Social evolution is the ongoing process of negotiating the value, or 'functionality' of activities in a societal context. Instead of a movement towards "one end and law" (Dewey 1891/2008, 57), growth is the contingent result of "studying the conditions and effects of the changing situations in which men actually live" (Dewey 1891/2008, 57) and to intelligently deal with these conditions in a social context. Growth is, therein, as Dewey points out, "a higher value and ideal than is sheer attainment." (Dewey 1934/2008, 39). Growth is the ongoing process of adapting to a contingent environment that fosters the individual's adaptability. Because it is driven by functionality rather than telos or 'attainment', it grants openness to react to contingency.

Growth incorporates an a-teleological conception of evolution that Dewey derives from the Darwinian principle of natural selection. Worth mentioning here is Popp's (2007) work on growth and its relatedness to Darwinian adaptation. While I agree with Popp on the way that Darwinian adaptation has informed growth's open-ended nature, I disagree with the way he connects growth to natural selection. Popp (2007) argues that natural selection has been replaced by Dewey's with conscious selection. I, in contrast, understand natural selection to be fully compatible with Dewey's notion of growth, particularly if we assume a pluralistic explanatory framework with a widened account of evolutionary mechanisms (Nardo 2018). I argue that the Darwinian principle of natural selection provided Dewey with an understanding of evolution as a contingent, continuous, and open-ended process. Dewey had a pluralistic notion of natural selection. He emphasised: "The belief that natural selection has ceased to operate rests upon the assumption that there is only one form of such selection [...]. There is not only the trial by death, but there is the trial by the success or failure of special acts" (Dewey 1898/2008, 51). Dewey thought that natural selection includes other forms of selection that cannot be captured by a narrow understanding of natural selection as a matter of life or death. For Dewey, in the case of humans, natural selection manifests in conscious intelligent selection. Darwinism, however, was not sufficient to conceptualise Dewey's notion of intelligent conscious selection. While Darwinism provided him with the premise of functionality and dialectic adaptation at the core of the subject's being-in-the-world, it was James's pragmatics that allowed him to conceptualise a

conscious, intelligent actor organising re-adaptation in a contingent environment (Bredo 1998, 455).

4.2.4 Dewey's use of James's pragmatism

As hinted at above, James's pragmatism is considered to have had a major impact on the formation of Dewey's philosophy. James was a convinced Darwinist himself, seeking to integrate core Darwinian notions, such as selection and adaptation in his philosophy (Margolis 2002, 119). Based on the dynamic and non-dualistic worldview that the evolutionary principle furnished, James developed an evolutionary psychology that provided a set of new perspectives on epistemological issues surrounding objectivity, object-subject correspondence and learning that yielded important influence on Dewey's thinking. The influence of James on Dewey, therefore, is, in a sense, partially Darwinian.

Darwinism furnished the groundwork for a scientific alternative to a dualistic perception of "mind and world [...] as two independent realms of existence having certain points of contact with each other." (Dewey 1916/2008, 287). Based on his understanding of evolution as contingent and driven by functionality and intelligent conscious selection, Dewey developed his concept of adaptation as a dialectic relationship between the subject and the world, based on the need for "continuous reconstruction" (Popp 2007, 39). On that view, functionality is not merely a matter of the environment selecting, but also of the organism, who selects intelligently: In a "process of constant growth, adjustment to new relations" (Dewey 1886/2008, 112) the organism forms purposeful action in relation to the demands of the environment as well as its own ends-in-view. What matters is not the approximation of some external objective or telos, but the functionality of activities in regard to what can be, and wants to be, achieved in the specific environmental context. Individuals are not just blindly adapting themselves to whatever comes their way, but rather follow a "selective bias in interactions with environing things" (Dewey 1925/2008, 196). Dewey (1908/2008) states: "In the end, men do what they can do. They refrain from doing what they cannot do. They do what their own specific powers in conjunction with the limitations and resources of the environment permit" (49). This process of intelligently mediating the individual's 'specific powers' and the environmental

constraints, is, what growth as a process of dialectic adaptation, meaning both passive assimilation and active accommodation, describes.

With growth, Dewey developed a concept to capture this contingent process and rekindle 'mind and world'. James's pragmatism was probably the most significant theoretical framework for Dewey in constructing growth. Most fundamentally, James's pragmatism supported Dewey in his rejection of speculative metaphysics (Barnes-Holmes 2005, 1883). The prevalent Platonic tradition in Western philosophy to speculate about "the essential being of all things" (Brinkmann 2013, 21) was incompatible with an anti-essentialist Darwinian worldview that was focused on contingent change, rather than on inevitable necessities and ultimate cosmological purposes. In his analysis of Social Darwinist ideology in American thought, Hofstadter notes: "Spencerianism had been the philosophy of inevitability; Pragmatism became the philosophy of possibility." (Hofstadter 1958, 123) Pragmatism, following a Darwinian worldview, provided a sort of 'lower-level' metaphysics functioning as an antidote to the absolute metaphysics: "Pragmatism thus has a metaphysical implication [that] takes us to the conception of a universe whose evolution is not finished, of a universe which is still, in James' term, 'in the making,' 'in the process of becoming,' of a universe up to a certain point still plastic." (Dewey 1925/2008, 14) Dewey made these "process metaphysics", as Brinkmann (2013, 45) calls them, describing the state of the world as an unceasing and contingent process, the foundation for growth.

In constructing growth, Dewey (1920/2008) used James's theory of mind, namely his notion of "stream of consciousness" (211) and his "pragmatic theory of truth" (220), to conceptually furnish growth understood as the dialectic adaptive process. For Dewey, the mind is at the heart of growth. With reference to these 'pragmatic metaphysics', Dewey (1920/2008) rejected the absolutist ontology of "empiricism which takes knowledge to be completely passive and external" (215). In the same text, he notes: "James is not concerned with knowledge as a copy of the original thing, but with its usefulness as an instrument." (218) Following the "pragmatic theory of truth" (Dewey 1920/2008, 220) knowledge is an adaptive activity, rather than the result of a process of the external reality 'imprinting' on the mind. Knowledge, following James, is what connects stimulus and response, it is what allows the subject to intelligently mediate - or, intelligently select - stimuli to

action. In *The Principles of Psychology* James writes: “The mental life seems to intervene between impressions made from without upon the body, and reactions of the body upon the outer world again.” (James 1890/1919, 6). The mind, on that view, and the knowledge it constructs, is what connects the subject and the world. The mind is, what defines human adaptation. This connection that the mind offer, goes both ways, effecting change in the subject as well as the environment.

Dewey integrated James’s theory of truth and his notion of knowledge into his concept of growth. He writes:

We can gain knowledge only by controlling the stimulus on the one hand, and by selecting our response on the other. The importance of knowledge conceived thus as a mediating process lies in the fact that it ‘slows down’ both the stimulus and the response, so that the organism can take time to plan. (Dewey 1920/2008, 210)

What Dewey describes here, is the process of intelligent conscious selection. As discussed above, intelligent conscious selection, in accordance with Darwinian natural selection, underlies the principle of functionality. Knowledge, on James’s view, is not concerned with objective truth, but with functionality. Dewey uses James’s theory of truth and his concept of knowledge to describe the way in which the mind is involved in the process of dialectic adaptation.

4.2.5 Key themes of Dewey’s evolutionary thinking

I have argued that Dewey’s turn away from Hegel and his criticism of Spencer’s evolutionism formed the foundation of Dewey’s evolutionary approach. Dewey’s relationship to Hegel, therein, was both positive and negative: While some persisting ideas in Dewey’s philosophy – like the focus on process (Renault 2016, 225), dialectic change (Greene 1988, 42), and the rejection of Cartesian duality (Metz 1961, 181; Good 2008, 579) – are to be indebted to Hegel, others – namely the absolutist trajectory (Biesta 2016, 165) and the notion of world spirit (Greene 1988, 42) – are key elements of what Dewey sought to critically address with his own philosophy (Reich et al 2016, 997).

Within this narrative that positions Dewey’s Darwinism in contrast to what he came to reject in contemporary Hegelianism, growth is a key point of reference.

Saito (2005), for example, highlights growth, specifically, as a key component of this Darwinian shift away from Hegelianism in Dewey's thinking: "Unlike his former concept of self-realization directed toward a final end-point, Hegel's Absolute, growth came to be seen later as a contingent and endlessly evolving natural process." (5) Similarly, Greene (1988) notes that Dewey "found in the very notion of natural evolution suggestions for a view of open-ended development enhanced by our conception of dialectical interchange that would overcome old dualisms and discontinuities." (42)

Less equivocal than his relationship to Hegel is Dewey's position on Spencer. Dewey's criticism of Spencer's evolutionary ideas of mind, ethics, and conduct can be bundled in the fundamental, paradigmatic disagreements that divide the thinkers on the matter of the ontology of evolution. For Spencer, evolution is based on natural laws and, if visualised, takes on the shape of an upwards leading trajectory with a pre-determined end-point. Dewey disagreed with Spencer's concept of evolution, namely, his ideas of how the evolutionary process works, and, even more far reaching, what kind of process evolution is in the first place. While for Spencer evolution is a process leading towards an end-point, in Dewey, evolution is an ateleological process. For Dewey, Spencer's ideas were false, in fundamental disagreement with Darwinism, and dangerous as they fostered Social Darwinist perspectives on individuals and their position in a laissez-faire social environment focused on competition (Reich et al 2016, 1008). I have argued above that Dewey's criticism of Spencer's evolutionism has been underestimated as a factor of influence for Dewey's evolutionary thinking. In my reading, it was not merely Dewey's grappling with Hegel, but also his opposition to Spencer that significantly informed Dewey's evolutionary thinking, and, in particular, Dewey's concept of growth.

To construct growth as an alternative to these areas of criticism, Dewey relied on a Darwinian worldview and James's pragmatist theory of mind (Brinkmann 2013, 19; Biesta 2016, 161). Dewey combined these intellectual pillars to rethink the mind and body, organism and environment, as well as individual and society as part of one "long process of past growth" (Dewey 1932/2008, 31). From the Darwinian principle of natural selection, Dewey derived the premise of functionality that he used to conceptualise growth. He combined said premise of functionality with James's idea of the mind as an intelligent mediator between the mind and the world

(Barnes-Holmes 2005, 1884). As a result, mind, in Dewey, is at the core of human evolution and adaptation. Dualistic role-assignment of stimulus/response, and even native/acquired, on that view, become futile as they are all entangled functionally and historically. With growth, Dewey provided an alternative to Spencer's neglect of "the role played by organic transformation of the world." (Godfrey-Smith 1996, 71) and scientifically 'translated' what he retained from Hegel.

4.3 Dewey's educational theory

In the first part of this chapter, Dewey's evolutionary thinking, and in particular his notion of growth have been situated within the intellectual context of his time. It transpired from that contextualisation how in the light of the 'Darwinian revolution' Dewey deconstructed the absolutist and teleological Hegelian elements in his thought and positioned himself in opposition to Spencer. Within that opposition, Dewey came to criticise Spencer's theory of evolution virtually in its entirety. Core element of his critique was the "false idea of growth or development" that Spencer propagated on Dewey's (1918/2008) view, namely, "that it is a movement toward a fixed goal." (55) On that view, according to Dewey (1886/2008) "the whole complex structure of man [...] was virtually contained in the germ" (277). "Growth", Dewey (1886/2008) adds critically, "was not the addition of anything from without, but simply the unfolding and magnifying of that already existing." (277)

His own concept of growth, based on the premise that "there is nothing to which growth is relative save more growth" (Dewey 1917/2008, 57), stands in contrast to an understanding of growth and development as a predetermined 'unfolding'. Dewey (1916/2008) defines growth as the "continuous self-renewal" of a community of social group, taking place "by means of the *educational* growth of the immature members of the group." (15, emphasis mine). Growth, in this definition, occurs through the ongoing, contingent process of "reconstruction and reorganisation" (Dewey 1916/2008, 78) of endowed tendencies and experiences that is education. With this definition, Dewey puts organisation and process at the centre of interest and rejects any notion of predetermined aim or telos within evolution – both of the individual and society. Growth describes human existence as a matter of adaptation, as an ongoing dialectic relationship involving the individual

and her/his surroundings, rather than leading toward an attainable aim. This has profound implications for Dewey's concept of education that I seek to unpack in this chapter.

The analysis shall be divided into individual growth and societal growth, both of which are informed by Dewey's evolutionary theory addressed above. First, I discuss individual growth and examine its connection to Dewey's notion of educative experiences. Second, I will discuss how Dewey relates culture and society to the process of individual growth, and how, based on that relationship, he defines education both as purposeful, pedagogical direction and "as an individual's educative formation that happens through interactions with the world." (Benner 2017, 263)

4.3.1 Individual growth

Dewey (1918/2008) defines education as the ongoing, contingent process of "reconstruction and reorganisation" (78) of both endowed tendencies and experiences. He emphasises that this process of reconstruction occurs both "unintentionally and designed" (Dewey 1916/2008). This means that Dewey's concept of education as reconstruction implies two concepts of education that, following English and Doddington (2018) can be understood with reference to the German words for education: *Bildung*, emerging from our "capacity for self-growth" (English&Doddington 2018, 3), and *Erziehung*, the pedagogical practice answering to "our fundamental need for others to aide our productive interaction with the environment" (English&Doddington 2018, 3). This German terminology, which is also adopted by Benner (2017, 266), shall be of use temporarily in this section on 'individual growth' in order to increase clarity about different, and yet connected meanings of Dewey's notion of education. On the one hand, Dewey uses the term education to describe the process of *Erziehung*, meaning the interaction between generations with the aim of maintaining the "social continuity of life" (Dewey 1916/2008, 6). This purposeful reorganisation and reconstruction of experience happens in formal or informal settings, such as school, the family, and other moments in society that demonstrate a "pedagogical interaction" (Benner 2017, 266) between generations with the purpose of societal transmission, or enculturation.

“Intentional education signifies [...] promoting growth in the desired direction.” (Dewey 1916/2008, 44) On the other hand, Dewey uses the term education to mean the reconstruction of experience that is detached from the pedagogical premise of *Erziehung*. In that second concept, Dewey’s education means *Bildung*: the reconstruction and reorganisation of experiences within social interaction, through communication, and in relating to and acting with the things of the world. *Bildung* is not purposefully organised, and not with the intent of ‘teaching’, ‘instructing’, or ‘inducing’ the younger generation. In Dewey’s theory of growth, *Erziehung* and *Bildung* are inseparably connected: Pedagogical interaction enables and furthers *Bildung* – understood as “the learner’s engagement in educative processes of formation” (Benner 2017, 266) – beyond pedagogical contexts.

In sum, *Erziehung* and *Bildung*, in the light of Dewey’s growth, merge into an ongoing process of reconstructing and reorganising experience. Therefore, with the nature of experience, is where this analysis of education in the context of individual growth shall begin. Experience is a key concept in understanding how Dewey, in his concept of growth, defined his view of the evolutionary, adaptive relationship between the subject and her/his environment. Experience is how individuals connect to their environment; experiences make the process of simultaneous adaptation possible within that connection.

4.3.1.1 *Educative experiences*

Human existence, for Dewey, is defined by the individual’s relationship to his/her environment and the need for adaptation at the heart of that relationship. He writes: “The first great consideration is that life goes on in an environment; not merely in it but because of it, through interaction with it. [...] in order to live, it [the subject, AN] must adjust itself, by accommodation and defence, but also by conquest.” (Dewey 1938/2008, 20) Living, in Dewey, means adapting. Our ability to adapt is based on the anthropological fact of immaturity. Immaturity is “the primary condition of growth” (Dewey 1916/2008, 47). In Dewey, it receives a positive meaning, instead of signifying “a mere void of lack” (Dewey 1916/2008, 47). Rather than being understood comparatively to a fixed idea of ‘maturity’, Dewey understands immaturity to be “the power to grow” (Dewey 1916/2008). It consists of dependence and plasticity. Dependence I will discuss later in the context of the

social dimension of growth. Plasticity signifies “essentially the ability to learn from experience; the power to retain from one experience something which is of avail in coping with the difficulties of a later situation.” (Dewey 1916/2008, 50).

Experience, for Dewey, is not merely the environment ‘entering’ the subject’s consciousness via sensual impression. Dewey understands experiences as “transactions of living organisms and their environment” (Biesta 2007, 13). It is what connects the individual and the environment in activity and, thus, what puts adaptation at the centre of human existence in the world. The transaction between the subject and her/his environment consists of an active and a passive element, of *doing* and *undergoing*; we try something, we experiment, and undergo the consequences of what we tried (Dewey 1916/2008, 147). Doing and undergoing are co-dependent, which means that they stand in a quasi-causal relationship. To learn from experience means to gain insight into that relationship between doing and undergoing, “to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence.” (Dewey 1916/2008, 147).

Learning from experience means the “discovery of the connection of things” (Dewey 1916/2008, 147). We are able to learn – and therefore grow – from experience only if we think about these connections reflectively. Processing this connection, in Dewey, is what makes an experience *educative*. It is “thinking”, Dewey maintains, that “is the method of an educative experience” (Dewey 1916/2008, 170). Reflective experiences that involve inquiry into the exposed relationships, contribute to growth because they are useful in assigning meaning to potential relations exposed in future experiences. “Growth within experience” (Dewey 1938/2008, 272) is the increase in ability to learn further from future experience. On that understanding, an experience is “an act is outwardly temporary and circumstantial, but its meaning is permanent and expansive. The act passes away; but its significance abides in the increment of meaning given to further growth.” (Dewey 1910b/2008, 379) Experiences that allow the individual such insights grant “the possibility of having richer experience in the future” (Dewey 1938/2008, 12) and, therefore, contribute to growth.

Rather than a linear accumulation of knowledge, educative experiences are, to use the words of Saito (2005), a “circular expansion” (77). By grappling with new experiences, the subject consults previous experiences, challenges them and forms new relationships between the new and the old (Rogers 2012, 85). Both new and old experience, in this mental process, transform and become part of the same ‘compound’:

The later outcome thus reveals the meaning of the earlier, while the experience as a whole establishes a bent or disposition toward the things possessing this meaning. Every such continuous experience or activity is educative, and all education resides in having such experiences. (Dewey 1916/2008, 85)

An activity or experience is ‘educative’, we gather from Dewey’s quotation above, if it is integrated with previous experiences, if it is put in *continuity* with previous experiences. Dewey defines *continuity* as a criteria “by which to discriminate between experiences which are educative and those which are mis-educative.” (1938/2008, 20) For Dewey (1916/2008), “the measure of value of an experience lies in the perception of relationships or continuities to which it leads up.” (148) The reorganisation of existing experiences in order to make them continuous with new experiences, is, what Dewey means by ‘education’.

Not every event in the individual’s surroundings initiates educative experiences on Dewey’s account. Only that which brings the individual into doubt or perplexity induces the reflective process associated with educative, reflective experiences. This is where *discontinuity* and its accompanying experiences of “negativity” (English 2013, 55f.) come into play. Discontinuity refers to the pre-reflective interruption in experience that, upon reflection, can be understood as a ‘problem’ (English 2013), that is, as a subject of further inquiry based on “careful observation of the given conditions” (Dewey 1916/2008, 109). While discontinuity is not explicit in Dewey’s own words, it emerges implicitly and has been drawn out by Dewey scholar English (2013; see also Benner&English 2004). Discontinuity in experience occurs on account of a ‘tension’ or ‘resistance’ between a new and a previous experience. Such ‘tensions’ emerge when, in interaction with the environment, a gap opens up between the individual’s past experience and the new experience (Benner&English 2004; English 2013). Discontinuity occurs, in other words, within the individual’s interaction with the world (both social and material)

and can be considered the beginning of the process of the reorganisation of previous experience designed to make sense of the relations underlying the 'problem'. In such moment that demand reorganisation, existing knowledge, habits, assumptions and strategies no longer suffice and are thrown into question (Rogers 2012, 65). Once the realisation sets in that current abilities and knowledge have become insufficient, or, in other words, continuity in experience is broken up, the individual has to grapple with the accompanied perplexity and begins to try and re-establish continuity. These experiences of negativity are "moment[s] when a person experiences a limit to his or her present ability or knowledge" (English 2013, xxii). In producing these experiences of negativity, discontinuity is a key element in experience understood as an ongoing, and reflective process. Discontinuity, as the counter-part of continuity, is crucial for our understanding of truly educative educational environments: they have to allow for perplexity, confusion or the like (English 2013; Saito 2005). Educative experiences depend on 'real' moments of perplexity, or more specifically various forms of negativity, that urge the subject to readapt and allow for the re-establishment of continuity through the integration of what has been learned from the experience.

Only experiences that involve insight into the connection between doing and undergoing in a way that is able to inform future experiences can be described as 'educative': "Every experience should do something to prepare a person for later experiences of a deeper and more expansive quality." (Dewey 1938/2008, 29) Experiences become significant, or educative, when they allow the individual to learn something 'meaningful', something that contributes to further learning processes. When an individual experiences a limit to his or her knowledge or ability – an experience of negativity of English's account – that new object or ideas has potential for gaining meaning and thereby allowing the individual to grow; the individual can integrate new insights into his/her established understanding of the world (on this point see English&Doddington 2018). In that process, this established understanding of the world, is continuously restructured. This process is what growth describes. The reflective process between doing and undergoing that constitutes experience, is the process of learning itself. Thinking and reflection, on Dewey's view, however, are not only involved in making these connections between doing and undergoing in experience, but they are also involved in the individual's

perception of events, and the activity that this perception induces (Garrison et al 2016, 42f.). In evolution, according to Dewey (1933/2008), humans have developed an intellectual capacity that allows for them to “direct our activities with foresight and to plan according to ends-in-view, or purposes of which we are aware.” (125) In that, the simplistic temporal structure of stimulus-response is broken up and the dualistic perception of subject and environment dismantled. Instead of environmental triggering behaviour, the individual develops a “selective bias in interactions with envioning things” (Dewey 1925/2008, 196). What stimuli become important, and how an experience is shaped in the light of past experiences and ends-in-view is the result of a process co-created by the subject.

This process of co-creation, in Dewey, is called mediation. Dewey (1925/2008) writes: "It is not the sensation in and of itself that means this or that object; it is the sensation as associated, composed, identified, or discriminated with other experiences; the sensation, in short, as mediated." (184) Mediated here means that experiences, according to Dewey, are shaped by the meaning that has been assigned to past experiences, by the knowledge gained about the relations defining the environment. Knowledge is what steps in between stimulus and response, both interpreting the first and directing the latter: “The importance of knowledge conceived thus as a mediating process lies in the fact that it ‘slows down’ both the stimulus and the response, so that the organism can take time to plan.” (Dewey 1920/2008, 210) Knowledge and experience, in Dewey’s description, are understood as mental activities rather than depictions of objective reality (Biesta 2006, 13). The selection of stimuli to action, it follows from Dewey’s notion of growth through experience, is not merely an external affair, something ‘happening to’ the subject, but rather a process of conscious selection.

Experience, on this perspective, has to be understood as a cognitive activity in the sense of embodied cognition (Johnson 2015; English&Doddington 2018) involved in the individual ‘making sense’ of the world. Over time, the individual’s experiences do not only change current and future ways of relating to the environment, they also change the meaning assigned to past experiences due to the confrontation with new experiences. This process of increasing meaning is what the concept of growth describes. In that, growth can be put in direct lineage to Dewey’s concept of adaptation, which, in a Deweyan understanding, describes the

subject's active being-in-the-world. In the context of the movement between continuity and discontinuity, experiences of negativity lead to the need for re-adaptation, or in the case of humans, learning. Growth is the concept that describes this ongoing process of experiences being integrated and new meaning being created.

4.3.1.2 *The social environment and the socialised mind*

Thus far, growth has been talked about with respect to an individual. From Dewey's theory of experience, we derived a concept of individual growth focused on processes of the intelligent mediation by the mind. Our ability to assign meaning to our experiences in a way that makes them significant for future experiences, i.e. our ability to learn from experience and use what is learned in a purposeful way, is based in intelligence and the anthropological conditions of immaturity and plasticity. Educative, reflective experience, in sum, is an activity of intelligently mediating the relationship between the subject and the environment. This entails mediating between stimuli, mediating ends-in-view, and mediating meaning between past and present experiences. However, Dewey's conception of growth is not individualistic, as I will argue now. Our ability to learn from experience and purposefully direct the meaning we derive from past, current and future experiences defines and is at the foundation of our cultural existence in nature, and is therefore deeply social (Fesmire 2015, 60). Education, both as the reconstruction of experience, in Dewey, is a, if not the, key component of this cultural existence that defines human adaptation as an intelligent activity within the context of society. This positioning of education presupposes that learning is not merely an isolated and singular act of an individual experiencing the world on her/his own terms. Rather, there has to be a social element to growth that makes educational relationships and interactions possible in the first place.

In *Democracy and Education* (1916/2008), Dewey defines education, as the "reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience." (Dewey 1916/2008, 83; see also 1915/2008, 211; 1934/2008, 196) What Dewey describes here is education as the process of learning about the world by experiencing it and increasing one's capacity to gain more meaning from future

experiences – both through intergenerational pedagogical interaction (*Erziehung*) of experiences and through experiences made and formed in interaction with the world (*Bildung*). In both cases, it is experiences made within material or social environments that educate. To that point, Dewey (1916/2008) emphasises: "We never educate directly, but indirectly by means of the environment." (23) Experiences are what connects the subject and her/his environment. Education, therefore, both understood as pedagogical direction, and formation/*Bildung*, happens via the environment.

4.3.1.3 *The educational environment*

The significance that Dewey assigns to the environment in processes of education, however, does not mean that he portrays education as a solipsistic endeavour of the sole self, interacting with material. Dewey (1916/2008) defines environment as the conglomerate of "conditions that promote or hinder, stimulate or inhibit the characteristic activities of a living being." (15) Besides the material environment, i.e. the "nature and the relations of things" (Dewey 1891/2008, 355), the human environment is predominantly shaped by other people, existing institutions and prevalent agreements which define not only the stimuli inducing human activity, but also the ends and means in sight. From the vantage point of an evolutionary reading of his works, in defining the human environment as primarily social, Dewey, consequentially, also thinks of the individual's adaptation in social, rather than mere individualistic terms. He emphasises that individuals are "also interested, and chiefly interested, upon the whole in entering into activities of others and taking part in conjoint and cooperative doings." (Dewey 1916/2008, 29) The psycho-cognitive reason for this interest in others, on Dewey's view, is the anthropological fact of dependence (Dewey 1916/2008, 48). Dependence, as discussed above, is one of the "chief traits" (Dewey 1916/2008, 48) of immaturity. Dependence allows us to understand the key role of social interaction in growth; it emphasises the social nature of individual growth. Dewey positively reframed prolonged human dependency as a prolonged phase to make use of their plasticity – in particular to progress socially (Stitzlein 2017, 39).

For Dewey (1916/2008), the "mind as a concrete thing is precisely the power to understand things in terms of the use made of them; a socialised mind is the power

to understand them in terms of the use to which they are turned in joint of shared situations.” (40) The socialised mind develops in the child who while growing up in society learns “to understand the wishes and ideas of others and accommodate himself to them.” (Dewey 1902/2008, 260) This accommodation happens through “the friction engendered meeting resistance from others [...] forcing a line of action contrary to natural inclinations.” (Dewey 1916/2008, 39) Such ‘friction’, or resistance experienced in interaction with others, as Benner and English (2004) have discussed, point to the negativity of experience constitutive of learning whether with objects and with other human beings. How we interpret these experiences of negativity, is, in important ways, socialised:

Others approve, disapprove, protest, encourage, share and resist. Even letting a man alone is a definite response. Envy, admiration and imitation are complicities. Neutrality is non-existent. Conduct is always shared; this is the difference between it and a physiological process. (Dewey 1922/2008, 16)

In gauging a balance between natural inclinations, individual, and social ends, over time, just like habits guiding general activity, individuals develop “conscience” and moral habits “through language, literature, association and legal custom.” (Dewey 1891/2008, 355) The socialised mind means developing conscience, which, in Dewey, functions as “an important safeguard and directive force of growth.” (Dewey 1932/2008, 306) What allows us to learn with and from others in shared experiences is our ability for communication.

4.3.1.4 *Communication*

Communication is what transforms an individual experience into a shared experience. Dewey (1925/2008) writes: Communication “is a means of establishing cooperation, domination and order. Shared experience is the greatest of human goods.” (158) Communication, therefore, is a key component of the social environment. When we communicate experiences, they change, as they “are re-adapted to meet the requirements of conversation, whether it be public discourse or that preliminary discourse termed thinking. Events turn into objects, things with a meaning.” (Dewey 1925/2008, 133) Our ability to “come to possess things in common” (Dewey 1916/2008, 8) through shared experience in communication makes an evolutionary, rather than idealistic conception of society possible. That is

because of the negotiating character that Dewey assigns to the co-construction of common meaning, engendering a contingent, evolutionary movement rather than an idealistic trajectory. “Communication is a process of sharing experience till it becomes a common possession. It modifies the disposition of both the parties who partake in it.” (Dewey 1916/2008, 12) In that, communication alters both the experiences of the individuals and what meaning they derive from it.

Communication, in summary, is educative. It is part of deliberate pedagogical interactions in *Erziehung*, as well as within processes of *Bildung* happening in the context of informal social interaction. Dewey notes on that point: “Not only is social life identical with communication, but all communication (and hence all genuine social life) is educative.” (Dewey 1916/2008, 9)

4.3.2 Societal growth

So far, I have argued that with his concept of growth Dewey sought to redefine the relationship between the subject and her/his environment consistent with a Darwinian worldview. Growth is based on Dewey’s concept of dialectic adaptation, combining efforts of the subject adapting to the environment, and the subject adapting the environment to it. This combined movement takes the form of a contingent, unceasing process of “transaction”, to use to words of Biesta (2006, 13). This process of transaction, in Dewey, is mediated by the mind, and its ability for foresight, planning, and taking ends-in-view. The educative experiences that allow for this process of transaction emerge both in the context of pedagogical direction of the younger generation, and in everyday interaction of the subject with her surroundings. Through intelligent conscious selection within the active part of experience, the subject participates actively in the adaptive process – it selects environmental stimuli and responses in accordance with a plan for conduct. Growth describes the increasing ability to direct this process.

Despite the significance of the socio-cultural environment for growth elaborated upon above, in this chapter, growth has been merely described as the increasing capacity of the individual to adapt to environmental demands by learning from experience. The other part of the dialectic adaptive movement, i.e. the subject’s purposeful transformation of her surroundings, has only been touched

upon. However, education, in Dewey's (1989/2008) view, is not merely an internal process of individual learning and developing, but also "the fundamental method of social progress and reform" (94). In growth, Dewey combines individual development with societal progress in a shared movement. I will now ensue to analyse the evolutionary nature of that link between individual and society. In the first part, I aim to explain the shortcomings arising from a reading of growth that disregards its dialectic nature, simultaneously involving the subject and her/his environment. In the previous parts of the chapter I have argued that growth incorporates processes of *Erziehung* and *Bildung*.

In the following, by addressing the societal dimension of growth, I seek to draw attention to the ways in which an understanding of growth as merely a process of individual development falls short on capturing the richness of Dewey's concept of growth. To that end I will contrast growth with the German concept of *Bildung* and problematise an equalisation of the two. While I agree with some scholars (Biesta 2016; Rorty 1979; Benner 2017) that there is a certain connection between growth and *Bildung*, I argue that there is a specifically evolutionary addition to growth that is key for understanding its full potential that some concepts of *Bildung* fail to account for.

First, drawing primarily from the theories of *Bildung* of Gadamer (1960/1075) and Litt (1957; 1960), I discuss the meaning of *Bildung* and highlight a few points of criticism directed at a certain 'inwardness' that some ideas of *Bildung* incite. Second, I will introduce the critical arguments of Saito (2005) and Greene (1988) problematising readings of Dewey's growth that focus on individual development and neglect the aspect of societal transformation. Based on the consensus of the criticism that disparages the neglect of societal transformation both in *Bildung* and growth, I argue that an equalisation of the two concepts can potentially reinforce a problematic reduction of Dewey's growth. Furthermore, I contend that the evolutionary perspective developed in this chapter enlightens some of the ways in which growth might go beyond *Bildung*.

4.3.2.1 Growth as Bildung

Bildung is defined by Biesta (2016) as the “broad process of cultivation of the person towards virtue” (152). This process of cultivation, the ongoing transformation of the self, happens in the interaction of the individual with her/his environment via experience and communication – both inside formal education settings, and outside. In strong resemblance to the process of establishing continuity in Dewey’s theory of experience, Gadamer (1960/1975) defines “the essence of *Bildung*” as the active engagement and interaction with the environment leading to “the return to oneself, which presumes a prior *alienation*.” (15, emphasis mine) Gadamer’s notion of ‘the return to oneself’ after ‘alienation, I argue, reflects Dewey’s notion of continuity, which is presumed by discontinuity. Both continuity and the ‘return to oneself’, thus, are foreshadowed by an experience of negativity. Following Gadamer, the ability to render negative experiences made in interaction with the ‘*external*’, i.e. the world, into something *internal*, i.e. to make it ‘into one’s own’, to use the motive of Gadamer is what ultimately constitutes *Bildung*. A similar idea is found in Dewey’s concept of growth, which describes the process of the individual constantly developing “a more varied, complex, better organized system of ideas or meanings to bring *to bear upon its sensations*, and thus to transfer to these its *own* content of significance.” (Dewey 1886/2008, 192, emphasis mine) Accordingly, educative experiences lead to the *integration* of meaning assigned to relations in the world (both material and social) into the individual’s further experience. In growth, in a sense, these relations in the world are made ‘into one’s own’.

An extensive critique of the concept of *Bildung* with a focus on this motive of ‘the return to oneself’ can be found in the work of Theodor Litt, a German educational philosopher of the late 19th and early 20th Century. In Litt’s characterisation, *Bildung*, as a transformative process focuses on “*das Seinsollende*” (*the should-be*; translation mine) rather than “*das Seiende*” (Litt 1957, 6; *the existing*, translation mine). *Bildung*, following Litt, is focused on distant future aims, rather than on the individual’s present experience. Due to this distance from present experience, so Litt (1960), *Bildung* causes an inward turn and becomes “*eine Ordnung des inneren Lebens*” (23; *an ordering of internal life*; translation mine), an internal refuge for the individual to distance her/him from the present

experience. As a result, the existing socio-political reality is subordinated and the process of self-cultivation becomes removed from the real circumstances of the individual's life. In consequence *Bildung*, so Litt's view, becomes concerned exclusively with the (predominantly intellectual) growth of the individual. This focus on the "*Innerlichkeit*" (Litt 1957, 8, *inwardness*; translation mine), rather than the relationship with the world, following Litt's critique, causes a rise in individualism and decline in communal activity which ultimately leads to the deconstruction of the potentiality for change in the world. The subject, in other words, in finding refuge within, gives up her/his agency in changing her/his environment.

To emphasise the applicability of Litt's criticism of *Bildung* to this discussion of Dewey's concept of growth, I will now bring in Maxine Greene's (1978; 1988) and Naoko Saito's problematisation of a reading of growth as merely an internal process. Following Litt's criticism, thinking growth as *Bildung* – at least under a certain understanding of *Bildung* – runs the risk of neglecting the constitutive societal dimension in the individual's formation, which entails an undue focus being laid on the internal, intellectual dimension of growth. According to Greene (1978) and Saito (2005), a reading of Dewey's concept of growth as mainly internal, intellectual progress prevailed in Dewey scholarship – for example in Rorty – perpetuating a reading of Dewey's theory of education "tainted as it has become with the aura of naïve optimism." (Saito 2005, 26) Experimental thinking and scientific inquiry, on such a view, are seen as the means for improving society. On both Greene's and Saito's perspective, this characterisation of growth is simplistic and falls short.

On Saito's (2005) view, what is lost from that reading of growth is the "tragic" (69) dimension of growth, the unattainability of perfection because of the continuous resistance experienced in interaction with the world. Growth, on that view, means the individual's participation in the transformation of the world, and the 'tragic' element of unattained perfection within that task. In this point made by Saito, I argue, also resonates Litt's criticism of concepts of *Bildung* that think of *Bildung* only, or at least primarily, as a 'return to oneself'. On Saito's perspective, if we think of growth as the internal transformation of the individual, as a process of individual learning, then the transformation of the 'external' as a constitutive part of the individual's own formation is lost.

Similarly, Greene (1988), in her assessment of Dewey's concept of growth, underlines the dimension of continuous struggle with the world in growth, which means "the overcoming of the determinate, [the] transcending of moving beyond in the full awareness that such overcoming can never be complete." (6) This struggle, according to Greene (1988), the transformation of the world that is inherent in the educative experience transforming the individual is a particular kind of experience constitutive to the process of growth. There is, in other words, no individual growth without the individual's active participation in the transformation of the world.

Greene thinks growth as grounded in freedom. Freedom, following Greene (1988), means full involvement and participation in the social environment and embracing experiences of otherness and resistance. This kind of freedom is not a human *a priori* condition, but rather a "distinctive way or orienting the self to the possible, of overcoming the determinate, of transcending or moving beyond in the full awareness that such overcoming can never be complete." (Greene 1988, 5) Exercising freedom is an activity tied to a specific kind of experience that goes beyond "experimental thinking" and an "abstract understanding of problems" (Giarelli 2016, 8). Following Greene (1978), freedom is the continuous experience of "conscious endeavour on the part of individuals to keep themselves awake, to think about their condition in the world, to inquire into the forces that appear to dominate them, to interpret experiences they are having every day." (43) Freedom, it seems, is dependent on educative experiences, on negative experiences of resistance and otherness that urge growth in the shape of internal *and* societal transformation. Therefore, if growth is reduced to the 'inwardness' of internal transformation, it is also drastically reduced in the rich meaning that Dewey developed.

Reading of growth as *Bildung*, I argue based on Saito's and Greene's analyses, at least under some definitions of *Bildung* with a primary focus on the transformation of the self that Litt's criticism addressed, falls short. Equalising growth with *Bildung* potentially neglects the social dimension of growth, the 'struggle' and 'unattainability' stemming from the individual's embeddedness in the social and material reality of her/his actions. Greene (1978) emphasises that "there can be no such phenomenon as an objectless consciousness, that *there is no refuge within*." (16, emphasis mine), In this point made by Greene echoes the Litt's criticism of the '*Innerlichkeit*' (inwardness) of *Bildung*. To find refuge within

dismantles the ability for freedom, which, in Greene, means the ability to transform the world for the better. To seek refuge within, she writes, “may well be to disarm oneself as a social being” (Greene 1978, 16) and deprive the individual of a whole dimension of educative experience that are ultimately constitutive of growth in a Deweyan sense.

Growth entails, as elaborated above, not only ‘undergoing’, but necessarily also the active, intervention that is ‘doing’; human adaptation, or growth, means the simultaneous acting and participating in shaping the world while also undergoing and suffering from it. That moments of “negativity” (English 2005; 2013), or, as described by Gadamer (1960) ‘alienation’ are also part of the concept of *Bildung*, has been established above. In certain connotations of *Bildung*, however, alienation is ‘solved’ in a ‘return to oneself’ – the return is, therefore, understood to be internal. Discontinuity in growth, in contrast, leads to both a ‘return to oneself’ and a ‘return to the world’ in the form of participation and intervention. This dialectic nature of the ‘return’ after the discontinuity of ‘alienation’ in interaction with the world, I argue, has its foundation in Dewey’s dialectic concept of adaptation. Adaptation, for Dewey, means the simultaneous transformation of the individual and the world; it means ‘adaptation to’ and ‘adaptation of’.

In summary, it seems that many regards, growth can effortlessly be connected to the German concept of *Bildung*. Both Dewey’s notion of growth and *Bildung* describe a process of cultivation of the self through experiences with ‘the other’. Biesta (2016) suggests that “Dewey’s understanding of education fits within the German tradition of *Bildung* which itself goes back to the Greek idea of *paideia*.” (152) Both growth and *Bildung* also entail a moment of negativity, or ‘alienation’, in the words of Gadamer. Despite this aspect of growth that reflect’s ‘the essence of *Bildung*’, i.e. the ‘return to one’s own’, this motive of the ‘return’-also precisely point, where, as I have argued, growth is different from *Bildung*. Informed by Litt’s criticism of the concept of *Bildung* as a reduction of human existence to mere self-transformation on the one hand, as well as the criticism of Saito (2005) and Greene (1988) of certain, non-dialectic readings of growth on the other hand, I problematise an equalisation of growth with *Bildung*. I argue that reading growth as *Bildung*, even though in many regards fruitful and consistent, has to be done with caution due to a

potential risk of unduly reducing the societal dimension in Dewey's growth, and perpetuating a reading of growth as first and foremost an 'internal affair'.

I argue that, based on the evolutionary underpinnings to his thinking, Dewey developed a much richer account of growth that is at risk to be lost in an equalisation of growth with *Bildung*. It seems to me that in an evolutionary reading, the societal dimension inherent to growth receives an emphasis and a constitutive role that is not necessarily ingrained in every connotation of *Bildung*. In growth, the transformation of the world is not merely a side-effect of the transformed individual acting in it. Rather, growth is as much 'adaptation of' the world, as it is 'adaptation to' it. This movement is based on experiences of resistance that urge the individual to re-adapt, either in transforming her/his own beliefs, habits, and strategies, or, through the transformation of the other. Following the Darwinian underpinnings of his thinking, "Dewey saw culture as an outgrowth of the natural capacities of human minds to communicate through gesture and language, which furnished common meanings needed for shared experiences." (Dalton 2002, 127). On this view, "nature and culture are thus mutually intertwined" (Garrison et al 2012, 4), fostering a "continued growth of intelligence, both ontogenetically and phylogenetically" (Popp 2007, 90) With his notion of the "socialised mind" (Dewey 1916/2008, 40) Dewey conceptualised human adaptation, and the human mind as significantly shaped by the social and cultural environment:

The idea of evolution has made familiar the notion that mind cannot be regarded as an individual, monopolistic possession, but represents the outworkings of the endeavour and thought of humanity; that it is developed in an environment which is social as well as physical, and that social needs and aims have been most potent in shaping it. (Dewey 1882/2008, 69)

In other words, on Dewey's view human adaptation is cultural, because the 'natural environment' of the human species is culture. Humans are also the agents of culture. Growth understood as adaptation in a cultural context means the subject adapting to its conditions, but at the same time being the agent of transforming these conditions – therein, growth reflects the dialectic meaning of Dewey's concept of adaptation. The unattainability that Saito and Greene missed in a merely intellectualist reading of growth, gets reintroduced in growth understood as cultural participation as an unceasing process. In Dewey's concept of growth as a shared

movement of the individual and her/his surroundings in adaptation, the environment loses the merely external status that it inherits in the concept of *Bildung*. *Bildung* relies on 'the other' as a counter-pole to 'the self'; in Dewey, in contrast, the environment is what the individual 'makes' of her surroundings, it is "developing experience of the individual" (Garrison et al 2012, 3). The dualism inherent in *Bildung*, is therefore deconstructed in an evolutionary reading of Dewey's concept of growth. At the heart of Dewey's concept of growth, and, specifically the process of adaptation constituting the dissolution of the individual-environment dualism in *Bildung*, is his notion of habits (Saito 2005, 70).

4.3.2.2 *Habits*

Habits are, according to Saito's (2005) analysis, what enable the "gradual transformation of culture and society from within." (70) They "are generated as well as generating powers of behaving culture" (Garrison et al 2012, 5), making them the key moment in furnishing the connection between individual and societal transformation. In Dewey's theory of habits, he distinguishes individual from social habits which co-develop in experience. Individual habits are "an active tendency. It only needs an appropriate stimulus to set it going; frequently the mere absence of any strong obstacle serves to release its pent-up energy." (Dewey 1908/2008, 311) They are responses to repetitive, or stable demands of the environment, the so-called 'social customs', making them a highly useful tool for reducing environmental complexity. "We may think of habits as means, waiting like tools in a box, to be used by conscious resolve." (Dewey 1922/2008, 23; see also Fesmire 2003, 16) Individual habits, therefore, are first and foremost a specific adaptive strategy that simplifies activity. They are, in the words of Fesmire (2003), "the neural paths of least resistance." (18)

Individual habits are formed and reconstructed in the context of "social custom[s]" (Saito 2005, 70), or social habits: "We grow into social organizations that share a complex set of stable habits." (Fesmire 2003, 10) This process has been described above, in the section on the socialised mind: The individual's activities grow out of her/his spontaneous impulses which are then mediated within experiences made and shared communicatively in a social context. In the process of "unlearned activity" (Dewey 1922/2008, 68) growing into activities based on what is

learned in experience, the subject is entirely immersed in a social context. Habits, therefore, are inherently social (Huachu 2013, 85; Popp 2007, 40); the expression of innate tendencies, therein, is based on culture which renders “native impulses into culturally relevant behaviour.” (Garrison et al 2012, 5; see also Popp 2007, 113).

In growth, the individual forms habits, as a kind of secondary, acquired and temporary ‘nature’. However, Dewey’s concept of habits is not to be conflated with “habituation” as they also entail the “active control of the environment” (Saito 2005, 70). Habits of conduct are temporary and can be changed if necessary (Stitzlein 2017, 41, see also Dewey 1916/2008, 58). They are different from responses to environmental stimuli, as they, to use the words of Fesmire (2003, 14), “are continually reconstituted through coordinated activities.” Rather than re-actions, thus, habits are preferences for activities. They are therefore stable as they give the individual a certain framework for orientation a “historically developed pattern of behaviour” (Fesmire 2003, 15). At the same time, they are not in any way material (in a behaviourist understanding), but rather “secondary and acquired” (Dewey 1922/2008, 66). In that, Dewey provides at a least partial solution to the idealist underpinnings of his early, mainly individualistic and rationalist concept of growth and the way he connected it with social transformation.

As pointed out above, growth – understood as the process of human adaptation understood as a dialectical process – does not only mean the adaptation of the individual to her/his environment, but also integrates the modification of said social customs and social habits. Individual habits and social custom are part of a shared movement, named “transactional holism” by Saito (2005, 69). This means that social and individual habits evolve simultaneously. In the description of Fesmire (2003), “we are in, of, and about the world” (10). The reconstruction of habits at the heart of this process begins with new impulses that deviate from existing social customs. These impulses almost seem as if coming from ‘nowhere’, as if emerging from, what Saito (2005) called a “natural source of novelty” (70). At second glance, however, these impulses to act subversively, to change social customs in action, in Dewey, are socialised. Our native tendencies for action gain meaning in a social context: Novelty in social customs are based on shared meaning-making; impulses for deviation from and modification of existing social customs are reflected on, and brought into interaction via communication. Dewey obscures “the distinction

between opposites: the inner and the outer, the mind and the body, subject and object.” (Saito 2005, 72) He rejects the idea of “the inner psyche as separate from the outer world” (Saito 2005, 70) – in that he does not only deconstruct behaviourist psychology based on a Cartesian dualism but also redefines how we think of human adaptation as Reich et al (2016) underline further:

From a Deweyan perspective, [...] habits are not merely passive adaptations to an existing environment but, at the same time, active powers by which individuals in transactions with others influence change, transform, and reconstruct their environments as well as themselves. (Reich et al 2016, 1004)

The concept that captures this “holistic view” (Saito 2005, 71) of Dewey’s concept of individual development and societal change, is growth. Growth is the shared movement of change emerging from the ‘transactional’ adaptive relationship of individual and society. Individual habits form and develop in interaction with social custom; at the same time the individual is part of the evolution of social customs by altering them. Social transformation is therefore part of meaningful interaction with the environment – such meaningful interaction means full participation based on a movement of dialectical adaptation. The role of education – both in pedagogical direction and processes of formation in non-pedagogical interaction with the subject’s surroundings – is to support the construction and reconstruction of individual and social habits.

The subject relies on educative experiences that allow and foster reconstruction. Building on what has been said in this chapter, we know that educative experiences are experiences that allow for dialectic adaptation, involving the self and the self’s ability to transform her surroundings. Dewey (1916/2008) writes: “Education is not infrequently defined as consisting in the acquisition of those habits that effect and adjustment of an individual and his environment. The definition expresses an essential phase of growth. But it is essential that adjustment be understood in its active sense of control of means for achieving ends.” (52) What Dewey emphasises in this quote is the dialectic element in educative processes – both within pedagogical interaction and outside of it – leading to growth that makes social transformation not only a by-product of individual development, but a necessary component of human adaptation. Before I draw together the implications of this concept of education as growth for pedagogical practice in the last part of this chapter, I will now talk about

the societal conditions for growth influencing everyday educative processes happening outside of a pedagogical context.

4.3.2.3 *Democracy*

Dewey believed that as human beings we are capable of producing shared meaning, knowledge, practices and beliefs, and thereby transform social habits and ourselves simultaneously in growth. This capability he bases on the anthropological conditions of immaturity and dependency, as well as the evolved cultural existence of the human species that makes education as a social practice necessary (Dewey 1916/2008, 6) In some readings of growth, such as Rorty's (1979), idealistic assumptions were drawn regarding the possibility of individual learning leading to shared meaning, morality, and ultimately social progress. However, as the above criticism of reading growth primarily in terms of individual development has indicated, it is not sufficient to think of growth merely in terms of an individual process focused on individual learning. Arguably, what is lost from that reading is the 'tragic' and unattainable dimensions inherent in Dewey's notion of growth. It also fails to account for issues with participation of marginalised groups in processes of constructing shared meaning. Discussing individual conditions for growth, thus, is not sufficient to ensure and explain the growth of society. With his idea of democracy, Dewey provides an account of the societal conditions for growth, further clarifying how he linked growth with the development of shared moral values in society.

Democracy, in Dewey, is not an end-state in the sense of Spencer's equilibrium. Democracy, for Dewey (1916/2008), "is more than a form of government; it is primarily a mode of associated living, a conjoint communicated experience." (94) What marks a democratic environment are its openness, changeability, as well as the focus on discourse in finding shared meaning. For Dewey, democracy is the ideal environment supporting growth: "These more numerous and more varied points of contact denote a greater diversity of stimuli to which an individual has to respond; they consequently put a premium on variation in his action." (Dewey 1916/2008, 94) Democratic environments allow for more varied experiences and more communicative engagement about them – this makes them ideal incubators for educative experiences. Democracy, for Dewey (1908/2008), is a necessary

condition for freedom: “Modern life means democracy, democracy means freeing intelligence for independent effectiveness – the emancipation of mind as an individual organ to do its own work.” (230) Growth itself, in this understanding of democracy, functions as a normative directive: “Democracy, for Dewey, is a cultural ethic that derives its normative force from his conception of growth, which is itself an evolutionary notion.” (Popp 2007, 85)

Dewey uses the concept of democracy to envisage a society that moves, or progresses, towards increased common meaning. Dewey believed that “if, however, they [individuals, AN] were all cognizant of the common end and all interested in it so that they regulated their specific activity in view of it, then they would form a community.” (Dewey 1916/2008, 5) With the evolution of Dewey’s concept of democracy between *Democracy and Education* (1916/2008), and the second edition of *Ethics* (1930/2008), Dewey increasingly moved away from individual to communal intentionality (Popp 2015, 50). By participating in societal institutions, the subject actively shapes them and is shaped by them; I-intentionality, thus, shapes and is at the same time shaped by communal intentionality (Rogers 2012, 238). Shared moral values, after this shift, are thus the result of a common process, rather than mostly solitary intellectual inquiry. In the same conceptual evolution of growth, democracy, as Biesta (2016) argues, changed from something ideal to an experimental space forming ideal circumstances for individual growth to align with communal intentionality. In that, the individual is seen as an “acculturated organism” (161), which itself is “understood as the outcome of participation” (161). On that view, the “mind, consciousness, thought, subjectivity, meaning, intelligence, language, rationality, logic, inference, and truth are all seen as outcomes of such participation rather than their condition.” (Biesta 2016, 161) With democracy, Dewey conceptualised an ideal environment for this ‘transactional holism’ that forms growth. That is because democracy allows participation in reconstructing social habits, which is a key element of dialectic adaptation. Democracy, thus, is the ideal environment for processes of growth, or, in other words, for human adaptation.

4.4 *The pedagogical dimension of growth*

In this chapter, I have discussed the evolutionary underpinnings in Dewey's educational thought in the context of his concept of growth. It has been established how the evolutionary framework informed the concept's ateleological, processual nature and how the anti-dualistic conception of mind and matter has informed Dewey's theory of experience and learning. We have also reached a definition of education as growth meaning the individual's 'reconstruction and reorganisation of experiences' within the movement between continuity and discontinuity leading to an increasing ability to make meaning of the world and simultaneously transform the surroundings according to ends-in-view. It has transpired that in both of these educative processes, growth has to be read as this dialectic movement that unites internal and external transformation in order to expand its full conceptual potential. I have presented the argumentation in this chapter, that one possible perspective that accounts for this complexity in growth is an evolutionary reading of the concept.

Educative experiences, which allow for this dialectic reconstruction, happen in everyday interaction and communication throughout a person's life as well as in pedagogical settings. In the previous part of the chapter, I have discussed the societal conditions for educative experiences happening in non-pedagogical interaction. It has been established therein that educative experiences are not only dependent on internal conditions, which, if met, lead to societal progress, but, that growth also relies on a certain societal environment, namely democracy, to thrive. In a democratic society, educative experiences are possible in everyday interaction within communicative processes, fostering growth – both of the subject and society. In the following, I will focus on the pedagogical dimension of growth.

In terms of the pedagogical dimension of growth the first key point is that education cannot be understood in terms of instruction as any direct 'insertion' of knowledge into the learner's mind. Even causally inducing particular learning processes and outcomes via the environment is considered impossible in Dewey's psychology of learning. Dewey's concept of education as growth has its foundation in experience and the reconstruction of individual tendencies and previous experiences. On that understanding, learning and knowledge are a matter of construction rather than instruction. And yet, part of what Dewey means by

education, is cultural transmission and purposeful social practice. For education as purposeful direction to be possible, a certain pedagogical availability of the process of growth to be externally controlled or at least influenced has to be assumed – otherwise Dewey's concept of education would become utterly useless for educational practice. Dewey was, arguably, aware of the problematic conditions that his theory of growth poses for such a notion of pedagogical interaction: "The child will never realize a fact or possess an idea which does not grow out of this equipment of experiences and interests which he already has. The problem of instruction, therefore, is how to induce this growth." (Dewey 1989/2008, 174)

Dewey addresses the problem of instruction in the light of an understanding of learning as not externally controllable by defining education, in the sense of pedagogical interaction, as "concerned with their [experiences', AN] proper direction, not with creating them." (Dewey 1910b/2008, 205). The creation of experience, as it has been discussed at length in this chapter, is an activity of the learner. Educational practice can direct experience by arranging educational environments that provide the context for reframing experience (Hansen 2002, 271). Dewey's concept of environment, however, is particular as well. Environment, in Dewey, is an active construction of a subject, rather than 'surroundings' that are detached and external to her. "Environment is what an organism experiences; that is, what they incorporate into their functioning." (Garrison et al 2012, 43). According to Dewey (1916/2008), "in brief, the environment consists of those conditions that promote or hinder, stimulate or inhibit, the characteristic activities of a living being." (16) The environment defines what experiences become possible, not which are deemed relevant. According to Hansen (2002, 67) Dewey's conception of the environment derives directly from Dewey's anti-dualistic notion of growth and specifically the renewed definition of stimulus and response at its core. Environment and experience, in Dewey, become one. The individual's process of integrating certain experiences into his or her activity, underlies the individual's intelligent conscious selection.

The educational environment, in Dewey, is not anti-cultural in a Spencerian sense. As opposed to Spencer's division between the natural and artificial environment, in Dewey, culture is natural. Culture emerges from nature; it is not its deviation. Participation in culture – as emphasised by Greene (1989) and Saito

(2005) – is what allows for meaningful human adaptation. Culture is human’s natural habitat, so to speak; cultural existence, is natural human existence. Culture, or, what Spencer deemed to be ‘artificiality’, therefore, is key in Dewey’s conception of education. To use the words of Garrison et al (2012):

From a Deweyan perspective, learning environments can never be reduced to external conditions supposed to work by themselves. They have to be constructed in ways that allow for genuine transaction between organized contexts of education and the experience of learners.

For Dewey, I gather, legitimate pedagogical interaction lies in both the preparation of relevant educational environments and the support of the learner in reconstructing her/his previous experiences. In the case of humans, relevant environments reflect and incorporate culture in a way that allows learners to experience current societal and cultural problems and undergo the reconstruction of their existing knowledge, beliefs, and assumptions, as well as form critiques of existing social, cultural conditions. The preparation of these environments in formal educational settings, as well as the pedagogical interaction within them, therefore, necessary directives of growth:

The very importance of thought for life makes necessary its control by education because of its natural tendency to go astray, and because social influences exist that tend to form habits of thought leading to inadequate and erroneous beliefs. (Dewey 1910b/2008, 205)

Because Dewey sees growth as a process that has to be directed by culture, he introduces a pedagogical dimension that was missing in Spencer. “The only way in which adults consciously control the kind of education which the immature get is by controlling the environment in which they act and hence think and feel.” (Dewey 1916/2008, 24) The lessened influence of direct instruction in processes of learning emerging from Dewey’s theory of mind, contributes to a redefinition of a more ‘traditional’ understanding of the role of the teacher. Since mainly the environment educates, in Dewey (1934/2008), teachers become "mediators of experience" (545). They mediate experience by providing “a specially selected environment, the selection being made on the basis of materials and method specifically promoting growth in the desired direction.” (Dewey 1916/2008, 44) Considering the complexity of educative experience and the numerous necessary pieces – such as continuity,

interaction, openness, present-focus, flexibility, and life-relevancy – it consists of, teaching, understood as organisation of an environment that allows for that particular kind of experience, has to challenge learners. Dewey (1913/2008) emphasises: "Good teaching, in other words, is teaching that appeals to established powers while it includes such new material as will demand their redirection for a new end, this redirection requiring thought-intelligent effort." (180)

Dewey's education as growth is an ongoing process of the simultaneous reconstruction of experience and reconstruction of social habits. It transforms both the individual and the environment in the same movement. Growth has no end beyond itself. Growth, if we look at current educational practice based on external, predefined aims, appears increasingly precarious. Educational practice that arises from predefined aims independent of particular learners needs, on Dewey's view fails to allow for educative experiences because they limit the possibility of the necessary experiences of discontinuity that spark the process of intelligent adaptation. "An educational aim must be founded upon the intrinsic activities and needs (including original instincts and acquired habits) of the given individual to be educated." (Dewey 1916/2008, 115) Furthermore, education that falls short on flexibility due to prescribing learners' pre-defined outcomes, on a Deweyan perspective, also falls short on enabling educative experiences which necessarily tie on to the learner's previous experience: "We set up this and that end to be reached, but the end is growth itself. To make an end a final goal is but to arrest growth." (Dewey 1932/2008, 307)

The current idea of formal education as a means for fulfilling political, economic, as well as social and environmental agendas puts the very conditions for growth in a potentially precarious position (Benner 2017). A critique of the way these external agendas impose external, pre-defined standards on educational practice resonates surprisingly timely in Dewey's estimation that "the act of learning or studying is artificial and ineffective in the degree in which pupils are merely presented with lessons to be learned." (Dewey 1916/2008. 143) Furthermore, considering the relevancy of the environment within educational practice and the pedagogical attentiveness that the preparation of said environment demands, growth relies on teacher agency. However, what Dewey understood to be 'good teaching' in the light of growth, namely the practice of appealing to learners' established powers and

providing experiences that foster their further growth, has also been reduced in the current climate (on this point see English 2016a; 2016b).

4.5 Conclusion

In closing this chapter, I aim to pull together the evolutionary foundations of Dewey's concept of growth and look at its implications for the practice of education, and, with special focus, for the pedagogical dimension in education as growth. I have defined growth as the result of the ongoing shared movement of individual development and societal transformation and argued that individual development, or individual growth describes the process of learning from experience. From this characterisation it has transpired that rather than accumulation of knowledge, learning, in the context of growth, signifies increased meaning.

Meaning arises from educative experiences. Educative experiences, in Dewey, are considered educative because they allow intelligent insight into relations in our surroundings; they allow the individual to learn about things and their relations to other things. Through such insight single events gain meaning in the broader context of what was learned from past experiences, and our ability to assign meaning to future experiences is elevated. Therefore, in Dewey, individual growth means enhanced insight into relations between things, and the accompanied increased capability to deal with new experiences. Growth, thus, is a form of relating to the environment by learning that fosters further growth. Therein, as I have argued throughout this chapter, growth describes the process of adaptation and the concomitant increase in adaptability.

Adaptation, in Dewey, is what defines the relationship between the intelligent individual and a contingent environment. It is also what drives change in both of these entities. Adaptation, following Dewey's Darwinian/pragmatist concept of evolution, describes a constant and continuous process of integration. This integration is based on both assimilation and accommodation, meaning both the individual's and the environment's transformation. On Dewey's anti-dualistic account of human existence subject and environment functioning simultaneously as cause and effect, and as stimulus and response. Growth understood as adaptation is a capacity "in servitude of other ends" (Huachu 2013, 84), rather than an aim in itself.

Adaptation, and re-adaptation, begins with experiences, or, specifically, experiences of discontinuity that demonstrate a misalignment between the subject and the environment. Dewey's concept of evolution as contingent, anti-dualistic, and unceasing movement furnishes a complex concept of experience understood as an activity, a creation of continuity rather than a mere reaction to external stimuli.

At the heart of human adaptation is the mind, the intelligent creation, organisation and restructuring of experience. Education – in the context of Dewey's theory of growth understood as the reconstruction and reorganisation of experiences (Dewey 1916/2008, 78) – contributes to individual growth as it increases a person's adaptability via fostering mental abilities for further growth: "A person who has gained the power of reflective attention, the power to hold problems, questions, before the mind, is, in so far, intellectually speaking, educated." (Dewey 1909/2008, 202) Education, in the context of Dewey's concept of growth entails both pedagogical direction and processes of formation in everyday interactions of the subject with her environment. The educated person, as Dewey's statement allows us to conclude, is the person able to gain meaning from experiences and use this meaning whence forth in their life. To be educated, therefore, means the capability for further education, i.e. further reorganisation and reconstruction of experiences, as Dewey (1916/2008) emphasises in his statement that "education is all one with growing; it has no end beyond itself." (59)

The evolutionary framework crucially informed Dewey's conception of human existence – in particular regarding the aims of education. He (1898/2008) states: "The doctrine of evolution has brought a new point of view for considering the organic world and human institutions. Education has come to be regarded as both the necessary condition for the safety of society and as the right of every human being." (154) Education, in the context of Dewey's notion of individual growth, means both the purposeful direction in a pedagogical relationship that ensures society's over-generational renewal and the self-directed process of life-long self-transformation through the interaction with society. Reading growth in the context of Dewey's notion of adaptation cannot be understood as a merely private, internal endeavour. The mind, in Dewey's understanding, is socially mediated. Knowledge, values, and ideas, Dewey followed James, "are characteristics of practical activity and not of the world as it is, totally detached from human occupation." (Brinkmann

2013, 36) With pragmatism's focus on 'human occupation', it presented an alternative to the individualism that a Cartesian epistemology suggested (Brinkmann 2013, 22). In a pragmatist perspective, knowledge and ideas are not individualistic, but necessarily tied to experience in a social context – 'human occupation' is social, thus, individuality constituted through the experiences made in that occupation, is social as well. With growth, meaning the process of dialectic adaptation of an intelligent agent, inducing and guiding both intellectual and societal development, Dewey described this process. Dewey tied on to a pragmatist epistemology and the concomitant emphasis on the subject's learning and acting in a social context. In that, according to Stitzlein (2017, 38), with his notion of growth as an account of intellectual development, Dewey differed from the prevalent behaviourist psychological thinkers of his era. In growth, Dewey tied intellectual growth functionally to society's development and therein captured this evolutionary idea that

Mind cannot be regarded as an individual, monopolistic possession, but represents the outworkings of the endeavour and thought of humanity; that it is developed in an environment which is social as well as physical, and that social needs and aims have been most potent in shaping it. (Dewey 1899/2008, 69).

The significance of retaining the dialectic nature of growth has been pointed out by Greene (1989) and Saito (2005) in their criticism of a one-sided, individualistic understanding of Dewey's notion of growth that neglects its societal aspect. Such active participation in social customs means the access to varied cultural experience and the communicative process of constructing shared meaning within society. Only if the individual is involved in both processes of reconstruction – of the self and the other – is dialectic adaptation achieved. Education as growth, therefore, goes beyond the idea conveyed by the German concept of *Bildung*. It necessarily implies the reconstruction of both the individual's constitution, as well as the intelligent transformation of society. Growth describes inward and outward transformation as a fully intertwined process; by being in the context of society and participating in communication, the individual also constantly contributes to the transformation of their environment including the social world. When we learn from experience, we construct shared meaning, and construct ends-in-view based on foresight. Simultaneously, based on what we learned we reconstruct social customs. This reconstruction is not merely a side-product, but a constitutive element to

human existence based on dialectic adaptation. Growth, therefore, is dependent both on the individual's opportunity to grow intellectually, while at the same time participating actively in the construction and reconstruction of social customs. Education as growth refers to educative experiences in the context of both everyday interaction – ideally in a democratic society, which fosters the plurality, resistance and discursive interaction that educative experiences require – and in the form of pedagogical interaction via a pre-selected environment opening a certain spectrum of educative experiences.

5. Lev S. Vygotsky

5.1 Introduction

In the preceding chapter on Dewey's concept of growth, I examined a theory of education derived from a Darwinian concept of evolution. Its main focus lied on the simultaneity of individual and societal transformation, the contingency and open-endedness of this transformation, and the dialectic nature of adaptation that emphasises the individual's agency. Dewey stood in stark opposition to Spencer's reductionist Lamarckian and teleological concept of evolution. This opposition on the level of evolutionary concepts also translated into their vastly different educational concepts. Dewey's criticism of Spencer emerged as an important motive in the genealogy of evolutionary educational theory developed in this thesis.

Spencer and Dewey share certain ontological convictions. Most importantly, they both hold a unilinear evolutionism, assuming that biological and cultural evolution are functionally the same, connected by one line of quantitative, accumulative growth. Furthermore, for both Spencer and Dewey, adaptation played a major role in their evolutionary theories. These commonalities on the level of the evolutionary ontology, however, must not conceal the vast differences between the two thinkers. While Spencer used the evolutionary framework to dismantle education's role within the broader evolution of human culture and nature, Dewey used his evolutionary concept of growth to integrate educational processes involving the simultaneous transformation of the individual and society into the centre of human evolution. To enrich this study's scope, I now aim to introduce an educational thinker who does *not* share these ontological commonalities: Lev S. Vygotsky.

Vygotsky presents an ontologically perspective on human existence in nature and the role of education that is fundamentally different to both Spencer's and Dewey's. There prevails a severe underappreciation of the relations between Vygotsky's particular concept and theory of evolution and his thinking about educational concepts (Stetsenko 2012). It is the objective of this chapter to contribute to this gap and re-narrate Vygotsky's popular educational concepts within the philosophical context of an evolutionary framework.

The core argument of this chapter is that Vygotsky's educationally relevant conceptions, such as development, learning, teaching and, in particular the Zone of Proximal Development (ZPD) are directly related to his particular 'brand' of evolutionism. In contrast to Spencer and Dewey, Vygotsky's evolutionism is not unilinear, but based on the negation, rather than the integration of adaptation. While Dewey's growth integrates a dialectic concept of adaptation – including both the passive 'adaptation to' an environment and the active, transformative 'adaptation of' an environment – Vygotsky, according to some recent reading of his works (Stetsenko 2012; Roth&Jornet 2017; Dafermos 2018), fundamentally redefines human development as a process unravelling outside of the dominance of evolutionary natural laws and principles. On Vygotsky's view, at the evolutionarily unique intersection of nature and culture, socio-cultural mechanisms of transformation emerge, creating a novel, specifically human way of relating to the world that cannot be found in any other animal. This functionally novel socio-cultural realm is the result of a leap from biological evolution to history enabled by the one-of-a-kind cognitive structural disposition evolved in the phylogeny of the human species. These evolved cognitive abilities furnished the human capacity to make history, i.e. to collaboratively transform environmental conditions and biological inherited tendencies through labour, positioning human existence outside of the need for externally defined adaptation.

It is the core argument of this chapter that Vygotsky's educationally relevant conceptions, such as development, learning, teaching and, in particular the Zone of Proximal Development (ZPD) are closely connected to his particular 'brand' of evolutionism. I seek to demonstrate that reading Vygotsky's theory of education in an evolutionary focus allows for novel insights into his educational concepts that are being obliterated by the dominant psychology-focused reading of Vygotsky in educational discourses. I argue, following Derry (2013, 2), that the predominantly psychological perspective on Vygotsky adopted within the constructivist educational discourse, disregards relevant philosophical underpinnings informing his concepts, and therein eradicates the inherent potential of Vygotsky's for thinking equality and social activism as a constitutive part of human existence in general, and educational practice in particular. I argue further that these relevant philosophical underpinnings

are evolutionary in nature – a perspective that is still largely unaccounted for in Vygotsky-scholarship (Stetsenko 2012).

Vygotsky's conceptualises the development of "higher mental functions" (Vygotsky 1930/1987, 22) as the result of '*revolutionary*' processes, based on negation. In this, Vygotsky diverges from Dewey's concept of growth, which describes an *evolutionary* process. I will argue in this chapter that this difference between the two thinkers is inseparably connected to Vygotsky's Marxist rejection of the Darwinist adaptation paradigm. In Vygotsky, what makes humankind unique, besides the connection between cognitive development and socio-cultural participation is the *transcendence* of a relationship between the individual and the world based on through collaborative cultural practice. Forms of individual activity, on Vygotsky's view, first emerge within communicative, socio-cultural practices and are then, through complex processes of integration, integrated into the individual's own activity and thinking. This perspective is perhaps most prominently reflected in Vygotsky's works, on "thinking and speech" (Vygotsky 1934a/1987, 39), which he sees as genetically connected with the former, e.g. thinking, or consciousness, only graspable in its connectivity to speech, e.g. communication.

Processes of historical learning, i.e. learning throughout the individual's lifetime, are at the heart of the heart of Vygotsky's idea of an artificial, socio-cultural development of the child, which, ultimately allow for the developmental leap from adaptation to collaboration, and from evolution to history. Education, "as the most important" (Kozulin 2015a, 17) amongst all social relations in Vygotsky's theory, inherits a special role in his account of human cognitive development, and, in particular, in the formation of developmental leaps. That is because, according to Vygotsky, there is a qualitative difference between processes of learning occurring in everyday experience, and the developmental leaps that educational practice aspires to. On Vygotsky's view, it is through "the human mediator" (Kozulin 2015a, 19) within the Zone of Proximal Development (ZPD) that the individual is able to make the leap from merely learning in interaction to the development of novel, higher cognitive functioning. Pedagogical interaction and instruction by a teacher, on that understanding, are constitutive parts of human development; teaching and instruction make the qualitative difference between accumulative historical learning occurring throughout the individual's life, and developmental leaps happening at

particular points in life that fundamentally alter the person's being-in-the-world. It is through education, as the "the artificial development of the child" (Vygotsky 1931/1987, 110) taking place at the intersection of inherited tendencies and their negation in cultural processes of learning and instruction, in Vygotsky, that the growth of the individual, biological evolution is transcended by revolutionary developments in human's relationship to the world. The qualitative difference between everyday-learning and learning enabled through pedagogical practices like teaching, I will argue in this chapter, unfolds its full implications for Vygotsky's theory of education only, if the evolutionary background to Vygotsky's idea of the leap is fully appreciated.

In this chapter, after having given an introduction in the broader philosophical context of Vygotsky's anti-dualistic thinking and his vision for societal and cultural progress, I will explore educational concepts emerging from Vygotsky's notion of evolution, individual development and growth as a discontinuous evolutionary process involving both biological inheritance and their socio-cultural transcendence. In particular, I will discuss the specific role that Vygotsky assigned to pedagogical interaction, instruction, and teaching within these processes of transcendence and present an in-depth analysis of their philosophical underpinnings in Vygotsky's evolutionism. In concluding this chapter, I will discuss the repercussions of an evolutionary reading of Vygotsky's concept of education for a philosophy of teaching and instruction as well as the broader social political implications of Vygotsky's thinking for education.

5.2 Vygotsky's evolutionism

It was Vygotsky's project to develop a history of individual consciousness; a psychology that would account for the uniqueness of human cognition in nature, while, simultaneously, locate the human species within evolution (Kozulin 2015b; Stetsenko 2012, 2017). This psychology furnished his concept and theory of education in fundamental ways and set the groundwork for his notions of learning and development. In particular, it informed the emphasis on social and inter-generational learning. Vygotsky opposed contemporary idealistic psychologies built on the supposition of a metaphysically pre-defined correspondence between the

individual and the social. He also disagreed, however, with the prevalent subjectivist psychologies that portrayed society either as a mere conglomerate of individuals, or as an organism in its own right that is entirely independent from the individual (Vygotsky 1925-30/1987, 56). Vygotsky wanted to develop an alternative that “proceeds first of all from the unity of mental and physiological processes” (Vygotsky 1925-30/1987, 112). By embedding cognition in social relations, Vygotsky reinstated a unity between individual, mind, and society, whose fragmentation other contemporary perspectives had reinforced. To develop that particular perspective, alongside the rich empirical resources underlining his argumentation, Vygotsky drew from various philosophical traditions that I will now introduce.

5.2.1 Historical and philosophical contextualisation

5.2.1.1 *Secondary influences – Hegel and Spinoza*

According to Dafermos’ (2008, 75) actualised reading, Vygotsky’s overarching aspiration to develop a materialist history of individual consciousness can be understood as inspired by Hegel’s *Phenomenology of Spirit* (1807). In his phylogenetic (i.e. concerning the species’) history of consciousness, Hegel had studied the “transition from sensory consciousness to rational consciousness” (Dafermos 2018, 75; Derry 2013) not as biologically or metaphysically pre-determined, but as historically shaped. This idea of “the self-creation of Man as a historical process” (Dafermos 2018, 77) was highly influential for Vygotsky’s concept of consciousness and informed, in particular, his emphasis on the embeddedness of consciousness in the societal context (Derry 2013, 110). In Vygotsky, there is no abstract reasoning, no Kantian *apriori*; thinking and the formation of concepts about the world emerge only in a societal context.

Following this historical and anti-dualistic worldview, Vygotsky adopted a dynamic epistemology, thinking of reality not as objective, but rather as a temporary result of the ideas about the world formed historically in a process of “successive re-formation of thought.” (Derry 2013, 113) Relevant for his anti-dualistic mindset was Baruch Spinoza, a Dutch philosopher and religion-critic of the 17th Century, to which Vygotsky turned especially in his later works (Roth&Jornet 2017, vii). From

Spinozism Vygotsky adopted a monist materialism. On that perspective, different things and phenomena are not fundamentally, or qualitatively different, but rather different “modes of one, single, and indivisible substance” (Dafermos 2018, 70). This idea set the groundwork for Vygotsky’s understanding of individual consciousness and society as different manifestations of the same. Individuals, on that view, become individuals only in their role as social actors (Stetsenko 2017, 112). This means that, to tap into that Spinozian framework, individual consciousness emerges from ‘the matter’ of society, and, therefore, on a genetic perspective, shares the same origin. Mind and body too, on that view, are different manifestations of the same substance. The monistic conception of these former duals entails that they can only be studied in unity; individual consciousness is not thought of as an individual possession, but rather as part of a common consciousness (Roth&Jornet 2017, 8). This monistic foundation had a significant influence on Vygotsky’s genetic approach to the development his aspired non-dualistic psychology as it connects all things and phenomena in their genesis.

5.2.1.2 *Vygotsky’s Marxist Darwinism*

As mentioned above, it was Vygotsky’s core aim to develop a non-idealistic, non-individualistic psychology that would overcome the prevailing dualisms between mind and body, and individual and society. This psychology built the foundation to his educational concepts. While Hegel and Spinoza were important influences hereto, Vygotsky’s focus on the “genetic roots of thinking and speech” (Vygotsky 1934a/1987, 39) both *phylogenetically* – i.e. regarding the emergence of human consciousness and in cultural evolution – and *ontogenetically* – i.e. the development of higher mental functions in individual learning – also points toward the key role of an evolutionary perspective in Vygotsky’s thinking (Stetsenko 2012, 148).

While the influence of Darwinism is more implicit than other references in Vygotsky’s works, a Darwinist worldview yielded an important influence on his thinking in terms of the anti-essentialist dynamic idea of nature, and the historical perspective (Stetsenko 2017, 128; 2011, 27): “Vygotsky’s theoretical perspective was grounded in precisely this worldview and as such [...] was profoundly indebted to Darwin’s idea of evolution.” (Stetsenko 2017, 133) Informed by a Darwinian worldview, Vygotsky developed a fundamentally dynamic ontology based on

“collective, relational, and historicized dynamics” (Stetsenko 2017, 133). While these ontological considerations of Vygotsky do not reflect Darwinism in any ‘pure’ form, but, as mentioned above, are also commonly associated with influences by Hegel, Spinoza, or Marx, there is at least one concept clearly identifiable as ‘Darwinian’ at the heart of Vygotsky’s philosophy that I will discuss now: The concept of adaptation, and, specifically, in the context of his Marxist reinterpretation of Darwinism, its negation.

5.2.2 Vygotsky’s negation of the adaptation paradigm

Vygotsky defines adaptation as “the fundamental and universal law of development and life of organisms” (Vygotsky 1925-30/1987, 57). The human mind, on Vygotsky’s view, is only comprehensible in the light of the principle of Darwinian adaptation:

The biological expediency of mind here serves as the basic explanatory principle. Mind is understood as one of the functions of the organisms similar in its most important and essential aspect to all other functions, i.e., like all of the functions of the organism it is a biologically useful vital adaptation to the environment. (Vygotsky 1925-30/1987, 153)

While, following Vygotsky’s characterisation, the emergence of mind can be fully explained within the framework of Darwinian adaptation, that very framework is insufficient to distinguish human mind qualitatively from any form of animal cognition:

Somewhere, in some specific stage of animal development, a qualitative change in the development of brain processes took place, which, on the one hand, was prepared by the whole preceding course of development, but, on the other hand, was a leap that could not be mechanically reduced to more simple phenomena. (Vygotsky 1925-30/1987, 113)

This qualitative leap in phylogeny that furnished the novel relationship between the human animal and the world, is the core characteristic of Vygotsky’s evolutionism distinguishing from both Spencer and Dewey. I will argue in this chapter, that the rejection of an adaptation-paradigm on the level of human cognition and culture was crucial for the way Vygotsky defined education in its close relationship to instruction and teaching within the ZPD. Before I get to that, it is

necessary to understand the nature of the Vygotskian leap from evolution and its relation to the human mind.

5.2.2.1 *Vygotsky's Marx and the revolutionary mind*

Vygotsky wrote extensively on the development of human consciousness in evolution. Consciousness supposedly received its prominent status in Vygotsky's thinking because it is directly 'responsible' for the human qualitative leap from evolution on to the "new plane" (Vygotsky 1930/1987, 34) of history. For Vygotsky, consciousness was not an *apriori*, or a fixed state of human existence, but rather a dynamic mental process oriented at directing activity (Dafermos 2018, 57). As touched upon above, for Vygotsky, there is no abstract, or "pure thought" (Vygotsky 1934a/1987, 77); all thinking, and all forms of intelligence emerge in the context of the subject's relationship to the environment as a result of practical, active adaptation:

One need only to consider the development of thinking within the general framework of biological evolution to be convinced that the first form of intellectual activity is active, practical thinking. This is thinking that is directed toward reality. It is a basic form of adapting to new or changing conditions in the external environment. (Vygotsky 1934a/1987, 63)

On the level of phylogenetic evolution, i.e. on the level of the development of species during natural history, Vygotsky locates human consciousness within the human species' active adaptation to the environment. Thus far, this perspective is consistent with Dewey's. On an ontogenetic level, i.e. on the level of individual development, however, Vygotsky *negates* this connection between thought and adaptation: "In our view, a fundamental difference distinguishes the product of biological evolution (i.e. the natural form of thinking) from the historically emerging forms of human intellect." (Vygotsky 1934a/1987, 160) Vygotsky makes a clear distinction between 'the natural form of thinking' brought about through biological evolution, and 'human intellect' as a product of history (Derry 2013, 134). Therein, "human nature is seen as superseding these origins and transcending any biological imperatives, allowing for a leap into the realm of freedom and self-determination." (Stetsenko 2011, 26) In order to conceptualise this difference between evolution and history, Vygotsky had to partially reject a Darwinian account of evolution. While he

fully accepted the historical perspective and the anti-dualistic viewpoint it engendered, Vygotsky rejected the idea of evolution being a continuous and unilinear path, combining biological and cultural revolution within the same process (Dafermos 2018, 188) While accepting an understanding of development as a non-mechanical, fundamentally contingent and environment-dependent process, Vygotsky also wanted to put stronger emphasis on the “dynamic relations between organisms and their world as the driving force of evolutionary change” (Stetsenko 2017, 115). In order to do so, Vygotsky integrated a Marxist perspective into the Darwinist foundations of his thinking.

Following his own words, Vygotsky aspired to develop a psychological equivalent to Marx’s *Das Kapital* (1867), i.e. an approach to psychology methodologically equivalent approach to Marx’s materialistic history of economics (Vygotsky 1925-30/1987, 331). Based on that theoretical fundament Vygotsky’s psychology received a clear trajectory: it had to be concerned first and foremost with explaining what makes humans unique in evolution, while at the same time locating them within evolution (Roth&Jornet 2017, 28; Elhammouni 2010). To that end he synthesised a Marxist anthropology and dialectics with the Darwinian theory of biological evolution. Dialectical negation, Vygotsky (1925- 30/1987) defines, is a development that “includes all the positive achievements of its predecessor which have stood the test of time, but it itself strives in its constitutions and conclusions to transcend its predecessor’s boundaries and the conquer new and deeper layers of phenomena.” (175)

The idea of negation marks a major difference to Dewey’s idea of evolution as a continuous process of growth. Vygotsky used this dialectic logic to rethink adaptation in evolution by the principle of negation: He argued that the human species, by building culture, was no longer submitted to biological adaptation in the same way all other animals are, but has actually transcended its own biological origin. This transcendence results in a developmental difference between other animals and humans (Kozulin 2015b, 322). This developmental difference is qualitative, in the form of “a drastic leap away from biological laws and regularities that govern the animal world” (Stetsenko 2011, 33), rather than a mere quantitative accumulation within evolution. Through that qualitative leap, humans establish a new mode of existing and relating to the environment that is unique in nature. Despite the first impression that Vygotsky’s evolutionary discontinuity hypothesis might evoke, it is important to note that with this claim Vygotsky did not reject biological evolution, let

alone deem it as 'over'. Instead, he argued that the qualitative difference is a product of evolution itself, which has established itself outside of its origin by negating it:

The transformative collaborative practice supersedes adaptation and natural selection, that is, dialectically negates, without eliminating them. The notion of superseding conveys the sense of something being taken over by a new process and integrated into it so that the former process continues its life, yet now in a subordinate role. (Stetsenko 2012, 149)

The way that dialectic negation preserves its origin in a subordinate role, while at the same time superseding it evokes the influence that Spinozian monism had on both Marx and Vygotsky. All things and phenomena are different manifestations of the same matter; they do not exist as ontological duals but are rather connected by a common root.

Vygotsky presents a theoretically complex manoeuvre in which he combines Darwinism with Marxism. The combination of Marx and Darwin allowed Vygotsky to argue for a qualitative developmental leap that distinguishes evolution from human history – evolution follows the Darwinian principles of natural selection and adaptation; history does not. After having established the intellectual influence Marxism had on Vygotsky's adoption of Darwinian evolutionism, I will delve more deeply into the more detailed, conceptual nature of this Marxist reinterpretation of Darwin.

5.2.2.2 *The nature of the leap*

In line with his Marxist view of nature and culture, Vygotsky located the leap into history in the emergence of the division of labour (Dafermos 2018, 83). Vygotsky follows a Marxist definition of labour. On that view, it was through the emergences collaborative labour that the human species has ended the need for immediate, reactive adaptation to the environment and instead transcended into the realm of purposeful transformation of the environment, "a realm where forces of history, cultural, and society reign." (Stetsenko 2011, 33) While this qualitative jump in human development is itself the result of adaptation, it also brings forward a new relationship of human beings with their environment that is no longer defined

“through adaptation but through the social practice of human labour – the collaborative (and therefore socio-cultural), transformative practice unfolding and expanding in history.” (Stetsenko 2011, 32) This new relationship has important implications for human activity as it shifts the impetus for action from *reactivity* to external pressures, to collaborative labour that is purposefully *forming* the environment. How, if at all, is this different from Dewey’s understanding of adaptation as a dialectic process?

As pointed out above, to think of the mind in the context of its role in adaptation is also key to understanding Vygotsky’s concept of evolution and its relation to education. In defining adaptation as “the struggle of man with nature” (Vygotsky 1925/1987, 110), Vygotsky establishes the relation between humans and their environment as the ground premise of adaptation. This relation seems to be of the nature that the environment receives a certain power, with which ‘man’ is deemed to struggle. Human cognition, on that view is understood to be the result of biological adaptation to the demands of the environment. However, simultaneously, human cognition, in Vygotsky, contributes to the human species superseding the *modus operandi* of adaptation and natural selection with the help of “historically emerging forms of human intellect.” (Vygotsky 1934a/1987:160) Consciousness, following Vygotsky, is a “higher form of adaptation” (Vygotsky 1925-30/1987, 57) inducing a leap from evolution to history.

In the context of Vygotsky’s idea of evolutionary leaps, a difference between him and Dewey begins to emerge. Dewey understands evolution to be a continuous process, Vygotsky’s understanding of evolution puts emphasis on the discontinuation of developmental paths. Human consciousness, in Dewey, has emerged gradually, and as the result of a qualitative leap, in Vygotsky. To use the words of Garrison (1995), “for Deweyans, individual minds emerge *without discontinuity* when natural organisms having the capacity to learn to participate in social activities involving labor, tools, and, above all, language.” (719, emphasis mine). The key words in this thought of Garrison are ‘without discontinuity’. In this quotation, it is crucial to mention, Garrison does *not* refer to discontinuity as the implicit counterpart to continuity in Dewey’s theory of educative experiences as it was discussed in the last chapter. What Garrison describes here, is Dewey’s concept of evolution; ‘without discontinuity’ means that for Dewey, growth is a

'smooth' process in which the individual reacts to adaptive pressures with integration – both through the transformation of the self and the environment. In contrast, in a Vygotskian perspective, developments consist of 'breaks' and 'leaps' onto new 'planes'. Evolution is, thus, on an ontological level, discontinuous. 'Leaps', in Vygotsky, are the discontinuation of developmental paths in which the "subsequent stage in development of behaviour [...] *negates* the preceding stage." (Vygotsky 1931/1987, 111; emphasis mine) The preceding stages of development, in that process, are "removed, eliminated, and sometimes converted into an opposite, higher stage." (Vygotsky 1931/1987, 111) In this higher stage, Vygotsky suggests, "we must now view mind a [consisting of] special processes, which supplementary exist on top of and alongside the brain processes" (Vygotsky 1935-30/1987, 113). In the process of negation, following Vygotsky, hereditary forms of cognition are superseded. This superseding, however, is not the continuous integration we see in Dewey's growth, but is characterised by negation. In the capacity for negation of hereditary forms of cognition and behaviour, in Vygotsky, lies the unique human capacity for labour (Dafermos 2018, 120). And this capacity for labour, in turn, means a qualitatively new way of humans relating to their environment that 'lays' outside of adaptation. On Vygotsky's dialectic materialist perspective, it is the ability for collaborative labour that allows the human species to construct their own environmental conditions and therein superseding the need for adaptation understood as the constant 'struggle' against nature. Vygotsky writes on that point: "In animals we have passive adaptation to the environment, in human's active adaptation of the environment to oneself" (Vygotsky 1925-30/1987, 68).

Vygotsky's tapping into an adaptation-terminology, as he does in the quotation above, is confusing – if adaptation is negated and superseded by something 'higher', then why are we still talking about 'active adaptation'? It would be necessary to look into the Russian original here in order to rule out the possibility of the confusion stemming from issues with the English translation. The next best thing, it appears to me, is to refer to the estimate of Anna Stetsenko – a renowned Vygotsky scholar working with both the Russian original and the English translations – who argues that the term 'active adaptation' "could be more precisely termed active collaborative transformation of nature." (Stetsenko 2012, 148) She unequivocally supports the reading of Vygotsky that I have presented thus far in this

chapter, namely, as a theory of cultural evolution widely detached from environmental adaptation. On Stetsenko's (2017) view, "human development is a collaborative and creative work-in-progress by people acting together in pursuit of their goals while, in the process, always moving beyond the status quo and its existing conditions and limitations." (35) In that, human development is not understood as defined by a reactive struggle with the environment, but rather by what is "taken up by people" (Stetsenko 2017, 35). As a consequence, in the context of Vygotsky, Stetsenko (2012) wants to move away from the term adaptation all together. On her view, Vygotsky's concept of the leap describes precisely this "shift away from adaptation" (148), away from the notion of human development as "shaped by imperatives of survival and competition for what is typically taken to be limited resources available in the present, by individuals acting in solitude, each on one's own, in maximizing individual gains while adjusting to the status quo." (Stetsenko 2017, 36). Human existence according to Vygotsky, in contrast, for Stetsenko (2017), is a matter of "transcending them [environmental conditions, AN] in collective moving forward and jointly co-constructing these practices and, simultaneously, themselves." (36) A similar perspective is presented by Marginson and Dang (2017, 120) who argue that in a Vygotskian perspective, "humans created culture, their own artificial environment, which modified evolutionary determinism." Based on this recent scholarship on Vygotsky's rejection of an adaptation-paradigm, combined with the study of Vygotsky's evolutionary ontology I come to the conclusion that the replacement of adaptation with labour through the conception of a 'leap' from evolution to history is a key characteristic of Vygotsky.

5.2.3 Key themes of the evolutionary foundations in Vygotsky's work

Thus far it has been established that Vygotsky redefines human development as a process unravelling outside of natural laws, at the intersection of nature and culture. At this intersection, socio-cultural mechanisms of transformation with a different functionality emerge. In this understanding I am following the just presented reading of Stetsenko (2017), which is built on the assumption that Vygotsky defines human existence not in terms of biological adaptation, but as

unique due to the capacity for collaborative transformative activity, i.e. labour. On that view, natural selection and its pressures for adaptive activity is negated; it is superseded by “transformative social practice as the foundation of human existence – the very fabric of life, development, and human subjectivity.” (Stetsenko 2017, 110) Human history begins with this negation of adaptation and the concomitant emergence of the purposeful transformation as the human *modus operandi*. However, in a Spinozian fashion, in the process of negation, adaptation is preserved in culture. Culture, thus, is not disconnected from nature, as it were, but has negated its previous relationship by reinstating a new form of relating (Roth&Jornet 2017, 310). This functionally novel socio-cultural realm is the result of a leap from biological evolution to history enabled by the one-of-a-kind cognitive structural disposition evolved in the phylogeny of the human species. These evolved cognitive abilities furnished the human capacity to make history, i.e. to collaboratively transform environmental conditions and biological inherited tendencies through labour, positioning human existence outside of the need for externally defined adaptation.

This perspective aligns with Vygotsky’s view that contemporary psychology, by being predominantly concerned with the study of reflexes and the establishment of a commonplace with other animals in evolution, underappreciated “the development of human behaviour beginning where the line of biological evolution ends – the line of historical or cultural development corresponding to the whole historical path of humanity.” (Vygotsky 1931/1987, 16) The nature of the leap, first in its occurrence in phylogeny, and then in its ongoing manifestation within individual ontogeny, is thus, what Vygotsky appears to have been concerned mainly. It also furnished Vygotsky’s concept of education, which, on Vygotsky’s perspective, is a core component of, in Stetsenko’s (2012) view, “the beginning of a uniquely human life in phylogeny (and the advent of the human species as such)” (167). Instead of conceptualising human activity as fully consistent with other animals, as being centred around a reactivity to the environmental demands – as it is the case in purely Darwinian, adaptation-centred accounts of human existence – Vygotsky thought of human existence as focused on purposeful transformation through the mastering of “auxiliary means (language, letter, number, sign, and symbols) that mankind has created.” (Dafermos 2018, 128)

5.3 Vygotsky's theory of education

5.3.1 Education as artificial development

Vygotsky directly applied his concept of evolution to the study of individual development, learning, and the nature and significance of educational, pedagogical processes. He (1930/1987) writes: "Evolutionism in the study of development of the child's behaviour must yield to more adequate ideas that take into account the completely unique dialectical character of the processes of formation of new mental forms." (43) Thus, analogously to the dialectic relationship between evolution and history in phylogeny, in the life of each individual, the innate hereditary experience is transformed in an ongoing process marked by negation, leading to the emergence of higher psychological functions and conceptual thinking. Within this ongoing process of the reformation of hereditary experience in relation the socio-cultural reality through the integration of cultural tools and social relations, is precisely, where Vygotsky locates education (Dafermos 2018, 101).

Vygotsky (1931/1987) defines education as "the artificial development of the child." (110) Education, in that conception, describes the negating process at the heart of the individual's lifelong transformation based on the integration and elaboration of cultural, social, and psychological tools. It "is the artificial mastery of natural processes of development. Education not only influences certain processes of development but restructures all functions of behaviour in a most essential manner." (Vygotsky 1925-30/1987, 88) Education, on this perspective, is the development of the artificial relationship mediated by tools and collaborative labour that the individual establishes with the world (Vygotsky 1931/1987, 110). It is the process of reforming unconditional hereditary experiences into conditional historical behaviour; the process in which "the child arms and re-arms himself with widely varying tools" (Vygotsky 1925-30/1987, 88).

I will now explore the developmental leap on the level of ontogeny in its relation to Vygotsky's notion of learning and labour. From that analysis I will draw out Vygotsky's concept of education as artificial development and locate within the broader framework of Vygotsky's psychology and evolutionary philosophy. To that

end I will first ‘zoom-in’ to the ontogenetic dimension of the negation of adaptation through processes learning. Secondly, I will discuss the wider philosophical implications of Vygotsky’s concept of learning in relation to his theory of cultural evolution, respectively revolution. In concluding this analysis on Vygotsky’s concept of education as artificial development I will talk about the Marxist notion of labour and its bearings for a Vygotskian theory of education.

5.3.1.1 Vygotskian ontogenesis – the socio-biological development of the individual

As discussed above, Vygotsky thought of human phylogenetic evolution as distinct from other animals in that it entailed a developmental leap from evolution into the particular realm of human history-making. Within that leap, through the emergent functionality of human cognition, the human species superseded the adaptation paradigm and entered a novel sphere of existence in the world. As mentioned above, Vygotsky directly applied these insights, and in particular his idea of a leap, to the study of individual development and education.

Ensuing from this theoretical foundation, in Vygotsky, individual development – and with it the developmental leap allowing humans to exist outside of the parameters of adaptation – is to be understood as a process of sociogenesis. Following the definition of Roth and Jornet (2017), sociogenesis means that “higher psychological functions originate as, not merely in social relations, thereby generating both social facts and social persons.” (viii) In Vygotsky’s (1931/1987) own words, “the mental nature of man represents the totality of social relations internalized and made into functions of the individual and forms of his structure.” (106). Stemming from Vygotsky’s Marxist heritage, he sees social interactions as the origin of the higher mental functions that allow for the particular human relating to her/his environment. It is in social interaction that the inherited adaptations, i.e. the innate tendencies and capacities, are negated and replaced with the new, and qualitatively different, historical experience. Human’s higher mental functions, thus, emerge in the context of collaborative practice; human cognition is, from the very beginning, “thinking-for-doing” (Roth&Jornet 2017, 18) rather than thinking for reacting to adaptive pressures.

5.3.1.2 *The role of learning*

Learning, in Vygotsky's theory, takes up a key role within the human individual's existence and development outside of the realm of adaptation. Vygotsky's concept of learning, I contend, is closely associated with his idea of 'historical experiences' in contrast to 'inherited experiences'.

Vygotsky (1925-30/1987) believed that human development essentially has two components. The first is biological, based on what he called "hereditary" (58) or "physically inherited experience" (68). Hereditary experience is "formed by the change in their organs under the influence of certain environmental influences" (Vygotsky 1925-30/1987, 57) and, therein, submitted to the Darwinian principle of natural selection. Hereditary experiences are transmitted through physical inheritance. The second form of development "consists in the change in the animal's behaviour *without a change in the structure of the body.*" (Vygotsky 1925-30/1987, 57, emphasis mine) It is non-hereditary, "historical experience" (Vygotsky 1935-30/1987, 58) made by the individual. It is from historical experience that the qualitative change, this leap that Vygotsky conceives of emerges.

Historical experiences are not physically inherited but based on experiences made by the individual in her/his life. Inherent to the concept of historical experience, is Vygotsky's idea of learning meaning the acquisition of historical experiences and their negating properties in regard to innate tendencies. Historical experience allows humans to overturn their hereditary experience, to negate them in relation to the socio-cultural reality they inhabit. Historical experience, or learning understood as the acquisition of historical experience, is different from biological evolution in the relationship it enables between the organism and the environment – it is more flexible, and, naturally, much faster than physical adaptation. Educational practices that are aimed at the facilitation and direction of such experiences, are a key component of non-hereditary adaptation, i.e. the making and consolidating of experiences made in culture and society.

This conception of learning as the acquisition of historical experiences and the concomitant negation of hereditary experiences as the result of learning can be analysed philosophically or psychologically. Philosophically, I argue, the process of

the negation of adaptation through learning as an underlying existential principle describes Vygotsky's concept of *Bildsamkeit*. The renewed relationship to the world that the human species was able to establish based on the emergence of mind, following Vygotsky, is what makes the human species unique amongst other animals. The mind allows for a 'higher form of adaptation' which involves the formation of a new relationship between humans and their environment. The mind also mediates between the individual's cultural formation in relation to its hereditary experience. This grounding of human existence within the socio-culturally contextualised negation of the individual's inherited tendencies builds the foundation for human *Bildsamkeit*, i.e. perfectibility (English 2013, 373). *Bildsamkeit* is a Herbartian concept defined by English (2013, 373) as the idea that "all human beings are capable of being formed by the world and also forming the world around them." In Vygotsky's evolutionary conception focused on the emergence of the human mind and its transcending properties, *Bildsamkeit* means the human capacity for 'a higher form of adaptation' that lies outside of the externalism of Darwinian adaptation. As a result of this leap outside of the realm of adaptation, in a Vygotskian perspective, humans are much freer from their innate equipment than in a Herbartian notion of *Bildsamkeit*. Following a Vygotskian conception, *Bildsamkeit* is what makes humans increasingly able to make choices and employ activities that are outside of their natural disposition. Even though endowed capacities and tendencies play an important role – because of their constitutive impact on the process of negation – in Vygotsky's view, they are secondary to human *Bildsamkeit* (Vygotsky 1931/1987). More important is the potential that collaborative activities offer.

Vygotsky's idea of the capacity for historical experience to overturn inherited tendencies being connected to an increase in human self-determination appears to expose the important Spinozian heritage in Vygotsky's thinking. From Spinoza, and especially from Marx's Spinoza, Vygotsky adopted his notion of freedom as self-determination (Derry 2013, 85). On that view, freedom is not a given aspect to human nature, but rather a developmental achievement, a state of "active self-determination" (Dafermos 2018, 17) preceded by struggle. Freedom, therein, is understood as an act of reason and purpose, rather than immediate volition, or passions emerging from direct external stimuli (Derry 2013, 85). What guides

purpose and reason, in Spinozism, is insights gained into the encountered reality and the concomitant “mastery of external determinations” (Derry 2013, 90). It is through learning, it follows, that humans become free from nature (Dafermos 2018, 72). The Spinozian notion of freedom crucially informed Vygotsky’s conception of the emergence of higher mental functions as a developmental achievement in a specific context of struggle. It also contributed significantly to his characterisation of how the unique human cognitive capacities constitute the distinguishing human ability to make history, i.e. “to make ourselves a space within which we can determine our actions” (Derry 2013, 91), rather than to be exposed to the biological force of evolution. Furthermore, the Spinozian notion of freedom and its relation to learning also had a significant influence on the importance of instruction and of scientific concepts in the context of his educational theory: insights into the relations of the world that allow for purposeful activity rather than activity driven by passion, in Vygotsky’s account of development and learning, rely on instruction. This gives education understood as a social activity of intergenerational instruction directed at supporting learners to gain these insights that allow them to act in freedom a key role in Vygotsky’s psychology.

Psychologically, the formability of individuals in relation to the world is a process of negation unconditional reflexes with conditional reflexes. Unexpectedly, perhaps, if we consider what has been said about radical behaviourism and its reductionist psychological implications in the preceding chapter – when it comes to the foundation of his psychology, Vygotsky pursued the explanatory framework of a stimulus-response logic (DeVries 2000, 188). He (1934a/1987) writes: “The mechanism of the conditional reflex is a bridge thrown from the biological laws of the formation of hereditary adaptation established by Darwin to the sociological laws established by Marx.” (59) On his view, in the process of interacting with others, the unconditional reflexes that the child is born with are overturned into conditional reflexes, i.e. reflexes that are formed in relation to the immediate experience of the individual (Vygotsky 1931/1987, 111). In this, conditional, or environment specific, reflexes are, at first instance at least, an important adaptive strategy as they allow for an “infinite diversity of the organism’s responses.” (Vygotsky 1925-30/1987, 156) Vygotsky (1931/1987) characterises this process of “master[ing] the stimuli” (112) – in this notion we recognise the Spinozian notion of freedom as a detachment from

immediate urges and passions. In the transformation of the unconditional reflexes into conditional ones, the individual gains increasing freedom over her/his activity; this freedom manifests in the ability to transform the environment purposefully.

5.3.1.3 *The problem of Cartesianism*

Above, I have presented the argument that Vygotsky, with his Marxist reinterpretation of Darwin, has moved beyond the adaptation paradigm. One might justifiably ask, how this understanding, which I share with Stetsenko (2012), and Roth and Jornet (2017), is compatible with Vygotsky's assessment of consciousness as "fully and completely reduced to transmitting mechanisms of reflexes that work according to general laws, i.e., no processes other than reactions can be accepted to exist in the organism." (Vygotsky 1925-30/1987, 73) Vygotsky (1925-30/1987) defines reaction as the "response of the organism, its adaptive action to some element of the environment that influences it." (154) It appears from this phrasing, that Vygotsky re-establishes a Cartesian duality between the self and the world, and, therein, actually falls back into an externalist adaptation paradigm which he, so the argument developed in this chapter, sought to transcend.

One attempt to solve this hermeneutic issue is to think of the Spinozian influence In Vygotsky: While the unconditional reactions are negated in relation to the environment, in that very same moment, they also continue to exist, "manifested and existing only in a different form and different expression." (Vygotsky 1931/1987, 111) From this we can take that in Vygotsky, unconditional and conditional reflexes do not have to be fundamentally, categorically different, in order to manifest qualitatively different. A human activity that is derived from higher mental functioning and aims at transforming purposefully, rather than adapting reactively, on a Spinozian reading of Vygotsky, can be understood as having emerged as a reaction to environmental stimuli, while, simultaneously, can be understood to have manifested in a different form, superseding its origin. The leap that occurs as negation resulting from processes learning, therefore, has to be looked as in a Spinozian idea of negation, where superseding does not mean erasing, or detaching. Rather, as we have established above, in the process of negation the previous status of existence prevails in a new form. The supposed duality between nature and culture in Vygotsky, thus, has to be looked at in the light of the principle

of negation. The emergence of the mind in evolution is a necessary condition for the emergence of what Vygotsky calls the 'higher form of adaptation', or the human capacity for labour, which is actually a negation of the parameters of adaptation (Stetsenko 2012). Nature, therefore, is a constitutive part of culture, even though its workings no longer apply in the same way in the realm of human history-making (Vygotsky 1930/1987, 42).

On that dialectic view, the person and the environment are seen "as two different, always one-sided manifestations of the same phenomenon, which is that of a transactional relation." (Roth&Jornet 2017, 16) The achievement of freedom from externalism that Vygotsky derived from his Spinozian heritage, thus, has to be understood as a process, rather than a telos. The "mastery of external determinations" (Derry 2013), I think based on reading Vygotsky's psychology in the broader philosophical context it stands in, is the aim of educative processes. To further clarify Vygotsky's dissolution of the Darwinian adaptation paradigm and how it relates to his concept of education, I will now delve further into the nature of this transactional relation.

5.3.2 Integration and Mediation

In Vygotsky, higher mental functions are characterised by, what I would describe as a general principle of integration. By that I mean the integration of tools into purposeful activity, as well as the integration of social relations into mental functions. I use the term integration rather than internalization – a term used in the translation of Vygotsky's works - because 'internalization' reinforces a dualistic misunderstanding of the 'internal' and the 'external' (Roth&Jornet 2017, 19). Vygotsky (1925-30/1987) writes on the point of the integration of tools and relations into existing, hereditary mental functions: "In the behaviour of man we encounter quite a number of artificial devices for mastering his own mental processes." (85) On that view, while conditional reflexes can indeed be conceptualised as reactions to external stimuli, the nature of the reactivity has changes dramatically throughout the process of integration: While in their unconditional form they are direct, and immediate, in their conditional form, reactions are mediated – mediated by tools and social relations.

5.3.2.1 Tools

According to Vygotsky, the negation of adaptation takes place through the collective invention, elaboration, and ultimate integration of “auxiliary means” (Vygotsky 1934b/1987, 56) into the mental activity of the individual. Broadly speaking, auxiliary means are tools, such as signs, practices, and language, which, in the process of integration transform into psychological capacities or habits (Dafermos 2018, 140). In accordance with the primacy of the social as one of the main pillars of Vygotsky’s thinking, these auxiliary means first emerge in social interaction (*intermental*) and are later transformed into psychological tools (*intramental*) that allow for the internal direction of activity. Internalised tools, thus, mediate the relationship between the individual and her/his surroundings:

In the instrumental act a new middle term is inserted between the object and the mental operation directed at it: the psychological tool, which becomes the structural centre of focus, i.e., the aspect that functionally determines all the processes that form the instrumental act. Any behavioural act then becomes an intellectual operation. (Vygotsky 1925-30/1987, 87)

Through the integration of tools into hereditary adaptations, or unconditional reactions of the individual, higher mental functions, allowing for doubled experience, emerge. As already mentioned above, higher mental functions furnishing doubled experience are different from hereditary adaptation in their less “direct structure of elementary mental processes” (Vygotsky 1934b/1987, 37). Through the process of integration of tools through collaborative labour, however, mental capacities do not develop gradually. Rather, analogously to the leap Vygotsky envisaged on the level of phylogeny, these emerging higher mental functions demonstrate a new functionality that is qualitatively different from their origin.

5.3.2.2 Language

As established above, the unique human cognition and its ability for transformative collaborative activity emerge from social relations. Higher mental functions, to be more precise, first exist as communication, as “means of association” (Vygotsky 1943b/1987, 169). It is through communicative speech that mere interaction with others becomes active transformative practice. Speaking, on that

view, is inherently connected to thought. It is not, however, a mere representation, but rather a constitutive part of the thinking process itself. In his own words, Vygotsky (1934a/1987) emphasises: Thought “is not expressed, but completed in the word.” (296). Language combines the communicative, interactive function with the function of meaning-making. Through language, individual experience is shared and thus reveals its meaning “in generalization” (Vygotsky 1934a/1987, 251) in the process of communication and association with other’s experiences. The process of generalization causes thought to be “restructured as it is transformed into speech.” (Vygotsky 1934a/1987, 251) Thinking, thus, is inherently social in its formation connected with language.

Language is also a key component of the leap from animal cognition to the unique traits of human consciousness. Vygotsky follows Marx by arguing that emerged with the aim or purposefully transforming the environment and therein alter the conditions of existence: “Thinking is for acting and speaking and therefore marked by needs and affect.” (Roth&Jornet 2017, 6) Language functions as a tool connecting the individual with others and enabling and mediating collaborative labour. Thinking and language, thus, share genetic roots forming “a unity of thinking and communication” (Vygotsky 1934a/1987, 49). In Vygotsky, there is a development from external to internal speech, with what he calls “egocentric speech” (Vygotsky 1930/1987, 15) as its intermediate form. Egocentric speech, i.e. the audible, external formulation of words and sentences without a communicative purpose signify the process of integration, i.e. the process of speech turning inward in a metamorphosis from language as a social tool to thought as an internal, psychological tool (Vygotsky 1930/1987, 22). While animals have rudimentary forms of communication as well, human communication through language is unique because of this transitory process from external to internal (Vygotsky 1934a/1987, 113). In its integrated form, speech becomes thinking, “it is converted from the reflecting accompanying function into a planning function, shifting to the beginning of the process, transferring from one operation to another.” (Vygotsky 1934b/1987, 114) Language, at the point of adolescence, as the result of the “transition from direct, innate, natural forms and methods of behaviour to mediated, artificial mental functions that develop in the process of cultural development” (Vygotsky 1934b/1987, 168) has become a psychological tool mediating the individual’s

relationship with the world, while at the same time, assigning generalised meaning to the world.

5.3.3 Labour and education – human’s second nature

The combination of Marx and Darwin allowed Vygotsky to conceptualise the qualitative developmental leap that distinguishes evolution from history – evolution follows the Darwinian principles of natural selection and adaptation; history and culture do not (Dafermos 2018, 83). The nature of the developmental leap of the human species during the evolution of the mind, and how, analogously, ‘leaps’ are performed in individual learning is a key foundation of his educational theory. The *Bildsamkeit* of the human animal allows her/him to supersede their own hereditary, adaptive tendencies, urges and capabilities through learning. Whilst growing up, the individual undergoes the learning negation of its hereditary constitution by integrating socio-cultural tools and relations into its own mental activity. This formation, i.e. the negating process by the integration of and mediation through tools, is how Vygotsky’s defines education. Following his transformative, rather than relational ontology, education happens not in relation to socio-cultural reality, but rather as socio-cultural reality. On that view, educational processes occur within the individual’s collaborative participation in socio-cultural practices.

To define collaborative socio-cultural practice, Vygotsky draws from a historical materialist conception of labour. Vygotsky was a convinced Marxist when it came to his views of cultural evolution and its relation to nature. Historical materialism – which he deemed to be the “most abstract science” (Vygotsky 1925-30/1987, 331) –, on Vygotsky’s view, ought to be the foundation of a “natural scientific psychology” (Vygotsky 1925-30/1987, 338). Historical materialism is a branch of Marxist theory studying the relationship between the material reality and the forces of production – i.e. the means and materials accessible to human labour – available to a group of individuals who collaborate in their attempt “to alter their natural environment to suit their particular needs” (Buchanan 2018). On a historical materialist view, “the development of history is not determined by the desires or actions of specific human subjects, but instead shaped by the objective facts of material existence.” (Buchanan 2018) Marx used the metaphor of ‘metabolism’ to

describe the relationship between humans and their environment: Through the purposeful intervention and mediation with tools, which alters the immediate influence of the environment on the individual, he or she is an agent within that relationship, mediating its 'metabolism' (Foster 2016, 141). Following a Marxist anthropology, the ability to transform the natural environment and its 'metabolism' through collaborative human labour, forms a unique human capacity that fundamentally altered their relationship to nature and evolution. The transformative relationship that, on that view, can be understood as a kind of 'second human nature'.

Labour, meaning the purposeful transformation of the natural environment that constitutes human's unique relationship with nature, is directly connected to the emergence of human cognition, and, therein, the leap away from adaptation (Buchanan 2019). Following a Marxist conception, Vygotsky (1931/1987) thinks of consciousness as emerging in social relation: "We could say that the relations between higher mental functions were at one time real relations between people. I relate to myself in the same way that people relate to me." (103; see also Roth&Jornet 2017, 182) Individual consciousness, we begin to gather from this, is not naturally pre-determined or formed individualistically. Rather, it is formed by the historical and social reality in which the individual lives and interacts. This rooting of Vygotsky's psychology in the human capacity for collaborative labour centres the cultural development of the human species on the collaborative development of tools (Stetsenko 2012, 148). While other species also use tools and collaborative, culture-like practices to transform their environment, following Vygotsky, they do so "only in a rudimentary form" (Vygotsky 1925-30/1987, 68). What makes the qualitative difference in the use of tools and culture, in Vygotsky, is the uniquely human cognitive capacity for "doubled experience" (Vygotsky 1925-30/1987, 68).

Doubled experience means the ability to 'play out' an activity mentally, an in that process of testing the activity adjust it and the tools used for its execution. On Vygotsky's perception, animals have an immediate, unmediated relationship with the tools that surround them (Vygotsky 1930/1987, 25). They use the tools that present themselves to them in the moment and apply them to problems that present themselves to them. Humans, in contrast, due to their specific cognitive ability of doubled experience can generate "stimuli sui generis" (Vygotsky 1925-30/1987, 73).

This means that they can think of tools that are not immediately present, imagine and reimagine their application, and administer them in regard to problems they chose themselves, respectively, in a collaborative group interaction. “The temporal field created for action with the help of speech extends not only backward, but also forward.” (Vygotsky 1930/1987, 35) Humans, on Vygotsky’s (1930/1987) view, in their particular use of tools create a “completely new psychological field for action” (35). Instead of standing into a reactive relationship with the environment, “man is cognizant of the developing situation” (Vygotsky 1931/1987, 208), anticipating and intervening with foresight in order to achieve a desired result.

5.3.4 From a relational to a transformative ontology

Consciousness, in Vygotsky, has evolved in connection to the collaborative active transformation of the environment, and, in that, has led to a new form of human evolution in culture and history. Stetsenko (2017), in agreement of Roth and Jornet’s (2017) reading of that process, emphasises that “the mind – an all individual objectives, that is, processes such as contemplating, goal setting, planning, understanding, feeling, thinking, and so on – are viewed in this perspective as instantiations of collaborative practices” (159). It has to be emphasised again, however, that sociogenesis, in its dialectic nature, is not purely cultural. This sort of dualism between nature and culture is precisely what the process of sociogenesis, i.e. the negation of hereditary adaptations in collaborative practice, might be able to overcome. Vygotsky (1934b/1987) notes on that point: “The history of the development of higher forms of behaviour discloses a direct and close dependence on organic, biological development of the child and on the growth of his elementary psychological functions.” (34) Therefore, when speaking about individual development, it is crucial to consider the biological side in its “dynamic synthesis” (Vygotsky 1934b/1987, 34) with history, culture and society that takes place within the individual’s lifetime.

According to Stetsenko (2017), Vygotsky transcends the relational ontological perspective of his predecessors, introducing a new, transformative ontology. Therein, human existence is understood in the context of deliberate, transformative activity, rather than adaptation. Even though, as discussed above, Vygotsky does

use the term adaptation – incongruously perhaps – according to Stetsenko’s (2011) reading, its meaning goes beyond the dialectical adaptation that we have seen in Dewey’s growth. In Vygotsky, humans relate to the world not in the form of a “bi-directional interaction” (34), but rather within a “unified (rather than bifurcated) and unique ontological realm” (34) On that view, “the object and subject are seen as ontologically (i.e. in their existential status) co-existent and co-determined through and as composed of relations between them” (Stetsenko 2017, 124), instead of ‘being in interaction’ with each other. This interpretation of human existence as non-relational, i.e. as not divided into an internal and an external that interact, has important repercussions for Vygotsky’s notion of environment and, in particular, his thoughts on how the environment educates. In Vygotsky, “both culture and nature are understood as an inherent dimension of human collaborative practices rather than as outside sources of influence.” (Stetsenko 2011, 35) With his transformative ontology, Vygotsky moves beyond the “structure-agency dualism” (Dafermos 2018, 185) inherent in relational ontologies.

Following Stetsenko’s (2017) argumentation, I conclude that in Vygotsky mind and body, individual and society are ontologically connected – however, this connection is not a relationship between two separates, but they only exist in this relation. In contrast to other contemporary evolutionary psychologists and philosophers, Vygotsky “moves beyond the relational worldview, in considering human development specifically in the context of social and historically evolving reality and, in a related move, considering history specifically in the context of human social practices.” (161) In order to conceptualise this formative human social practice, I contend, Vygotsky drew from the historical materialist concept of labour. In collaborative labour, the individual is not adapting to external surroundings in collaboration with others, but is collaboratively shaping the environment. The relationship is not reactive, but purposeful. In this collaborative activity, the individual negates her/his hereditary experience and is ‘artificially formed’. This artificial formation is what Vygotsky understands education to be. The human animal, figuratively speaking, is ‘artificially’ reformed in the process of education and developing a ‘second nature’ based on the socio-cultural reality of the collaborative activity he/she participates in. The individual *is* and *becomes* in collaborative labour by integrating tools and, therein, negating innate tendencies and endowments. The

transpiring notion of human nature derived from the individual-environment unit, as well as the inherent struggle at the heart of this unit – involving negation and reformation –, is a core foundation of Vygotsky's educational theory.

5.3.5 Vygotsky's non-externalist concept of environment

The artificial formation of the individual means the negation of hereditary experience through learning, or 'historical experience'. Learning is, following Vygotsky's notion of the primacy of the social, the process of integration of behaviours developed within collaborative, social activity (Derry 2013, 33). Simultaneously, in the process of transforming the learner, learning processes also transform the socio-cultural reality. This, we have mentioned above in relation to the notion of *Bildsamkeit*, is a constitutive part of the human condition. Stetsenko (2011) writes that these collaborative activities "also create and constantly transform their [the learner's, AN] very life, consequently changing themselves in fundamental ways, while, in and through this process, becoming human and gaining self-knowledge about the world." (33) In this process of existing within the socio-cultural reality, this reality receives its meaning, which "continuously and cumulatively evolve[s] through time, constituting the realm of social history and culture while being enacted" (Stetsenko 2012, 149).

Tools and social relations could easily be misunderstood dualistically to be part of an external environment that is shaping the development of the individual externally. However, according to what seems to be the common reading of Vygotsky, tools and cultural-historical artefacts involved in the process of integration are not ontologically static, but rather dynamic and interpretative. As discussed above, in Vygotsky, tools and historical artefacts do not hold an inherent, objective meaning, or functionality. Rather, they are interpreted in a social group (Stetsenko 2017). This means that in contrast to an idea of adaptation occurring in an external reality that is more or less given in its demands on the subject, the realm of human existence in Vygotsky is much more fluid. Reality, we follow Stetsenko (2017), is "understood as a unique realm that we not so much dwell or find ourselves situated in, but rather, that we agentively enact as co-creators". (181) Glassmann (2001) states, on that point that "it is not the activity that gives meaning to historical

artefacts, but historical artefacts that give meaning to the activity.” (7) This means that the meaning, use, and applicability of tools and artefacts are not externally predefined, but a matter of collaborative interpretation and participation. On my opinion, this reading of Vygotsky’s notion of tools not meaning ‘things’ or objectively existing structures, but rather a matter of social construction, is correct. Looking at Vygotsky’s writings, he states that “psychological tools are artificial formations. By their nature they are social and not organic or individual devices.” (Vygotsky 1925-30/1987, 85) Through their integration, the innate disposition of the individual is altered in accordance with the meanings and purposes developed in social interaction (Vygotsky 1925-30/1987, 158).

In subjecting to his will the process of his own reactions, man enters in this way into a substantially new relation with the environment, comes to a new functional exploitation of elements in the environment as stimulus-signs, which he uses, depending on external means, and directs and controls his own behaviour, controls himself from outside, compelling stimuli-signs to affect him, and elicits reactions that he desires. (Vygotsky 1930/1987, 63)

These meanings and purposes, I emphasise again with this quote, are not externally determined, but rather co-constructed in the social group changing the modus operandi of human activity from adaptation to purposeful collaborative transformation of the environment, or, in short, labour.

Reality is not a place or environment, but rather “a dynamic field or arena of collective practice” (Stetsenko 2017, 192). In Vygotsky, it follows, “social practices and their products are not reified at any analytical step in their descriptions.” (Stetsenko 2017, 193) This means that in Vygotsky’s argumentation, in which the *modus operandi* of adaptation is superseded in human existence, ‘the social’ is never turned into an environment with external demands. The way Vygotsky replaces an externalist notion of environment with a notion of participatory reality as the ontological realm of existence, I read in the context of his rejection of a Darwinian adaptation paradigm. The relationship replacing the adaptation paradigm in Vygotsky, is closely connected to Vygotsky’s ideas related to processes of integration and mediation: Humans, on that view, are no longer forced to adapt to the environment, or direct their activities at adapting the environment to them based on external pressures. Instead, human integrate the world into their activity, making

it a constitutive part of their nature. In the process of integration, not only “the natural process undergoes a profound reconstruction, being converted into a circuitous, mediated act” (Vygotsky 1930/1987, 55), but also the tools and cultural practices themselves are changed. In that very process, according to Vygotsky (1930/1987), they are “ceasing to be external” as they are “being reorganized into most complex internal psychological systems.” (55). The world and the individual move closer together, in that sense that the former becomes increasingly constitutive part of the individual’s activity; all that exists in the socio-cultural surroundings of the individual – be it material, or not –, is integrated into the individual’s mental operations. I use the term ‘socio-cultural’ to describe the ‘lifeworld’ of the individual because in Vygotsky culture and the social can be used virtually interchangeably as, for Vygotsky (1931/1987), “everything cultural is social” (106). Tools, therein, are understood to be changing in accordance with, and as an inducing entity of cultural development in society. They are changeable in essence; they are ontologically ‘in-progress’ and know no static existence (Marginson&Dang 2017, 119). On that view, tools – both material and psychological – do not have an existence outside of the social practices, which breaks up the internal-external dichotomy.

I have argued throughout this chapter that the developmental leap is the most important component of Vygotsky’s educational theory. In the process of participating in the collaborative practice that is labour, as we have established at this point, is where the educative process of the individual occurs and where humans create their own existence outside of the realm of adaptation. Through the integration of social relations into psychological functions, the individual supersedes hereditary, adaptive tendencies and develops a new mode of being in the world. What is missing from the analysis at this point, is the differentiation between learning and education. To that end, I will now focus in on the detailed nature of the educative process and its involvement in learning, and developmental leaps of individuals by looking at the role of instruction in Vygotsky’s notion of education as the artificial development of the individual through collaborative socio-cultural practice.

Through labour the human species has created – and keeps on creating – a new relationship with the environment. While other animals maintain a reactive,

adaptive relationship with their surroundings, humans purposefully create their surrounding according not to natural necessity, but within purposeful social practice. The emergent mental abilities that allow the leap into collaborative history-making are different from “the direct structure of elementary mental processes” (Vygotsky 1930/1987, 37) because they are supplemented by tools. The cognitive ability of doubled experience breaks up the immediacy in tool use found in animals and allows for a more flexible and purposeful use of tools in humans, than in other animals. This difference between humans and other animals, it is important to note, is not a mere quantitative elaboration of the former’s abilities. Instead, Vygotsky emphasises:

The history of development of each of the higher mental functions is not the direct continuation and further improvement of the corresponding elementary functions, but undergoes a radical change of direction in development and a subsequent movement of the process to a completely different plane. (Vygotsky 1930/1987, 42)

The leap from evolution to history, from adaptation to labour, marks the result of a process of negating the hereditary experience that humans share with other animals. It is a qualitative difference. As described above, on my reading, Vygotsky applied his views of phylogenetic evolution – and its transcendence through labour – to his notions of individual development. This means however, that it is yet to be established what the qualitative leap on the level of ontogenetic evolution consist of and how formal education and learning come into play.

5.4 Instruction, teaching and development

Thus far I have outlined the process of negation occurring within the individual’s growth through learning. From this it has not yet become clear, how, in Vygotsky’s understanding, education differs from learning. In order to arrive at what differentiates education from learning, I will now move on to introduce the crucial difference that Vygotsky makes between *learning* and *development*. After having introduced that important distinction, I will advance to specify the relationship between education and learning, and education and development with an evolutionary re-narration of Vygotsky’s ZPD.

5.4.1 Development vs. learning

Learning, in recapitulation of what has been said so far, is the primary condition for humans to create a realm of existence outside of adaptation. Through historical experiences made in processes of learning, individuals become increasingly self-determined in their activity. This self-determination allows for a particular form of relating to the environment, which Vygotsky called 'higher adaptation'. What is yet missing, is the clarification of how the leap is different from learning, and how educational practices are involved in that difference.

In Vygotsky, there exists an important difference between "development, a qualitative change", and the processes of learning that it arises from, which are in themselves "a cumulative change." (Roth&Jornet 2017, 28) As already discussed above, Vygotsky's concept of development is closely related to the historical materialist conception of human existence as struggle. Within this struggle various points of crisis give rise to qualitative changes in the way an individual relates to her/his socio-cultural surroundings. These qualitative changes, or leaps, are what Vygotsky means by 'development'. They lead to a fundamental change in the 'metabolism' of the individual-world unit. Vygotsky describes this metabolic change as:

The new structure of consciousness acquired at a given age inevitably signifies a new character of perceptions of external reality and activity in it, a new character of the child's perceiving his own mental life and the internal activity of his mental functions. (Vygotsky 1930b/1997, 199).

Development, on his view, is the result of "drama", of "living performance" (Stetsenko 2011, 32; see also Dafermos 2018, 184). Rather than being a gradual, accumulative, and fluid maturation, development emerges within processes of negation at the intersection of the individual's sociogenetic development and the social context of its participation (Dafermos 2018, 175). In these processes of negation, "not only the use of tools is developing, but also a system of movement and perception, the brain and the hands, the whole organism of the child." (Vygotsky 1931/1987, 21) Development, thus, in Vygotsky describes a qualitative leap, a break, a negation, rather than accumulation.

Vygotsky (1931/1987) criticised that amongst his contemporaries, “evolution as development by gradual and slow accumulation of separate changes continues to be regarded as the only form of child development.” (99) According to Vygotsky (1931/1987), the concept of development was confounded in psychology, due to a “cryptic evolutionism” dominating a child psychology paradigm in which “evolution and revolution seem incompatible” (99). In Vygotsky’ however, evolution gave rise to revolution; through the evolved capacity of humans for labour, the species superseded the evolutionary, i.e. adaptive, relationship with the world, and established a renewed, transformative, i.e. labour-based, relating. Evolution, therein, is not merely gradual accumulation, but also inherently dialectic in its enabling of breaks, leaps, and new forms of non-evolutionary development. On that point Vygotsky wrote:

The history of the cultural development of the child must be considered as analogous to the living process of biological evolution to how new species of animals developed gradually, how in the process of the struggle for existence, the old species became extinct, how catastrophically adaptation of the living organism to nature proceeded. (Vygotsky 1931/1987, 221)

It is important to emphasise again, that learning as everyday experiences accumulated as historical experiences are not what Vygotsky understood to constitute the leap. Learning is merely the process of historical experience negating hereditary experiences and, therein, giving rise to the leap, or the revolution.

In his own concept of evolution, Vygotsky attempted to merge evolution and revolution in the “socio-biological formation of the child personality.” (Vygotsky 1931/1987, 20) Evolution, therein, means the mixture between structural maturation, i.e. physical processes of growth that enable certain developmental processes to emerge (Stetsenko 2017, 25), and processes of learning (Roth&Jornet 2017, 28) that give rise to developmental leaps. The ontogenetic manifestations of these leaps are the result of a process of sociogenesis (Glassman 2011, 4). This means that the process of learning can be understood as a process of manifesting, altering, negating, and transforming hereditary potentials in relation to the socio-cultural context, which then give rise to new forms of individual-environment unity. Learning, therein, is entirely context-dependent; this makes development fundamentally linked to culture, instead of being biologically predetermined. It is a matter of learning

opportunities in combination with spectrums of innate potentials that enable certain developmental leaps and, therein, inform the relationship between the individual and her/his socio-cultural reality (Stetsenko 2012, 148). Regarding his conception of learning, Vygotsky resembles the doing-undergoing character of Dewey's growth understood as gradual development. The two differ, however, in that Vygotsky does not think of this process as accumulative, but instead as consisting of leaps: While Vygotsky's concept of learning resembles the movement of Dewey's growth regarding their gradual nature and focus on previous experiences, Vygotsky's concept of development conjures the moment when accumulation is interrupted, and a qualitatively different path of 'growth', or learning, begins.

Learning, in summary, in a Vygotskian perspective, can be understood as the precursor for development. Regarding the nature of the latter, Diaz et al (1990, 127) write that "the common denominators of these transformations or developmental changes are the decreasing power of immediate environmental contingencies and the increasing role of self-formulated plans and goals in the regulation of behaviour and cognitive activity." What transforms learning into development, i.e. into a qualitative transition from one way of relating to the environment, to another, we gather from Vygotsky's quote above, is 'another person'. It is not any other person, however. Rather, in Vygotsky, development relies on either a peer on a higher developmental stage, or, an adult, who can instruct the learner towards a development that yet lies outside its current constitution. Vygotsky opposed to contemporary psychologies that assumed that the child is fully equipped at birth and the environment does not create, but rather "elicit" (Moll 1990, 5) developmental paths. This 'elicitation', as I will explain in the following, in Vygotsky, is necessarily a pedagogical practice.

5.4.2 The Zone of Proximal Development

Instruction and pedagogical direction, we have established in the previous section, in Vygotsky, have "productive and unique consequences for development" (Derry 2013, 71). The ZPD is where learning, understood as the quantitative accumulation of historical experience, is transformed into a qualitative leap: "The special social situation that has a crisis-like qualitative change as an outcome is

designated in Vygotskian literature as the zone of proximate development.” (Roth&Jornet 2017, 148) In order to emphasise the particular role of pedagogically directed learning, i.e. instruction or teaching, in Vygotsky’s evolutionary perspective on human nature and culture, Vygotsky used an interesting concept in his original, Russian writings: *Obuchenie*.

Obuchenie can be translated as “instruction-learning” (Dafermos 2018, 165). It describes the unique processes of individual growth that come from pedagogical instruction; the concept, thus, emphasises the pedagogical aspect of development. Due to the combining of learning and instruction in one process, *obuchenie* also emphasises the collaborative character of educational practice in Vygotsky, where learning is not understood as an individualistic endeavour, but rather a collaborative activity (Roth&Jornet 2017, 149). Related to *obuchenie* is Vygotsky’s idea of the Zone of Proximal Development (ZPD), which Vygotsky defines as the

distance between the level of his [the child's, AN] actual development, determined with the help of independently solved tasks, and the level of possible development, defined with the help of tasks solved by the child under the guidance of adults or in cooperation with more intelligent peers. (Vygotsky 1934b/1987, 204)

It is in the ZPD that this process of negation takes place. In the instructive relationship, the learner is presented with ideas and concepts outside of her/his knowledge, or, with known concepts with a not-yet-reached level of abstraction. In that process, the child develops “conceptual thinking” (Vygotsky 1934a/1987, 134). At first instance, based on experience, the child reforms unordered “heaps of objects” (Vygotsky 1934a/1987, 134) into complexes based on “concrete-empirical thinking rather than on the plane of abstract logical thinking” (Vygotsky 1934a/1987, 137). With increasing experience, these complexes are connected amongst each other and so-called “pseudo-concepts” are formed. These pseudo-concepts build the fertile ground for pedagogical elevation as they are contrasted with scientific, or “true concepts” (Vygotsky 1934a/1987, 167).

These true concepts, according to Vygotsky, seem to present the existing meaning of things and tools in the socio-cultural reality of the child’s upbringing. They are true in the sense that they demonstrate logical and consistent relations to

other concepts (Derry 2013, 73). Scientific concepts do not emerge in everyday experience. Rather, they “develop in the process of a systematic school education” (Dafermos 2018, 161) Scientific concepts also differ from everyday concepts in the way they develop; while everyday concepts are subject to revolutionary negation, scientific concepts “do not undergo a process of development in the true sense of the word” (Vygotsky 1934a/1987, 169). Instead, their transformation is gradual, i.e. evolutionary, based on the mechanism of cultural inheritance that is educational transmission/enculturation. Vygotsky emphasises: “The child does not create the complex that corresponds with the meaning of a word but finds it ready made” (Vygotsky 1934a/1987, 145). Eventually, however, after this process of enculturation, the aim of pedagogical direction is to “free the child from the directing influence of the words of adult language with their developed and stable meanings.” (Vygotsky 1934a/1987, 143) Only then, after the cultural transmission that preserves historical inheritance, can the child engage in the collaborative practice of co-construction based on negation of existing meanings. Learned scientific, or ‘true’ concepts demonstrate a “readiness for action” (Vygotsky 1934a/1987, 169), meaning, they can henceforth function as a tool in purposeful activity.

The precursor for the transformation of everyday concepts into scientific concepts are processes of learning. In the words of Vygotsky (1934a/1987): “The development of everyday concepts must reach a certain level for the child to learn the scientific concepts and gain conscious awareness of them.” (219) Once the developmental threshold is reached, the ZPD comes in place, creating a space for *obuchenie* (instruction-learning) leading to a qualitative leap in the child’s development. In the leap, the everyday concepts are negated through the integration of their more abstract scientific ‘equivalent’ (Vygotsky 1934a/1987, 217). Without instruction, the child’s concepts remain everyday concepts based on direct experience (Derry 2013, 71; Dafermos 2018, 161). These concepts are inferior to scientific concepts in that they do not allow for the developmental leap of the individual into a transformation- and collaboration focused relation to her/his socio-cultural surroundings. Vygotsky emphasises:

Our data indicate that the weakness of the everyday concept lies in its incapacity for abstraction, in the child’s incapacity to operative on it in a voluntary manner. Where volition is required,

the everyday concept is generally used incorrectly. (Vygotsky 1934a/1987, 169)

In the ZPD, we follow, the child develops its own mental functions, while at the same time is being put into the position “through the adult’s assistance and participation” (Vygotsky 1934a/1987, 169) to participate in the collaborative practice that is human labour. With the developmental leaps from every day to scientific concepts, the child gains increasing voluntary control over the ‘metabolism’ defining the individual-world-unit. They are the foundation of developments that allow the learner “to act in the world in a new way.” (Derry 2013, 76)

According to Kozulin (2015b, 326), even though the ZPD is one of the most popular concepts of Vygotsky, it is often misunderstood to engender a sort of pedagogical availability, or an educational instrumentalism – it “denotes a principled account of distinctly human activity rather than a special kind of educational technique.” (Roth&Jornet 2017, 149). A similar verdict can be found in Chaiklin (2012, 58), who notes the emergence of an understanding of an external constructability of denoted developmental processes by the teacher in the context of discourses employing Vygotsky’s ZPD. Roth and Jornet (2012, vii), and Derry (2013) associate this simplified, instrumental perspective with the recent popularity of Vygotsky in the context of constructivism. As already transpired from the above analysis in the context of Vygotsky’s idea of sociogenesis, development consists of a dialectic between biological inherited possibilities and their manifestation in socio-cultural realities. As Derry (2013) formulates, on a Vygotskian view, education “involves the ‘relocation’ of ideas” (96). In other words, we can only make the developments for which we have reached the threshold through sociogenesis. On this view, teacher-centred instruction and child-centred learning, top-down and bottom-up processes merge. The ZPD does, therefore, not mean that development can be externally determined; the ZPD, instead, has to be understood as a zone of potential. It is not an artificial construction of the teacher, but rather a result of the struggles arising from the individual-world-unit (Roth&Jornet 2017, 247). It is, therefore, more about the pedagogical relationship, the collaboration, than about the directed processing of subject matter on the side of the students. In the process of learning, the learner also co-constructs, together with the instructor, the socio-cultural reality.

5.4.3 The teacher's pedagogical expertise and cultural evolution

As noted, Vygotsky believes that development is the result of the pronunciation, manifestation, and elaboration of innate hereditary tendencies through processes of learning. Processes of learning, on Vygotsky, are inherently social. Vygotsky writes on that point:

The whole history of the child's mental development teaches us that from the first days, his adaptation to the environment is achieved by social means through the people around him. The path from the thing to the child and from the child to the thing lies in another person. The transition from the biological to the social path of development is the central link in the process of development, a cardinal turning point in the history of the child's behaviour. (Vygotsky 1930/1987, 20)

With the idea of ZPD, it seems, Vygotsky sought to translate his notion of sociogenesis into an education concept. The ZPD incorporates the nature of struggle that human educative processes emerge from, making humans neither entirely a product of their circumstances, nor biologically determined. Processes of learning happen within a specific socio-cultural reality; "it was always the environment that educated" (Vygotsky 1925-30/1987, 160), Vygotsky emphasises. The mind, on that view, "cannot be conceived as an attribute of an isolated individual." (Derry 2013, 15) Development is the result of thresholds occasioned by learning processes "created by social activity" (Derry 2013, 44), and their negating influence on hereditary experiences and established cultural tools. In order to learn, and give rise to developmental opportunities, we gather, the individual has to be able to participate in collaborative activities. It is through the collaboration with others that humans are able to move beyond an adaptive relationship with their surroundings and supersede it with a transformative purposiveness.

Relationships amongst peers and experiences made in *everyday interaction*, are important for learning. Development, however, in Vygotsky, relies on *pedagogical interaction*. One of the core implications of *obuchenie* is that teaching, on a Vygotskian perspective does not focus on what the child can already do by itself, but instead observes what the child can *almost* do or achieve with the help of others (Vygotsky 1934a/1987, 198): "Determining the actual level of development is the most essential and indispensable task in resolving every practical problem of

teaching and educating" (Vygotsky 1930/1987, 200) Even though peers could technically function as cooperative partners within the ZPD, the teacher does by no means become obsolete. On the contrary, within the ZPD and its leading to development in the individual, the pedagogical expertise of the teacher is key. It cannot be expected from a further developed peer to acknowledge the ZPD and exploit it productively (Chaiklin 2012, 43).

While learning in the sense of Vygotsky's *obuchenie*, the child makes developmental leaps. The ZPD, thus, is important both as a realm for socio-cultural evolution, and for the development of the individual level. On Vygotsky's view, developmental leaps understood as the establishment of a new 'metabolism' – to draw from this Marxist metaphor again – are only possible as the result of instruction. That is, because in the words of Vygotsky (1934a/1987), instruction is able to move ahead of the learner's development, and "when it does, it impels or wakens a whole series of functions are in a stage of maturation lying in the zone of proximal development." (212) In Vygotsky, the development of new forms of mental activity – introducing a qualitatively different manifestation of the individual-world-unity – does not emerge naturally in experience but comes in a "qualitative jump" in adolescence, "dependent on specific types of social interactions" (Glassman 2001, 10), namely, pedagogical interactions. On that point Vygotsky (1934a/1987) emphasises that the interaction between adult and child forms "the central element of the educational process." (169) This perspective assigns an entirely new value to educational practice in the role of development – both of individuals, and society. Development, on that view, is not merely learning as an individual experience in a prepared educational environment, but a new way of relating to the world within collaborative labour (Derry 2013, 15).

Besides the pedagogical expertise that allows for developmental leaps, another reason for singularizing pedagogical relationships – i.e. relationships between teacher and learner – from other social relations that furnish learning, is the fact that the human species' particular position at the intersection of nature and culture relies on cultural processes of evolution to be established. Because non-hereditary experience can only become history through the establishment of an alternative, non-physical systems of transmission. Consequentially, it follows, that for Vygotsky (1925-30/1987), educational practice and "the pedagogical problem stands at the

very centre of the new viewpoint on the mind of man.” (148) It is through the purposeful direction of the individual’s development towards the integration of the meaning of existing cultural tools that the child becomes a member of society, participating in the further elaboration of these tools within cultural evolution. Teaching, on that view, is the ‘motor’ of cultural evolution; without teaching, and the elevation of everyday concepts into scientific abstractions, culture would simply not exist over the generations.

5.5 Implications of a Vygotskian theory of education

I conclude this chapter with a discussion of the philosophical implications of the evolutionary re-narration of Vygotsky’s educational concepts presented in this chapter. Specifically, I aim to discuss the meaning of an evolutionary reading of Vygotsky’s concept of development for the question of the aims of education and teaching, and how an evolutionary perspective – considering Vygotsky’s particular Marxist-Darwinian ‘hybrid’ evolutionism – might promote a new, richer understanding of some of the concepts in Vygotsky. Before I begin this final analysis, I will reiterate for clarity the findings of this chapter and contrast the perspective I have presented here with the current adoption of Vygotsky in constructivism.

Vygotsky defined education as the artificial formation of the individual. Education, on that view, is the transformation of interpersonal tools into intrapersonal cognitive abilities. The socio-cultural reality is, therefore, constitutive to the artificial formation of the individual in the sense that it provides the tools for the collaborative transformative labour within the community or group. I have described this process of integrating tools into cognitive functions in the context of Marxist negation. In that process, hereditary experiences are negated by conditional, historical experiences. The ability to be formed by education, the ability to go through this process of negation, i.e. *Bildsamkeit* understood as an anthropological trait, in Vygotsky presents a uniquely human capacity, which – although an evolved trait – in Vygotsky’s perception has led to a phylogenetic leap from an adaptive-focused relationship between humans and the world, to a transformative, labour- and collaboration-focused relating. In Vygotsky’s post-adaptation evolutionism, the

ontological reality, the realm in which the struggle takes place, is not an environment understood as something external to the subject, but rather the relationship of transformation connecting the individual and the world itself (Roth&Jornet 2017, 36). This introduces a fundamentally anti-dualistic perspective on human development in and of the world.

On the level of ontogeny, *Bildsamkeit* manifests in the ability to negate innate tendencies and capabilities in relation to the socio-cultural reality. This process describes Vygotsky's concept of learning. The learning process happens through the reworking of unconditional reflexes into conditional reactions through the help of the mediation of innate activities with cultural tools. Cultural tools as well as social relations, within that process, are integrated into the individual's cognitive activities. Based on a combination of these learning processes and structural changes due to maturation developmental crises, or thresholds emerge, allowing for qualitative leaps into fundamentally different modes of functioning within the individual-world-unit. These changes of 'metabolism' are, in Vygotsky, what development means. They are revolutionary, rather than evolution in nature. The ongoing dialectic process of 'arming and re-arming' within tool and social mediation, in Vygotsky's Marxist perspective, is understood as a struggle between hereditary and historical experiences defining the relationship between individuals and their environment (Vygotsky 1925-30/1987, 158).

Growing, involving the individual's maturation, learning, and development, Vygotsky (1931/1987) emphasises, "often involves conflict. The old form is forced out, is sometimes completely disrupted." (221) Developments, therein, are thus less evolutionary than revolutionary, accompanied by negation, rather than continuity and accumulation. Revolution and struggle, however, are not negative concepts. Rather, as Vygotsky (1925-30/1987) emphasises, it is the ability to engage in a struggle that continuously purposefully transforms the relationship between the two that allows humans 'to step out' of the laws of biological evolution and create their own history: "Man's behaviour is revealed in all its real complexity, in its grandiose meaning, as the dynamic and dialectic process of a struggle between man and the world and within man." (157). As already alluded to above, pedagogy and cultural transmission through educational practice are a key component of that process of the formation of new mental forms. Learning, or historical experience, in Vygotsky is only possible in a

social context and particularly relies on the purposeful introduction of the new generation into culture.

5.5.1 Education as a cultural practice

Vygotsky's notion of labour has profound implications for his concept of education as a cultural practice. The ability for collaborative labour directed by doubled experience – i.e. to direct purposeful transformative activity according to a plan, rather than a mere reaction to external stimuli – through the flexible application of cultural tools, therefore, is a key component of the particular phylogeny of the human species. This gives a central role the cultural initiation of the younger generation a central concern in Vygotsky's evolutionary concept, and, in particular, in the context of his idea of the leap through labour (Vygotsky 1931/1987, 1). In pedagogical interaction, the younger generation is introduced into culture, learns to apply and further develop its tools by participating in collaborative activities with other, more initiated members of this culture. This transmission of culture, which Vygotsky understands to be entirely disconnected from any notion of biological development of maturation, relies on a pedagogical relationship; individual interacting with the environment and its tools, on that view, is not sufficient as it is the social relation that forms the cognitive ability to apply the tools. Vygotsky (1930/1987) writes: "Man, owing to the features of his adaptation (use of tools, work activity), the development of artificial organs replaced the development of natural organs." (16)

Learning, we begin to understand from this quote, and its pedagogical initiation, receive a special role in the particular place that the human species inherits in evolution, and outside of it. Through the unique formability (*Bildsamkeit*) of humans, at first instance, the learning negation of hereditary experience becomes possible, elevating the species onto a level of higher adaptation. At second instance, however, – and this is the most significant point from an educational perspective – *obuchenie*, i.e. the learning effects achieved in the ZPD as a result of the pedagogical recognition and manifestation of developmental thresholds, is what furnishes the leap into a novel realm of human existence, outside of adaptation. It follows, thus, that educational practices in society directed at the transmission of

cultural artefacts and tools is a constitutive part of human phylogeny, i.e. the leap from evolution to history.

5.5.2 The pedagogical dimension of development

In Vygotsky, education differs from learning in at least one capacity. Learning describes the accumulative process of historical experiences made by an individual through the participation in everyday socio-cultural activity. While learning is a core element of the educative process, i.e. the artificial development of the individual in culture, it is only through the pedagogical direction of the learning process through educationally purposeful practices like instruction and teaching, that it can be transformed into development. Development, on that view, is the qualitative leap into a functionally new realm of existing in the world; it goes beyond learning and manifests not as accumulation, but as negation. Development, I have argued, is one of the most significant concepts of this evolutionary re-narration of Vygotsky's educational concepts as, considered through an evolutionary lens, its qualitative difference to learning becomes more pronounced. Development, in Vygotsky, is the ontogenetic equivalent to the phylogenetic emergence of labour as an entirely novel way of the human species relating to the world. This is relevant in the context of his educational theory because he connects the leap to *obuchenie*, i.e. instruction-learning. Education, understood as the artificial formation of the individual through teaching, thus, can be conceptualised as a constitutive part of these qualitative developments unique to humans.

The connectivity of teaching to development, rather than learning, fundamentally puts up for question a knowledge-oriented conception of teaching (Chaiklin 2012, 43). As Kozulin (2015a, 25) points out, from Vygotsky, we derive an important differentiation between learning understood as "content learning", and learning understood as the "appropriation of tools". Based on Vygotsky's idea that cognitive development occurs as tools are integrated into mental activity after they have been employed in collaborative labour, the focus of teaching objectives has to move away from knowledge transmission for acquisition, to mediated collaborative activity between teacher and learner.

What differentiates the teacher from other peers in the context of learning processes and their giving rise to development, in Vygotsky, is the pedagogical deliberation. Kozulin (2015a) writes: “if there is no intentionality of the teacher-mediator, psychological tools will not be appropriated by the students or will be perceived as another content item, rather than a tool.” (26) From this follows that cultural initiation as an aim of education is not merely a matter of transmitting current knowledge. Instead, on a Vygotskian perspective, the learning processes sparked through cultural initiation in teaching only lead to development, if knowledge, cultural habits and socio-cultural artefacts are transmitted in their capacity as tools. As discussed above, tools do not hold an objective inherent meaning. Rather, they receive their meaning in collaborative transformative activity. This puts heightened emphasis on the collaborative element in the teacher-learner relationship, which, on that view, is constituted by collaborative, tool-mediated activity between the teacher and the learner. The teacher, on that understanding, is less an instructor, and more a collaborator in mediation. Cultural practices like reading and mathematics only go beyond content if they are being taught – understood in the just introduced Vygotskian interpretation of teaching – as tools.

5.5.3 A Vygotskian concept of *Bildung*

The specific evolutionary framework that Vygotsky applies yields important ontological differences to the other frameworks introduced in this thesis so far. In contrast to Spencer and Dewey, Vygotsky thinks of development primarily in cultural terms. While innate dispositions and endowments play a role in the negating process that is the educative artificial formation of the individual, it is socio-cultural realities and the collaborative interaction with the tools and artefacts of that reality that, in Vygotsky, shape learning and enable developmental thresholds. Particularly interesting, from an educational point of view, is arguably the high importance that Vygotsky assigns to teaching in developmental processes. In the ZPD, it is through instruction and pedagogical direction that qualitative developments are made possible that negate the ‘old ways’ of doing something and replace them with a new relating to the world. I have argued that the leap-character of development and the constitutive role of pedagogical direction within educative processes is founded in the evolutionary underpinnings to Vygotsky’s thinking. I want to argue further that in

an evolutionary reading of Vygotsky's ideas of learning, teaching, and development we can also detect a notion of *Bildung*.

Vygotsky does not explicitly provide a concept of *Bildung*. It also appears to me that in the educational Vygotsky scholarship, there is not strong association made between Vygotsky and a concept of *Bildung*. I argue, however, that the evolutionary perspective that I have offered in this chapter point toward the merit of exploring such an association. Learning and teaching, I argue, on a Vygotskian perspective are closely linked to processes of life-long formation, or *Bildung*. In Vygotsky, due to the evolutionary underpinnings that inform his educational concepts, learning, with the help of *obuchenie* (instruction-learning) that unravels within a pedagogical relationship with a teacher, leads to development. Developments, understood as the ontogenetic leaps that negate innate characteristics of the learner and replace them with historical experience, are thus closely connected to school-learning. Transformation, however, receives such a central role in Vygotsky – and ontological role, in fact – that I contend it to be false to reduce Vygotsky's idea of development to school-learning, or even young age. Therefore, despite the potential risk of some concepts of *Bildung* to neglect the societal dimension of individual development, I argue that to contemplate Vygotsky as a thinker of *Bildung* might help to escape the connotation of his concepts as mainly focused on academic learning.

The requirements for developments, in Vygotsky, are collaborative practices that allow oneself to elevate one's everyday concepts into abstract, scientific concepts. In the case of children, the pedagogical expertise of the teacher is necessary to create that zone of development by recognising current developmental potentials. Without wanting to suggest a reading of the ZPD as a subjective tool for construction, "thus reinforcing the mentalism and dualism" (Roth&Jornet 2017, 13), I argue that it is well conceivable in a Vygotskian framework that as adults, we are able to create those developmental zones for ourselves. As adults, I want to entertain the idea, we do not longer rely on the pedagogical expertise of a teacher to create experiences that allow us to negate our existing everyday concepts. I think that by recognising and seizing developmental potentials – adults can choose to engage with others on whatever matter or problem we want, we can travel, read, go to therapy. We can, thus, become true agents of our process of *Bildung* if we understand our *Bildsamkeit* as so fundamentally connected to the socio-cultural

realities we, as children, are exposed to, and, as adults, we expose ourselves to. What such a Vygotskian concept of *Bildung* emphasises is the dimension of 'struggle' in processes of self-formation, yet, without making the inducing of those struggles an external matter. Personal growth and transformation of the self, I argue, on a Vygotskian perspective can be connected to an agent striving for autonomy, self-determination and freedom from internal and external constraints.

5.6 Conclusion

In this chapter I presented a re-narration of some of the core educational concepts in Vygotsky's works with a focus on their evolutionary underpinnings. The analysis of those underpinnings has shown the evolutionary lens is indeed able to shed some novel light on some Vygotskian concepts like development, learning, and, in particular, the ZPD. Informed by the Marxist interpretation and supplementation of Darwinian evolution in his social theory, Vygotsky redefined human nature in a post-adaptation paradigm focused on the transformation of the world through collaborative labour. Following that post-adaptation paradigm, Vygotsky believed that development is revolutionary rather than evolutionary. Development, on his view, happens in leaps. Humans are formed through their participation in collaborative activities. In those collaborative activities, they integrate cultural tools and artefacts in their mental operations, making them psychological tools. This integration of tools into psychological functions, in Vygotsky, is the learning process. In processes of learning, innate tendencies and endowments are negated by historical experience. Human *Bildsamkeit*, in a Vygotskian perspective, is based on the negation of innate tendencies and endowed capacities through learning.

Through this process of learning, the individual becomes increasingly 'artificially formed' by the socio-historical reality she/he acts in. This artificial formation of the individual is what Vygotsky describes as education. Education, in Vygotsky, is a broad concept that describes a life-long process occurring both within and outside of formal educational settings. Formal education and school, however, receives a special role in Vygotsky's theory of education. At some points in that process, resulting from a combination of maturation and learning processes,

developmental thresholds emerge. At these thresholds, the individual is able to move to a qualitatively different level of activity – this ability, however, relies on pedagogical direction to manifest. Developments that emerge from the ZPD are different from the ongoing, accumulative learning processes due to their negating nature. They only occur as a result of *obuchenie*, i.e. instruction-based learning in the ZPD. The teacher, with her/his pedagogical expertise acknowledges the developmental potential of the individual and helps her/him to negate and reform her/his everyday concepts with the equivalent abstract scientific concepts.

What a Vygotskian concept of education provides, I conclude based on this chapter's analysis, is an emphasis on purposeful transformative processes through collaborative participation. Changes in society and culture, on that view, are the result of collaborative purposeful activities, rather than externally induced processes of adaptive growth. And the individual's development is not the manifestation of innate tendencies, but their negation and artificial, i.e. cultural, reformation. Perhaps one of the most important implications of an evolutionary reading of a Vygotskian theory of education is an understanding of human *Bildsamkeit* as a process of negation. In a Vygotskian theory of *Bildung*, I suggest, *Bildung* conceptualised as the constant struggle to negate our innate tendencies, to be free from the environment, to overcome the environmental pressures that force us to adapt. The aim of education is to enable those processes of *Bildung* for the individual by supporting her/his successful integration of the socio-cultural tools available, which then, in turn, become psychological tools in the increasingly autonomous process of self-formation.

Comparing Vygotsky's use of evolutionary concepts in furnishing his educational theory to Spencer demonstrates the versatile nature of an evolutionary framework in the context of educational theorising. Moreover, in comparing Vygotsky and Dewey to Spencer in terms of the increased intricacy with which educational processes are described, and the growing emphasis put on pedagogical relationships and teaching, the considerable simplicity of thinking education as the subject's 'adaptation to' a pre-determined environment becomes apparent. In the following chapter, I will, first, draw the findings of the hermeneutical analyses of these three thinkers together with the aim of developing a broadly conceived understanding of 'evolutionary educational theory', and, second, look at evolutionary

ideas and concepts perpetuated in the current educational discourses surrounding PISA.

6. Evolutionary Educational Theory

The overarching aim of this study is to make a significant theoretical contribution to the development of a concept of evolutionary educational theory. To that end, in chapter 2 I developed an analytic framework to help the analysis and assessment of evolutionary frameworks, which was then applied to the study of the evolutionary underpinnings in the educational works of Herbert Spencer, John Dewey and Lev Vygotsky. In this final chapter, I summarise the findings of this thesis and explore how they are able to inform current educational discourses.

The first question I seek to answer in this summary is how different evolutionary frameworks have informed educational concepts. As I have attempted to demonstrate throughout the chapters, education looks back on a rich and varied history of educational thinkers with a vivid interest in evolutionary theory. The purposeful selection of three key thinkers within the intellectual history of evolutionary educational theories – based on the criteria of difference – has shown that different evolutionary concepts yield highly different consequences on educational concepts. Standing out in particular, I argue, is the concept of adaptation associated with ideas of learning, and the associated definitions of teaching, which I will focus on after the general summary. It is the aim of this thesis to contribute to the clarification of conceptual ambiguities surrounding definitions of learning as adaptation, which have become particularly popular recently, in the so-called learning sciences (Hollis 2012), and are a constitute part of the rhetoric displayed in neoliberal discourses in the context of educational policy and curriculum reform.

To think about how the studied traditions of evolutionary reasoning continue to influence current discourses, in the second part of this chapter I will analyse the currently popular and influential concept of learning and adaptation used in the documents and publications of the Programme for International Student Assessment (PISA). While PISA is an empirical-comparative study, and not an educational theory in its own right, its results yield a profound influence on educational policy, curriculum, practice, and theory. The way PISA has contributed to the definition of learning as a means of a particular kind of adaptation – as I aim to demonstrate with my analysis – has a significant impact on how we define the

aim of education, as well as teaching, pedagogy, and the aims of schooling (Steiner-Khamsi 2012; Grek 2012; Takayama 2012). It will be the contribution of this study to provide an analytic framework that allows us to clarify PISA's concept of adaptation, and reflect upon the virtually hegemonial impact that it has on how we think about education today.

Lastly, I address the question of what, based on the findings of this study, can be said about the potential of an evolutionary framework in educational theory. What are the potential benefits and contributions of an evolutionary perspective in educational theory? And what can be gained epistemologically from acknowledging the evolutionary underpinnings in educational concepts? I contend that the in-depth analysis of the philosophical implications of different concepts of adaptation and learning presented in this thesis is able to shed some new light on PISA's philosophical implications and open a discussion of alternative views on education, beyond PISA. Without developing such an alternative perspective fully, I aim to sketch out some of the perhaps not yet fully explored evolutionary perspectives on learning, teaching, and educational aims and practices that might be worthwhile pursuing in future research.

6.1 The evolution of evolutionary epistemologies in educational theory

In this thesis I have studied the evolutionary underpinnings in the educational theories of Spencer, Dewey and Vygotsky. These three thinkers were chosen based on their difference in historical, intellectual and philosophical context, epistemology, and evolutionary ontology. I have built on those differences in my analysis to show how diverging evolutionary frameworks play out in the context of educational theorising. Dewey and Vygotsky remain popular figures in educational discourses today. Spencer's utilitarian-evolutionary theory of education, while by no means being part of the current mainstream educational discourse, provided an important contrast for comparison that enriched not only the analyses of Dewey and Vygotsky but also the overarching development of a concept of 'evolutionary educational theory'. Moreover, as I will argue, while Spencer might be a somewhat forgotten

figure, his understanding of education as the subject's 'adaptation to', is resonating today, in the context of a neoliberal agenda in educational thinking.

In the analyses of the three thinkers I focused on how each of their specific interpretation of evolutionary theory informed their concept of education, the definition of educational aims, the locating of educational practices within society, as well as the pedagogical relationship it envisions or proposes. I now summarise the findings of these analyses along the historical and conceptual narrative presented in this thesis.

6.1.1 Spencer – A utilitarian-evolutionary theory of education

Spencer was the first to introduce an evolutionary framework to education (Muhri 1991, 309). He used his own theory of evolution that he developed over numerous volumes in his *Synthetic Philosophy* (1862-93). He assumed that evolution is a pre-determined and lawful movement that manifests in all phenomena and things in the cosmos. The evolutionary movement, on Spencer's view, is pre-determined in its trajectory and ceases its movement in reaching equilibrium. Epistemologically, his evolutionary theory is 'bottom-up' and reductionist, as he assumed the laws of biological evolution to apply cosmologically. This means that the evolution of society and the evolution of nature, in Spencer, are functionally the same. Any conceptual distinctions between different types of evolution are thus merely theoretical on a Spencerian perspective (Spencer 1892c, 8). Society and culture, on that view, are mere artificial concepts with no inherent qualities on their own.

Spencer applied his concept of evolution to a wide range of areas of inquiry spanning from the natural sciences, over psychology and sociology, to education (Andreski 1971, 7f.). To formulate his social philosophy, Spencer combined his own evolutionary theory with utilitarian moral philosophy (Weinstein 1998, 120). His understanding of utilitarian morality diverged from contemporaries like Mill in that it contained a pre-defined vision of the ideal state. Liberty of action, on that view, was instrumental to the free unfolding of the evolutionary movement. Because Spencer was Lamarckian he believed that evolutionary change occurs through adaptations that are inherited (Spencer 1850, 87). If everyone was able to freely exercise one's

“faculties” (Spencer 1850, 44), natural selection would ensure that the ‘undesired’ or ‘unfit’, over the generations would be ‘weeded out’, which, ultimately would lead to the genetic improvement of human nature. Only once human nature is perfectly adapted to the society of equal freedom, struggle and competition come to an end in equilibrium. Compliance with his understanding of utilitarian morality, on that view, was thus constitutive to the development of ideal society and ideal human nature. Charity, welfare, and any other kind of support given to people struggling in society, on that perspective, disturbs the evolutionary trajectory, and thus, unnecessarily prolongs suffering (Mack 2001, 1637).

Education, both in schools and in the family, on Spencer’s view, are part of a potentially detrimental artificial interference with the natural trajectory of societal evolution (Spencer 1850, 174). Consequently, his evolutionary social philosophy lead Spencer to develop what I have called a theory of anti-education. He used a normative idea of the ‘natural’, that he associated with free competition and negative selection, to contrast the artificial design of educational intervention practised in schools and outside (Trompf 1971, 204). Only if ‘nature’ is allowed to unfold freely – which, in Spencer meant unfolding according to the utilitarian law of equal freedom – the progressive trajectory of evolution can unfold and lead to equilibrium. The positive intervention with that trajectory that he saw practiced in educational institutions of his time, he deemed not only seen as futile in the long run, but as actually immoral as it merely prolongs suffering in the shorter term. The aim of education, as Spencer envisioned it based on his evolutionary social philosophy, ought to be to prepare for ‘complete living’ i.e. to prepare individuals to make a living, maintain physical health, and rear offspring (Spencer 1889, 30).

Spencer’s evolutionary educational theory, I conclude, lacks two crucial elements to make a useful contribution to educational concepts. First, Spencer’s social philosophy does not provide an adequate concept of culture (Silberman 2003, 108f.). The present socio-cultural reality, in Spencer, is conceptualised negatively as an artificial, transitory moment on the path towards equilibrium. Because behaviour, social customs, and morals are transmitted not through learning, enculturation, and pedagogical practices. Instead, all transmission happens biologically. This has profound implications for the nature of his concept of education: Instead of associating the nature of education with intergenerational learning or cultural

transmission, Spencer locates education within Lamarckian inheritance. Therein, the aim of education is to prepare the individual in the best possible way to inherit certain traits to the following generation. Second, Spencer's educational theory misses a social dimension. Individuals, in Spencer, are seen as organs of the societal organism that have no relevant overlap. Collaboration, therein, is irrelevant, and potentially even detrimental. At no point in Spencer's educational writings can there be discerned a notion of social learning, or a relationship between learners and teachers. The educational subject fully dissolves in the future oriented focus and the macro-perspective of Spencer's teleological evolutionism, that focuses solely on the societal organism and its constitution in the future. The 'educational present' is reduced to the protection of the natural laws of the evolutionary trajectory to unfold. The pedagogical relationship, the interaction between learners, the methods of teaching, and so forth, remain utterly undefined.

6.1.2 Dewey's pragmatic Darwinian philosophy of growth and education

Just like Spencer, Dewey wanted to use an evolutionary framework to locate humankind in nature. He wanted to explain processes scientifically that fell outside of the traditional realm of the natural sciences – the mind, culture, society, and education. Dewey shares with Spencer, what Godfrey-Smith (1996, 4) calls an 'externalist perspective', which means that they both think of development to some extent defined by the environment. The commonalities, however, end right there. Dewey was a candid critic of Spencer, especially regarding his theory and concept of evolution (Dewey 1904/2008). Even though categorically, they are both externalists, Dewey conceptualised the relationship between individual and world fundamentally different. With reference to the competition focus in Spencer, Dewey critically asks: "Why should we expect that which counts among the carnivora to count with man, social animal?" (Dewey 1898/2008, 43) He thought of the individual and the world standing in a relationship of simultaneous adaptation. The 'world', or the 'environment', for Dewey, is both material and social. The social environment, however, is particularly relevant for individual activity as in interaction and communication with others, common meaning is created.

I have argued in the analysis of Dewey, that he used his concept of growth to define adaptation as an open-ended, contingent and unceasing process directed by functionality. In that process the individual and the world (material and social) change actively and passively, in a back and forth of doing and undergoing. At the heart of this adaptive process is experience. Experiences are the back and forth between actions and consequences that the individual lives through while acting in the world. Experiences that are accompanied by reflection – so-called educative experiences – allow the individual to connect the connection between her/his actions and the consequences that occur in return and learn from it. To learn from experience, thus, means the ability to derive something from experience – a skill, an insight, knowledge – in a way that benefits the conduct of future activities. Growth describes the learning process occurring as a consequence of the ongoing doing and undergoing and the concomitant process of transformation of the individual and the world. This transformation is fluid and temporal, rather than fixed. It is accumulative in the sense that growth always builds upon the present condition. It is not, however, accumulative in the sense of an objective improvement. I found Saito's (2005) image of "circular expansion" (77) most helpful to envision this movement of growth, and to distinguish it from Spencer's idea of an upwards trajectory.

Dewey defines education as the process of 'reconstructing and reorganising' experiences. This reorganisation of experience happens both in the context of pedagogically prepared learning environments, and in everyday interaction and communication (Benner 2017, 266). Therein, Dewey's evolutionary concept of education provides a notion of educative processes, or growth, after maturation from a school or family education context. In contrast to Spencer, in Dewey, educational institutions and practices play a vital role as they provide 'concentrated' educational environments fostering the enculturation of the younger generation (Hansen 2002). While in Spencer education is not directly involved in the formation of human society and culture, but merely indirectly in ensuring the undisturbed process of selection that then leads to the biological improvement of human nature, in Dewey, educational processes are fundamentally important to development. Educational experiences leading to growth are vital both for the development of the individual and the transformation of society.

Due to the extensive nature of Dewey's concept of education, a number of scholars have associated Dewey with the humanistic concept of *Bildung* (Biesta 2016; Rorty 1979; Benner 2017). I have argued, however, that if we read Dewey's educational theory in an evolutionary perspective, the association of education as growth with *Bildung* might actually underrepresent the necessary societal dimension in growth. By thinking of growth as an alternative to *Bildung*, the concept is able to shed some light on longstanding points of criticism directed at the concept. To illustrate this difference between *Bildung* and growth I have drawn from Litt's (1957; 1960) problematisation of an understanding of *Bildung* as the internal transformation of the self. On his view, even though *Bildung* occurs in exchange with the world – and therein, certainly also leaves a mark on the world –, *Bildung* eventually returns to the self. Scholars like Greene (1978) and Saito (2005) have pointed at comparable problems in certain readings of Dewey's growth as individualistic. To add to that discussion, I have argued based on an evolutionary reading that growth entails the transformative 'return to the self' and the world simultaneously. I have argued that this simultaneity is what distinguishes Dewey's growth from *Bildung*; it opens a space for processes of *Bildung* to be thought of relevant for social progress, rather than mere 'perfecting of the self'. I have also argued that this simultaneity derives directly from the evolutionary underpinnings in Dewey that set a focus on adaptation as fluid, never-ending, non-predetermined, and, most importantly, involving both movements of active and passive, of 'adaptation to', and 'adaptation of'.

6.1.3 Vygotsky's development-focused Marxist pedagogy

Just like Dewey, Vygotsky wanted to use an evolutionary framework to explain the connection between development of the mind and society, while also overcoming a Cartesian worldview (Kozulin 2015b). While Dewey's 'strategy' was to develop an 'ultranaturalism' (Popp 2007, 12), i.e. a theoretical approach to the context of education compatible with Darwinism in all aspects, Vygotsky combined Darwinism with Marxist social philosophy to develop a theory of human consciousness and higher cognitive functioning. In other words, based on his particular evolutionary understanding, Vygotsky developed a theory of phylogenetic

cognitive evolution, which he then applied to the conceptualisation of learning, development and education.

On Vygotsky's view, the nature of human cognition and activity in culture could not be accounted for in an exclusively Darwinian framework (Vygotsky 1925-30/1987, 113). On this basic epistemological level, I argue, Vygotsky can be understood as significantly different from Dewey's 'ultranaturalism'. Instead of using the principle of adaptation to define the relationship between human individuals and their material, social and cultural surroundings, Vygotsky used the historical-materialist notion of labour to conceptualise human existence in the world. On that perspective, rather than thinking of human activity as a primarily 'reactive' to external impulses, Vygotsky understood human activity to be directed at purposefully shaping the environment through collaborative activity. Following the historical materialist underpinnings of his thinking, Vygotsky thought that the historically developed objects and artefacts shape human reality and history; humans use tools to define the 'metabolism' of their relationship with the world. The process is what Marx defined as labour: "Labour is first of all a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature." (Marx 1887/1990, 283)

Tools – objects, artefacts, habits – gain meaning while they are being used within collaborative activities, which, in the process of applying these tools, create the reality the individual moves in. In this understanding of the constructive role that individuals and groups have in the creation of their own environment, their own reality, through collaborative labour, the impetus for activities, are not problems posed by an environment that is ontologically external to the individual. Rather, activity is directed by the collaborative use of tools within the co-created reality. Because of its ability for such collaborative activity, on Vygotsky's view, the human species transcends the formerly adaptive relationship with the environment and establishes a fundamentally new relationship to each other and to nature (Dafermos 2018, 83).

Vygotsky thought of individual development as fully engrained in social interactions. In his theory, there exists no conceptual space for thinking of 'the

social' as separate from a 'material environment' that is standing out- and alongside social relationships. Artefacts are not tools in and of themselves, but are made into tools within collaborative labour. In Dewey, without necessarily being qualitatively equal, experiences of negativity nonetheless stem from both material and social 'interaction' (English&Benner 2004). There is, thus, a conceptual difference between the social and the material in Dewey – even though they are complexly related in many ways. This conceptual difference has some bearing on their conception of the nature of 'educational environments'. While in Dewey educative experiences can emerge in interactions with 'things', in Vygotsky, learning – and development in particular – are unthinkable to begin with a person being confronted with a 'thing'. The 'thing' in Vygotsky becomes part of the educative process – 'the artificial formation' of the individual – as a tool within collaborative activity. There is, in Vygotsky, no 'material' in and for itself. For Vygotsky, the 'labour' aspect of all human behaviour, thinking and learning – i.e. the underlying collaborative rationality aimed at co-constructing the environment based on historically developed artefacts used as tools for action – is evolutionarily highly relevant. It brought about a new way of relating to the environment:

In this logic, the beginning of a uniquely human life in phylogeny (and the advent of the human species as such) is associated with and marked by a shift from adaptation to a given environment that governs in the animal world, to an active and even proactive, that is, goal-directed and purposeful – collaborative transformation of the environment. (Stetsenko 2017, 167)

The social is an existential part of what Vygotsky defines as human nature. Humans develop in collaboration: Individuals are “being brought into existence by and through their own transformative acting.” (Stetsenko 2017, 196) This, Stetsenko (2017) brings to the point, “is quite different from acting in a changing environment” (196).

Education, on Vygotsky's perspective, is the “artificial development of the child” (Vygotsky 1931/1987, 110). In purposeful collaboration with other members of society, the individual integrates tools into her/his activity, and psychological operations. The human individual, in other words, is shaped by a collaboratively constructed historical-material reality, in which's further development she/he participates. The mind, thus, is fundamentally socially shaped, by the ways cultural

tools and artefacts are used. In that process, the child increasingly replaces her/his 'hereditary experiences' with 'historical experiences'. In other words, unconditional responses to external stimuli are negated and replaced with conditional responses. As a consequence, the individual is increasingly autonomous in her/his activity and functionality and reactivity to external pressures are replaced by purposeful activity. This process of increasing freedom from external pressures is what Vygotsky understands to mean 'education'; just like in Dewey, it is life-long and without an end. This open-endedness, I think, is lost in the portrayal of Stetsenko (2017). The way she discusses Vygotsky, one gets the feeling that the aim is to be free from external pressures entirely and that only once no activity is responsive or adaptive anymore, the individual is 'educated'. I think that the potential of Vygotsky's perspective lies exactly in the struggle, in the process and in the unattainability of ultimate purposes. The aim of education, on my reading of Vygotsky, is to struggle for freedom and purposes, not necessarily to attain freedom and ultimate purposes – a perspective that a Deweyan focus on negativity in experience as productive to the individual's *and* society's development puts emphasis on.

6.2 *Adaptation-perspectives on learning and teaching*

The evolutionary lens has provided novel perspectives on the educational concepts of the three thinkers studied, which is particularly relevant for Dewey and Vygotsky, who are both still part of educational discourses today. It transpired from the analysis that evolutionary concepts and ideas are often conceptually ambiguous as they bear the potential for a variety of meanings and definition. Due to this inherent ambiguity, it is necessary to draw different educational concepts of adaptation apart and clarify vague terminology more widely, outside of the limited frame of the three theories studied. What is needed, is a more general and systematic understanding of evolutionary reasoning in the context of education. To draw out such a more general understanding from this study, I will focus on one of the core concepts of evolutionary educational reasoning: Adaptation.

Adaptation stands out as a core concept of evolutionary educational theory for several reasons. Firstly, all three thinkers use concepts of adaptation to define education – with highly different starting points and results. Adaptation, in a sense, is what unites Spencer, Dewey, and Vygotsky most – because they all use it – while, at the same time differentiating them the most – because they all define it differently. Consequentially, the concept offers itself as a point of analytic focus to

draw together the findings of these analyses to contribute to a broader theoretical understanding of evolutionary frameworks in education. Secondly, based on this study I claim that adaptation most potently influences the definition of core educational concepts like learning, development, teaching, pedagogy, and the aims of education themselves.

Adaptation, I contend, is at the heart of what defines evolutionary frameworks in education. The way adaptation is defined, as this thesis has shown, directs a theories' stance on how individuals exist in relation to their environment. Furthermore, an educational concept of adaptation raises and informs questions about the extent to which nature and nurture are involved in how individuals develop emerge, and how individuals organise and direct their activity. How adaptation is conceptualised, therefore, also directly informs how the possibility of *Bildung*, and, perhaps in particular, the possibility of purposeful pedagogical interaction (*Erziehung*) is reflected upon. Increasingly, in recent and current discourses, concepts of adaptation are connected to learning, which makes a clarification of the concepts a timely matter. Evolutionary educational psychology, for example, due to its neo-Darwinian foundation, strongly supports an understanding of development, learning, and educational practices as adaptations. Such an understanding, on Hollis' (2012) view, forms an alliance with a neo-liberal agenda in promoting an understanding of education as a means of adapting people to the demands of the labour market. Learning, therein is defined as an increase in adaptability to remain responsive to altered economic demands (Hollis 2012).

At the same time, the evolutionary idea of adaptation is inherently challenging as a concept. Adaptation is one of the oldest evolutionary concepts that performed the perhaps biggest transformation in meaning over time in the intellectual history of the principle of evolution (see chapter 2 on the evolution of the term and concept of evolution). Originally introduced by Lamarck as a biological concept describing a hereditary change in an individual's lifetime, in post-Darwinian evolutionary paradigms the concept of adaptation describes a phenotype's fitness within natural selection. Adaptation is ambiguous in the sense that it is used both to

describe a trait that is understood to be an adaptation to a particular change in the environment, and the process of an organism changing to suit transformed environmental conditions (Mayr 1991). Adaptation – what it means, how it works, and where it is effective – is an ongoing point of contention in evolutionary science today, dividing neo-Darwinian positions from anti-adaptationists (see chapter 2 for more detail on those paradigms).

For these reasons, enhancing our understanding of different educational concepts of adaptation, I consider to be one of the main contributions of this thesis. Understanding that ‘learning as adaptation’ can mean highly different things is key, not only to promote a more nuanced discussion of the thinkers studied in this thesis, but also to critically inform current educational discourses. To contribute to our understanding of educational concepts of adaptation, I will draw out the links emerging from Spencer, Dewey, and Vygotsky between educational concepts of adaptation and learning and analyse how they inform theories of teaching. After having developed the conceptual foundation to distinguish and discuss different educational concepts of adaptation, I will analyse the concept of adaptation used in the documents of PISA. PISA is singular in its potency to inform educational discourses internationally; how it defines adaptation in relation to learning and teaching is, therefore, of prime importance.

6.2.1 Types of educational concepts of adaptation

The concept of adaptation significantly informed how Spencer, Dewey, and Vygotsky came to conceptualise education. Spencer (1850) defined education as the preparation for ‘complete living’. Complete living, on his view, means the free and competitive exercise of one’s “faculties” (44) in the pursuit of individual happiness. The only infringement on freedom in this pursuit, following Spencer’s utilitarian moral philosophy, is everyone’s equal right to do so. Spencer paired his moral theory with a teleological Lamarckian evolutionism. On that perspective, only if the younger generation is prepared for ‘complete living’ the evolutionary trajectory can unfold according to the laws of evolutionary movement; society and human nature gradually improve over the generations through biological inheritance and natural selection. The aim of education, therein, is to not interfere with that trajectory

by teaching “ornamental knowledge and attire” (Spencer 1889, 25). Instead, education ought to enable the individual to be able to compete as well as possible in society, by adapting to its status quo, and obey to the utilitarian principle of equal freedom. Spencer used a Lamarckian notion of adaptation to develop a rationale of compliance with the status quo. Therein, adaptation means the “adjustment of inner to outer relations” (Spencer 1892a, 389). Resulting from his concept of adaptation, as I have argued, Spencer developed a theory of education assigning it the role of the ‘safeguard’ of natural processes to occur freely, rather than having any direct relevancy within evolution. Education, on that view, was a means to prepare individuals for competition, yet without interfering in that competition by ‘helping’ more disadvantages individuals. This notion of education is inhumane as it is specifically directed at “weeding out” (Spencer 1850, 203) the ‘less skilled’. Spencer used an evolutionary framework to naturalise ‘this battlefield’, to make it seem lawfully given, rather than societally constructed and arbitrary in its rules for competition and selection. An educational concept of adaptation to, it follows, is highly problematic because it fosters exclusion and the instrumentalisation of education for various purposes outside of the concern for the individual’s learning, development, and wellbeing.

Dewey’s concept of growth was the necessary expansion of Spencer’s one-directional notion of adaptation. Growth means the simultaneous transformation of the individual and the world in experience. While Spencer was focused on behaviour, Dewey thought of adaptation as a process involving intelligence and decision. He ‘installed’ the mind as a mediator between the environmental stimulus and the subject’s reaction to overcome their dualistic divide (Dewey 1916/2008, 125). On that definition, adaptation is a process that is related to changes in the environment, yet without undermining the subject’s agency. The individual is learning from the experience of being in the world actively – in doing, in acting – and passively – in undergoing the consequences of what has been tried in activity. In accordance with his concept of evolution as a contingent, non-terminating process, growth describes a process with no end. Consequently, the process moves to the centre of focus rather than the outcome (Saito 2005, 53).

Education, in Dewey, means the “reconstruction and reorganisation” (Dewey 1916/2008, 78) of experiences and endowed tendencies throughout the individual’s

lifetime – both in and outside of formal education. Continuously, the individual transforms its knowledge, concepts, habits, etc. in order to overcome discontinuities emerging in relation to the environment. In turn, by acting in the world, the subject transforms and shapes her/his environment. The relationship between the individual and the environment is one of doing and undergoing leading to simultaneous and unceasing transformation of both in connection with each other. In defining education as growth, the Darwinian natural selection paradigm was important for Dewey. It resonates, I argue, in the emphasis he puts on moments of discontinuity to induce learning and growth. Growth, following that perspective, emerges from a gap, a need, a problem posed at the encounter of individual and world. Education defined in relation to growth means supporting learners in the reflective processing of passive and active experiences, as well as the preparation of relevant learning environments that are closely aligned with the interests and needs emerging from the learner's life-world. In opposition to Spencer, who deemed 'cultural' environments as negatively artificial, Dewey (1889/2008) defined adaptation as "social adaptation" (41), and the environment as "a distinctly social one" (41). Because growth has no pre-determined, or objectively better or worse trajectory, the socio-cultural environment, and the communicative exchange with others is key to individual development and social evolution.

A Deweyan concept of adaptation entails both passive undergoing, and active doing; it involves 'adaptation to' as well as 'adaptation of'. Such a concept of adaptation integrates the individual's agency into the process of growth. It informs an understanding of education that aims for capacity to grow rather for a certain outcome. Because growth is always temporal, education is seen as an unceasing process, requiring flexibility and non-attachment to ideas and habits that no longer serve the individual in relating to the environment. Growth is the ability to learn from experience in a way that informs future problem-finding and-solving and the creation of ends-in-view. Education on this perspective is tightly connected to the socio-cultural and material environment of the learner. Its focus lies on the present, rather than on the attainment of pre-defined educational outcomes.

Vygotsky's theory of education is similar to Dewey's in many ways. Both think of education as a process transforming the self and transforming the environment, respectively the socio-cultural reality, simultaneously. They also both

emphasise the relevance of accounting for societal realities and individual constitutions in pedagogical interaction. However, looking at their evolutionary frameworks, and in particular their concepts of adaptation, Dewey and Vygotsky differ considerably. As discussed above, while Dewey retained an ontological 'external' (Godfrey-Smith 1996), Vygotsky thought of the environment as only and solely consisting in its use within collaborative activity. The socio-cultural reality is co-constructed in a group of actors from the application of historically shaped tools in that collaborative activity. By deconstructing the distinction between the external and the individual, Vygotsky dialectically negates the adaptation paradigm. By doing so, however, it remains deeply embedded into how he thought of human nature and development (Stetsenko 2017, 199). Vygotsky replaced the Darwinian perspective on human society, culture, and mind with Marxist historical materialism to develop a novel perspective on human evolution. On that view, human nature has evolved the cognitive and linguistic capacity for labour, meaning the collaborative purposeful transformation of the world. In evolving to that stage, the human species was actually able to develop a qualitatively new relationship with the environment – an 'external' environment, in Vygotsky, is replaced by a socially co-constructed reality. This reality functions according to its own rules and does not underlie the principles of natural selection and adaptation. Vygotsky defines this development, by which the human species began to collaboratively transform the environment outside of adaptation and reactivity to external pressures and demands, as a 'leap'.

In Vygotsky's conception, in the collaborative process of mastering cultural tools and employing them with increasing autonomy toward "the artificial mastery of natural processes of development" (Vygotsky 1925-30/1987, 88) the cultural tools themselves are subjected to transformative processes. Learning and cognitive developments, thus, in a Vygotskian perspective, cannot be viewed as detached from the socio-cultural practices that enable those developments in the first place; an intellectualist approach to human cognition leads to a profound misreading of his works, and, in particular, his educational concepts. Education, following a Vygotskian perspective, means the collaborative, purposeful formation of the environment and the concomitant transformation of the individual.

Vygotsky's concept of education is based on, what I call, a *post-adaptation paradigm*. On that understanding, education is the formation of individuals in relation

to socio-cultural realities through the collaborative use and elaboration of tools. Individual development, in a post-adaptation paradigm, is inseparable from the individual's participation in cultural change. Educational practices in a Vygotskian perspective are therefore to be understood as highly contextualised, relational endeavours; they are neither biologically determined, nor socially formable. Rather, there emerges a zone of potential formation at the intersection of the individual's hereditary constitution and the potentials of the lived-in socio-cultural context. Rather than the subject being adaptable to external changes, on this conception, education's aim is to enable people to choose purposes and alter the socio-cultural reality accordingly.

In summary, from the hermeneutical studies of Spencer, Dewey, and Vygotsky's educationally relevant works, I derive three different educational concepts of adaptation:

- 1) Adaptation to, engendering a notion of education as the one-sided 'fitting-in' of the younger generation into a pre-defined structure, or according to a pre-defined vision
- 2) 'Adaptation to' and simultaneous 'adaptation of', informing a concept of education as a capacity to adapt increasingly intelligently to new demands both through formal education and the formation of the individual in everyday interaction.
- 3) Post-adaptation, informing a concept of education as the collaborative transformation of socio-cultural realities according to chosen purposes and social aims.

Each of these three concepts of adaptation inform education in a particular way. While this list is not exhaustive, but merely a cross-section through some of the key figures of the tradition of evolutionary reasoning in the context of education, it does illustrate the range of meanings associated to the concept of adaptation in educational discourses.

6.2.2 Adaptation and Learning

Recently, adaptation as an educational concept has become increasingly popular in connection to learning. Disciplines like evolutionary educational psychology and human behaviour ecology have taken on an evolutionary framework to study learning in the context of processes of adaptation. Despite this common ground, the two approaches differ greatly. Evolutionary educational psychology is concerned with a phylogenetic perspective, which means that it focuses on how evolved learning dispositions and biases influence social behaviour, cognitive mechanisms, or motivation (Geary 2002). Human behavioural ecology, in contrast, focuses on the significance of the environment in learning processes of the individual (Martin 2012, 92). A confusion of these two levels is potentially the source of considerable mis-conceptualisation, making it worthwhile to disentangle them.

As an adaptation-strategy, learning has the enormous advantage of having a quick effect that does not rely on the generation-spanning physical transformation that other species rely on. Lots of animals learn. It is an important part of their adaptation to the environment (Hollis 2012, 95). The closer an animal is to the human species genetically, the longer is the period of immaturity in childhood, and, consequently, the potential for learning. Human development, however, is shaped by learning more than any other species, which makes the utilisation of an evolutionary adaptation-focus to think of learning rather obvious within the discipline of education (Bjorklund&Beers 2016, 3). For education as a practice concerned with learning, the extent to which humans can be shaped through experience, and to what extent natural and hereditary predispositions are involved in that process are of prime significance. The concept of adaptation offers a lens to think about these drivers and motivations of learning.

To think of learning in terms of adaptation, is by no means a new research-phenomenon. All three thinkers presented in this thesis draw from ideas of adaptation, i.e. “the act or process of changing – or, indeed the change itself – so as to become better suited to a new situation or in a new application” (Hollis 2012, 95) to reflect on processes of learning and teaching. I will now analyse how these modern evolutionary frameworks for thinking about learning in relation to adaptation have emerged.

Spencer's theory of education stands as an example of an approach that disconnects learning from adaptation. He was interested primarily in performance and behaviour – processes of learning did not matter to him, and, thus, receive little attention in his works. The 'correct' behaviour is, 'what matters', and not processes of understanding and developing. Looking at his evolutionary epistemology this makes sense: In Spencer, learning is irrelevant; due to the Lamarckian nature of his evolutionary theory, he thought of adaptation primarily in biological terms. Spencer cares about learning to the extent to which it aligns behaviour and values with the moral principles of what he deemed to be the ideal society. In that ideal society the 'real' adaptive process, i.e. the biological adaptation, would be allowed to occur. The learner, the educative subject vanishes in Spencer's future-oriented evolutionism based on biological inheritance. Where adaptations are biologically inherited, learning as an adaptive method loses its footing.

In Dewey, in contrast, learning from experience is *the* key component of the subject's adaptive relationship to the world. For Dewey, learning occurs within the reflective processing connecting doing and undergoing. Doing, i.e. the acting and intervening in environments, is inseparably connected to learning since opportunities for learning open up when our actions break down due to encounters with the unexpected and we arrive in an 'in-between' realm between old and new ideas and action (English 2013). On that view, learning from experiences is understood as an enhanced ability of the learner to deal with future experiences. Education as the reorganisation of experiences is a key component of the individual's learning development (meaning development through learning). This re-establishment of continuity through educative experiences that lead to learning is, what I think Dewey understood adaptation to mean. 'Adaptation to', therein, is supplemented with 'adaptation of': The subject 'does something' to the world and, by this action transforms the environment. This action, in turn, is an opportunity for an educative experience.

Just like Dewey, learning in Vygotsky is necessarily learning from experience. In that, learning is what connects the subject and the socio-cultural reality he/she moves in; it is, a mediator, and thus, at least in some sense of the word, a means for adaptation. Vygotsky, however, supplemented the concept of learning with the concept of development to differentiate adaptive processes from

post-adaptive, deeply transformative processes of the individual's way of 'being in the world'. All mental functions, in Vygotsky, first exist as social relations that are later being integrated into mental functions as psychological tools. Instead of supplementing 'adaptation to' with 'adaptation of', as it was Dewey's approach, Vygotsky sought to dialectically negate an adaptation-paradigm when it comes to conceptualising human growth. Vygotsky defined learning with reference to the historical materialist idea of negation: in making "historical experiences", unconditional reactions transformed into conditional ones. In Vygotsky (1925-30/1987), however, learning, or "historical experience" (68) is only a precursor for development, which means the overturning of previous ways of action into a qualitatively new way of relating to the socio-cultural reality. In teaching, learned concepts, or everyday concepts, are complemented with their more abstract scientific counterparts. By learning those psychological tools, the individual fundamentally alters her/his relationship to the environment, moving away from reactivity, to purposeful co-creation of socio-cultural realities. Instead of "acting in a changing environment", as we observe it in Dewey, Vygotsky thought of "people actively changing their environment and, moreover, being brought into existence by and through their own transformative acting." (Stetsenko 2017, 196)

Thinking learning in connection to adaptation, I conclude, is a key part of evolutionary educational theory. In Vygotsky and Dewey, learning opens up a space for agency and decision; they both use learning as a 'mediator' between the environment and the subject. Their highly different concepts of environment, however, limit this analogy; in the case of Vygotsky the sovereign external surroundings of Dewey are replaced by a constructed socio-cultural reality consisting of tools and chosen purposes. Nonetheless, they both think of learning as the ever-changing relationship between the subject and her/his 'environment' and shared an interest in how humans develop in alignment with their environments, and how they are involved in its transformation.

The important difference between Dewey and Vygotsky when it comes to their evolutionary perspectives on learning and adaptation is the question of how learning begins. Processes of learning, in Dewey, emerge from the individual's experience of discontinuities between and her/his environment, and the accompanied experience of negativity (English 2013). "The in-between realm of

learning”, in Dewey, emerges from “encounters with the new and unexpected.” (English 2013, 55) In Dewey, learning begins with an encounter with something external to the learner. While the environment is to a significant extent social and also socially constructed through processes of common meaning-making (Hansen 2002), Dewey’s material environment is also to another extent a sovereign material entity functioning according to its own logics (Godfrey-Smith 1996; Bredo 1998). Growth, and with it learning, thus, occurs between the subject and the world. Through the reflective processing of those experiences of negativity the individual re-creates continuity in experience. In the process of learning from experiences of discontinuity, the internal and the external, the individual changes, and through this, also changes the way he or she acts in the world; the subject and the world grow at the same time.

Both Dewey and Vygotsky wanted to overcome the subject-object dualism. While it was Dewey’s approach to do so by connecting them functionally, that is, by making them dependent on each other in the process of growth, Vygotsky, in contrast, attempted to dissolve the dualism by thinking of them as ontologically dependent on each other. On his view, the ‘external’ does not have any meaning in and of itself, but becomes a reality within the transformative activity of individuals; the ‘external’ becomes a reality in labour, as a tool. “In this realm, things are what they are in the light of whether and how they matter to people by virtue of being included into human activity of transforming and ultimately creating the world.” (Stetsenko 2011, 34)

Dewey’s concept of growth depends on the recognition of a ‘thing’ outside of what the individual knows from previous experience: “To recognize the thing is to grasp its definition. To perceive is to acknowledge unattained possibilities” (Dewey 1925/2008, 144). Before growth can happen, Dewey emphasises here, the individual has to recognise the unattained possibilities of the external event, or sensation. Without such recognition, learning and thus growth cannot occur. In Vygotsky, the individual’s motivation to learn comes from the desire to ‘master’ the socio-cultural reality in which he/she always already moves. With the increasing integration of tools, i.e. through learning, the individual becomes increasingly able to participate in the co-creation of the socio-cultural reality he/she inhabits.

It can be noted, thus, that both Dewey and Vygotsky think of learning as a reaction to a gap, or a need of some sort: In Dewey this gap is emerging 'naturally', from the contingency of our interactions with an environment external to us; in Vygotsky the gap emerges from the desire for 'mastery' and autonomy. Learning, in Vygotsky, has the purpose of artificially forming the individual to increasingly 'inhabit' the socio-cultural reality he/she lives in, to make the individual an increasingly effective agent of the co-creation of that environment (Glassman 2001, 5). On Glassman's (2001) view, in Vygotsky's conception, "tools and symbols are used in the service of culturally defined goals that are far beyond the immediacy of Dewey's ends-in-view." (6) Dewey's ends-in-view are based on the principles of problem-solving and functionality in the moment with the aim of establishing continuity between previous knowledge and new experiences. Dewey's ends-in-view, are, following Glassman, still tied to externalist direction. In Vygotsky, in contrast, "people actively and deliberately transform circumstances and conditions of their life in simultaneously co-creating their world and themselves" (Stetsenko 2017, 110), which means that aims for transformation are artificially created based on chosen ends and purposes.

6.2.3 Learning and transformation

The discussion of the difference in how Dewey and Vygotsky conceptualise the beginning of learning, how they discuss what 'sparks' processes of learning, and the concomitant potential for transformation leads us over to the point of transformative agency of the individual. I argue that there is a social-transformative aspect of processes of learning which is crucial not only to Vygotsky, but also – counter the characterisation of Stetsenko (2017) – to Dewey.

According to Stetsenko (2017), Dewey "remained firmly within the Darwinian mode of thinking and treated human beings as not much different from other biological organisms." (168) He defined humans as "responsive rather than deliberate and proactive with the mind understood as a biological organ of adaptation to the 'given circumstances' rather than an instrument of change." (Stetsenko 2017, 161) The overarching point that Stetsenko makes is that Dewey, in his approach to integrate humans fully with other animals in Darwinian evolution,

failed to acknowledge the particularities of human nature and culture. She argues: “Progressive as it is, especially for its time and place, Dewey’s position is still affiliated with the ethos of adaptation as expressed, for example, in his core metaphor of organic growth.” (Stetsenko 2017, 196) On that perspective, the power and agency of humans to transform their environment is supposedly lost in Dewey but finds reinvigoration in Vygotsky. On such a reading of Dewey, he remained firmly within an adaptation-paradigm, thinking of the “state of imbalance in organic organism-environment interactions” (Stetsenko 2017, 165) as the root of learning and growth. On Stetsenko’s (2017, 164) reading, Dewey’s pragmatist concept of adaptation is about ‘coping’, about reactivity to external pressures and needs. This external definition of aims of actions supposedly stands in direct contrast to Vygotsky’s approach to think of learning processes as the result of labour-activities, which are purposeful and based on chosen aims.

While I agree with Stetsenko’s assessment of Dewey’s philosophy being fully Darwinian in aspiration, I disagree with this characterisation of Dewey’s growth as meaning ‘adaptation to the given circumstances’. I also want to put up for question her portrayal of Dewey as disinterested in social transformation. As I have argued at length, the dialectic nature is essential to Dewey’s notion of growth that necessarily involves the transformation of the self and the world. In *The Quest for Certainty* (1929/2008), Dewey describes the bi-directional character of his concept of adaptation, meaning both the passive “appeasement with those powers that decide our fate” (67), and the active “changing the world (rather than oneself) through practical action” (67). Even though I agree with the broad characterisation of Dewey as an ‘externalist’ (Godfrey-Smith 1996) and a proponent of a Darwinian adaptation paradigm, it is key to balance that view with Dewey’s explicit differentiation of animals, which are driven “by unconscious adaptation and survival”, and humans, which replace those ways of adaptation with “conscious deliberation and experimentation” (Dewey 1889/2008, 54) Growth is, as I have argued, Dewey’s attempt to redefine the relationships between human individuals and the world without having to categorically detach them from the process of evolution. Dewey (1889/2008) emphasised that being ‘adapted’, on his view, meant more than being ‘adapted to’ the environment: “I have discussed this particular case in the hope of enlarging somewhat our conception of what is meant by the term "fit"; to suggest

that we are in the habit of interpreting it with reference to an environment which long ago ceased to be.” (41) Instead of merely being reactive, humans, due to their cognitive ability for learning from experience and mediating environmental stimuli intelligently, have established a more complex relationship with the environment than other animals.

Stetsenko (2017) deems Vygotsky’s Marxist interpretation of Darwinism to be “the next important step after Darwin (integrating his approach and superseding it).” (165) She argues that the “broad political ethos at the core of Vygotsky’s project countered principles of adaptation and competition for resources as the core grounding for human development that takes the ‘givenness’ of the world for granted and assumes that individuals have to fit in with its status quo.” (108) Based on the evolutionary reading of growth, and the concomitant clarification of what Dewey understood adaptation to mean, I propose a counter-characterisation of Dewey as someone who very much believed in the transformative agency of human individuals. Growth is a necessarily dialectic process that involved both the subject and the world (Dewey 1916/2008, 5; Popp 2015, 50). By participating in societal institutions, the subject actively shapes them while simultaneously being shaped by them in turn (Rogers 2012, 238). Shared moral values, and social habits, and tools are the result of a common processes of meaning-making which involves processes communication and conscious selection which direct the constitution of ends-in-view.

When Dewey states that “conformity, not transformation, is the essence of education” (Dewey 1916/2008, 64) it is crucial to clarify what understanding of transformation he is up against: Dewey put high value on social progress as an educational aim; he did not, however, think of social progress and transformation as entirely determinable, but, instead, as a contingent and open-ended process of growth. It follows, thus, that Dewey disqualifies ‘transformation’ as an educational aim only under a definition of transformation as planned formation of structures. This is, perhaps, one of the main points of contention between Dewey and Vygotsky, who put high value on the purposeful formation of societal institutions according to chosen aims for societal transformation. Dewey (1939/2008) opposed this in his criticism of Marxism and their objection “to any suggestion of identification of their creed with theological systems of the past. But all absolutisms tend to assume a

theological form” (122). Societal transformation understood as a necessary element of growth, however, based on what is encountered, “the actual” (Reich et al 2016, 1001) is a key component of the intrinsic value of education for Dewey.

A more valid criticism, I argue, emerges in contrasting Dewey’s notion of growth with Vygotsky’s emphasis of the struggle. Stetsenko (2017) criticises the ‘smoothness’ to Dewey’s growth, arguing that “Dewey’s philosophy reflected an environment that knew nothing of crisis and radical discontinuity.” (165) On her view, growth is “boundless” (165), and “without either predetermined end points or normative criteria of progress [that] came at the expense of insisting on finding radical solutions for social ills.” (165). Similar points of contention have been raised by Saito (2005) and Greene (1998) who have criticised Dewey for linking intellectual development, democratic values, and morality in his notion of growth. Similarly, Noddings (1998) has pointed towards Dewey’s “refusal to separate the intellectual and the moral” (484) and consequential idealistic perception of society that becomes necessary in order to envision society as the incubator of moral values.

I agree with Stetsenko that it is worthwhile criticising Dewey’s concept of growth in the way it conceptualises social transformation and progress in relation to education. Dewey (1916/2008) equalises “the moral and the social quality of conduct” (369) and defines progress in terms of a momentary continuity between individual ends-in-view, and moral and social habits. Morality, in its association with social conduct, is defined in terms of functionality and what Dewey calls ‘social adaptation’ (Dewey 1902/2008, 261). In social adaptation, increased shared meaning and common ends – considering the evolutionarily developed social human mind – can be described as progress. This makes ethics situational, meaning that there exist no *a priori* moral standards – they have all evolved, as Dewey described in a quote used further above, result of “the outworkings of the endeavour and thought of humanity” (Dewey 1899/2008, 69). The emerging moral dimension in Dewey’s concept of growth is problematic insofar as it counteracts the ‘ultranaturalist’ aspiration of Dewey. As Saito (2005) points out, in Dewey, “the ethical is continuous with, not the same as, nature. The ethical grows out of the physical universe as an extension of nature.” (20) This means that although morality is not strictly perceived as natural, on Dewey’s view, morality is continuous with

nature, 'growing out of it'. He assumed that morality is inherent to intellectual growth (Noddings 1998, 43), and, thus, arrives not from learning moral values, but from learning itself.

As an alternative to Dewey's understanding of morality as evolved, I suggest thinking of democratic values, and a society committed to equality and social justice not merely as matter of organic evolutionary growth, but as a matter of struggle and break. Integrating a Vygotskian perspective to do so, as suggested by Stetsenko, is indeed intriguing. While in Dewey, learning is the establishment of continuity, the integration of the old and the new, in Vygotsky, learning is the negation of hereditary experience, the overturning of the old and its discontinuation in the new. Change and transformation, therefore, seem to be more 'fundamental' in Vygotsky than in Dewey. However, what is lost entirely from Stetsenko's perspective is an acknowledgment of the problems caused by the normative space that Vygotsky opens up. While there is doubtlessly great potential in the political nature of Vygotsky's concept of education – in terms of striving towards aims of equality and inclusion (Stetsenko 2017, 105) – there is, naturally, a flipside to this potential: Who gets to define social aims and purposes according to what criteria?

Dewey opposed non-functional definitions of educational ends most vocally in his criticism of Spencer. Dewey (1908/2008) put emphasis on avoiding any "ideals of a Utopian millennium" (57) in his own evolutionary epistemology. Dewey's concept of growth was the explicit attempt to formulate a pragmatic concept of individual and societal development that would gain its direction from within, i.e. from the process of growth itself, rather than from without. The ideal of democracy, in the context of Dewey's growth, is legitimised in its functioning as an optimal condition for growth. In Vygotsky, in contrast, exists an explicitly normative component. In Vygotsky, in the words of Stetsenko,

reality is understood as an arena of human struggle and activist striving that is therefore immanently and inherently infused, at its core, with emotions, passions, feelings, values, and interests – while not ceasing to be material and practical at the same time. (Stetsenko 2017, 199)

Inherent to the way Vygotsky seeks to redefine reality not as an external 'thing' in and of itself, but rather as a space of meaning created in collaborative

labour-activity, is the necessity to define the shape of that space ideologically. While in Dewey's growth, truth is informed by functionality in an environment, in Vygotsky, truth is defined in its functionality to reach an ideological goal, "guided by the end points to which people are committing (even though these end points might never be achieved)." (Stetsenko 2017, 110) While Stetsenko (2017) embraces social-democratic values like "social justice, equality, and human rights" (113) as core pillars of this ideological goal, I want to accentuate that this is, of course, not a given. The ideological goal furnishing transformative activities is about what groups of people want and deem a worthy ideological goal to pursue with their activity. That this is highly problematic has been demonstrated throughout history, not least in Vygotsky's own times and the socio-political consequences they yielded. The study of Popkewitz (1998) maintains that Vygotsky's psychological insights cannot be detached from his ideas on cultural evolution and Marxist revolution without losing the profound embeddedness of cognitive functions and developments in historical and cultural context. The open-endedness of Dewey's growth that Stetsenko criticised appears in a new light: Instead of being a result of political disinterest, the open-endedness of Dewey's growth is a political decision in itself. Growth seeks to develop a perspective on the development of a just society that is justified functionally, rather than ideologically.

I conclude that societal transformation is a key element of processes of learning and development for both Dewey and Vygotsky. While Dewey defines social progress functionally, Vygotsky requires the definition of social purposes. While that latter approach potentially enhances individual agency in the formation of society, it brings with it the issue of having to define social purposes. The evolutionary framework, I argue, shapes these connections made between individual development and societal change. It links individual learning and development with changes in the environment. Learning, adaptation, and transformation in evolutionary educational theory are, thus, tightly linked. I now move on to discuss how education and teaching play into this connection.

6.2.4 Evolutionary concepts of teaching

In evolutionary educational theories, learning is what connects the subject and the world in one way or another, depending on how the adaptive relationship is defined. In Spencer, a Lamarckian understanding of adaptation led to a disregard of processes of learning and cultural transmission, as these educational processes are replaced by biological inheritance. As a result, both the educational subject, and the teacher, are virtually irrelevant in Spencer's theory of education. Contrasting perspectives can be found in Dewey and Vygotsky, who both assign important roles to processes of learning for the development of the individual and socio/cultural evolution.

In both Dewey and Vygotsky, learning is understood to be a process of transformation of the subject, the subject's being in the world, and, in consequence, the world, or socio-cultural reality, itself. Psychologically, learning, on their view, is a mediating factor between stimulus and response. They both place prime significance on experience when it comes to the constitution of that mediating factor; Vygotsky's concept of 'historical experience', I argue, is largely coherent with Dewey's notion of 'educative experiences'. Where the two thinkers differ, I gather from the analyses of their concepts of learning, is how they think learning begins, whether their aim is to negate or to integrate, and, finally, to what extent the learning process is connected to education and teaching.

Dewey's concept of education includes both processes of pedagogically directed learning and development (*Erziehung*), and processes of self-formation based on everyday experiences and communication (*Bildung*). Educative experiences are experiences that allow the individual to establish connections between 'doing' and 'undergoing', From an educational point of view the most pressing question is how educative experiences can be pedagogically created and organised (Dewey 1898/2008, 174). Experiences are not merely the result of events occurring in the material and social environment; experiences are a matter of meaning-making which is a complex process of social construction and intelligent conscious selection. In other words, experiences – and, therefore, processes of growth – are not externally inducible; they are created by the learner, not the teacher (Garrison et al 2012, 43). The role of teacher, in Dewey, is the preparation

of educational environments that direct growth; so teaching is always indirectly influencing learners via the environment. Every environment enables a spectrum of experiences, and it is the task of educational practitioners to provide relevant environments (Hansen 2002). Educational environments that enable educative experiences are those that provide socio-culturally relevant learning opportunities that tie on to the learner's previous experience by opening up space for productive discontinuity. The creation of such educational environments and supporting learners in reconstructing their experiences at these moments of negativity is a pedagogically complex task that is also absolutely necessary for growth. In *Democracy and Education* (1916/2008) Dewey writes: "In directing the activities of the young, society determines its own future in determining that of the young." (47) Teaching, I gather from this, is key not only for the growth and learning of the individual, but also central for the positive transformation of society.

In Vygotsky, teaching is not only a key contributor to successful learning and education, but, in fact, connected to a qualitatively different kind of individual growth that can only be achieved through teaching (Derry 2013, 71). Informed by his Marxist-Darwinist evolutionism, Vygotsky differentiates processes of learning from developmental. While learning is gradual quantitative change – resembling Dewey's concept of growth – developments are leaps which fundamentally negate previous ways of acting and behaving. Learning leads to development through teaching; Vygotsky conceptualised this particular kind of learning as *obuchenie*, which is translated by Dafermos (2018) as "instruction-learning" (165). While in Dewey the material environment is a potential source of educative experiences, in Vygotsky, experiences leading to qualitative transformations of the individual are limited to processes of *obuchenie* within ZPDs.

All learning in Vygotsky is social learning; it is through collaborative activity, that material artefacts and cultural tools are being integrated in the intellectual activity of the individual and gain meaning. All mental functions, on a Vygotskian perspective, first exist as social relations (Vygotsky 1925-30/1987, 87). The relationship between the learner and the teacher, however, is particularly important. While informal social interactions, or interactions with peers in schools can contribute to processes of learning, in Vygotsky, it requires the pedagogical expertise of the teacher to recognise the ZPD and provide the encounter with the

relevant scientific concepts to elevate, and ultimately negate and transcend the learner's everyday concepts (Chaitlin 2012, 43). In his concept of the ZPD, Vygotsky makes teaching a constitutive component of development. Hence, while in Dewey the teacher is key for processes of cultural transmission, the preparation of educational environments, and the support of learner's reflective processing of experiences, in Vygotsky, there is a certain quality of individual growth that can only be achieved through 'being taught'.

6.3 Educational concepts of adaptation today – the example of PISA

This thesis has demonstrated that the concept of adaptation is a, if not *the* key principle of evolutionary educational theory. It had a significant impact on all three thinkers studied in this thesis and continues to provide a popular framework for current learning theory. However, to conceptualise 'learning as adaptation', albeit being popular, is highly ambiguous: 'Adaptation' can mean a plethora of different things and can, in turn, inform educational theory in manifold ways. This way adaptation is defined informs how the subject is thought to develop in relation to the environment, and, therein, sets the foundation for how learning and teaching are understood.

One of the most influential educational discourses of our times that uses 'adaptation' in relation to education is produced by the PISA. Despite the enormous influence that the PISA results have on educational discourses internationally, the way it understands 'adaptation' in relation to education and learning remains undefined. In the following, I will contribute to this gap of conceptual clarity by analysing PISA's concept of adaptation in the light of the findings that this thesis has produced regarding educational concepts of adaptation. After having contextualised PISA in the broader sociocultural and economic development of neoliberalism, I will use the conceptual apparatus developed in this thesis to argue that PISA presents a one-sided understanding of 'adaptation to' that leads to the subordination of education to the demands of the neo-liberal labour market. In concluding this chapter, I will contrast the limited and limiting concept of adaptation that PISA disseminates internationally with alternative approaches identified in this thesis.

6.3.1 Contextualisation - the hegemony of PISA

PISA is a comparative global study, testing performance of 15-year-old school students in the subjects of reading, maths and science. It is conducted and disseminated by the *Organisation for Economic Collaboration and Development* (OECD) since 2000. PISA is the perhaps most important player in an overarching movement of the globalisation of education that is marked by the de-contextualisation of education from national contexts and “travelling reforms” (Steiner-Khamsi 2012, 3) through processes of policy-borrowing and -lending (Grek 2012, 43f.).

Sociologically, the globalisation of education is located within the broader historical-cultural development of the so-called knowledge society and economy (Takayama 2012, 151). ‘Knowledge society’ is a vague term standing alongside other buzzwords like ‘post-industrial society’, used to describe the neoliberal globalised economy, which is focused on the self-regulation of a free global market through the distribution of information, technological advances and the subject’s ability to use and ‘update’ knowledge in a self-organised way according to economic demands. Lorey and Neundlinger (2012) call this development “cognitive capitalism” (3). In cognitive capitalism, education is seemingly ‘naturally’ connected to economics, and is reformed and transformed within that logic “as if the relationship between education and the economy is uncontested.” (Lauder 2012, 249) The extent to which the subordination of education under economic interests is part of the OECD’s broader education strategy can be observed, as one example of many, in the following quote published in the *OECD Observer*:

These are important times for in all the member countries of the OECD. The never-ending search for competitive advantage in the global knowledge economy has led all public policy-makers to focus on education as a key factor in strengthening competitiveness, employment and social cohesion. This is an inevitable consequence of the increasing complexity of all our economies. Indeed, the pace of technological change worldwide is now so fast that, to a large extent, we must plan for the unknown. The only certainty is that education needs to drive these changes. If it does not, then we are all in trouble and we will fail our citizens. (Dempsey 2004, 7)

This development has led to a human capital rationality in education and a widespread redefinition of educational institutions as tools for economic growth and the production of 'human capital'. Human capital theory describes a framework that defines human activity and education in terms of production and capital. In the past few decades, human capital theory has become one of the most powerful policy development frameworks in education internationally (Gillies 2015, 1053), perpetuating an understanding of education as an investment and constructed educational institutions as providers of the required 'human capital' – especially regarding the subject's willingness for life-long learning (Lorey&Neundlinger 2012, 11). Following the consumer rationality inherent to neo-liberalist agenda in educational theory, research, policy and practice, educational institutions are being subordinated under what Ozga (2012, 165) called "regimes of accountability". Educational institutions are increasingly structured like businesses that offer a service to consumers. They are being held accountable under economic standards through monitoring and external evaluation – and are then argued to be failing and needing governing. This development has also significantly shaped educational research, which has become part of the system of accountability and monitoring (Sobe 2012, 82).

Over the past few decades, in the context of strengthened neo-liberal market politics the established connections between education and economic development have deepened. Neo-liberalism, under one definition, means the expansion of economic principles, logics, and mechanisms into non-economic spheres of life (Brown 2016). It is characterised by the liberalisation of markets and the strengthened importance of multinational enterprises and supranational organisations like the OECD. Subjects are constructed as "market actors" (Brown 2016, 3) through the discursive practices of human capital theory in order to contribute the macro-agenda of nations competing over economic prosperity in a globalised economy.

PISA stands exemplary for these recent developments in educational thinking, policy, and research that has to be understood not isolated, as a testing instrument, but in the broader context of the modern socio-economic and cultural evolution of neo-liberalism. While PISA doubtlessly produces valuable data, it has increasingly expanded its discourse and enforced what Reich et al (2016) deem a

reductionism in educational discourses. PISA has incorporated virtually all realms of education, influencing curricula reform, school reforms, and teacher education internationally (Ozga 2012). It goes beyond the influence of any other soft-governing body. Because of its high impact on public dialogues about education, which it infused with an accountability-rationale, PISA has managed to establish a research culture in education aimed at the “monitoring of monitoring” (Sobe 2012, 89), suggesting the controllability of individual’s ability – and willingness – to ensure desired economic developments (Reich et al 2016, 1006). As a consequence, evidence-based, quantitative research has gained acclaim in education departments globally and is, it seems, increasingly more likely to acquire funding. In the same stride, governmental evaluating bodies, such as OFSTED in the UK, were established to strengthen the case that education “should be or become an evidence-based practice” (Biesta 2006, 1). The call for ‘effective’ education that lies at the foundation of such a concept of education implicitly transports the unexamined assumption that education produces measurable outcomes. As a consequence, PISA introduced a measurability-rationality to curricula and school reform inducing a profound transformation of what knowledge is deemed relevant (Grek 2012, 43)

PISA stands in comparison to no other in the way it is received and perpetuated as “gold standard” in both research and policy-making (Ozga 2012, 166). The reason for the unique ‘PISA-effect’ in terms of the soft-governance of educational policy and research, Takayama (2012) explains with the high public attention that PISA generates due to the “highly contradictory, ambiguous meaning, symbols and texts” (150). Takayama (2012, 150) argues that PISA was purposefully created as a polysemic tool whose data can be interpreted and applied in different national contexts and for different political purposes. According to Takayama, PISA’s argumentation can even be described as hegemonial because of its demonstrated ability to ideologically incorporate counter-discourses and redefine them for their own purposes. This can be observed especially in recent publications, where high emphasis is put on traditionally social democratic values like equity and inclusion, which it reframed in a human capital approach (Takayama 2012, 15). PISA includes these values “as a strategy to justify the OECD’s global policy discourse that marginalises educational goals not suited for quantification of

measurement.” (Takayama 2012, 151) PISA, following this argumentation, disguises its economic and policy agenda with a reference to these social democratic values to justify its own position in governing social and cultural developments. The individual, although supposedly freer than ever before from legal interference, is discursively tied to the fulfilment of economic growth through the incorporation of notions of citizenship, self-fulfilment, and well-being defined through monetary success and status (Brown 2016, 4). I argue that its use of the undefined notion of ‘adaptation’ is part of the polysemic strategy of PISA.

6.3.2 Adaptation and adaptability in PISA documents

In this chapter, concepts of adaptation have materialized as highly interesting in the way they inform views of education, learning and teaching. It has also transpired, however, that the term ‘adaptation’ is ambiguous, carrying a multitude of potential meanings and implications. Due to its major influence on virtually all realms of educational thinking and acting, the way PISA defines education – and educational concepts of adaptation – is important to unpack. In particular, if we assume that the ambiguous, polysemic nature of PISA is part of its hegemonial status in informing educational research, practice, policy, and theory.

That PISA documents use the term ‘adaptation’ frequently is not surprising. PISA is intrinsically leaning towards an idea of adaptation to and adaptability due to its framing in human capital theory. In the knowledge and information centred economy, the individual is expected to learn in with the aim of matching the demands of the labour market (Lauder 2012). In *Knowledge and Skills for Life. First Results from PISA 2000*, the OECD states: “PISA is based on a dynamic model of lifelong learning in which new knowledge and skills necessary for successful adaptation to a changing world are continuously acquired throughout life.” (OECD 2001, 9) Knowledge and skills are conceptualised as requirements for successful adaptation in a contingent world. In an increasingly complex globalised economy, economic developments are not foreseeable – instead of thinking about particular knowledge and skills that ensure that adaptation, PISA focuses on the subject’s ability to remain adaptable to the demands of a highly contingent economic

environment. Adaptation, it follows, is reframed into adaptability – being ‘well adapted’ means to be adaptable.

Adaptability is a highly circulated concept in current learning theory and psychology. It is commonly defined as “the capacity to adaptively regulate cognition, emotion, and behaviour in response to new, changing, and/or uncertain conditions and circumstances.” (Martin 2012, 90) In an adaptability-focus, learning is seen as a tool of the individual to adapt quickly and flexibly to ever accelerating micro- and macro-level transformations. ‘Learning to learn’, therein, becomes a core aim of educational practices: “If young people leave formal education before they have learned how to learn, they will not be able to update their skills to meet the needs of a fast-changing and increasingly globalised labour market.” (OECD 2010b, 94) Besides the skill to learn, the motivation and willingness to remain adaptable throughout one’s life by learning continuously what is necessary economically, receives high emphasis in PISA’s adaptability: “Adolescents with a positive attitude to learning are more likely to leave school with a better chance of successfully adapting and acquiring new skills throughout their lives.” (OECD 2006b, 84) PISA’s understanding of adaptability, we follow, is a mixture between skilfulness, knowledge and attitude to adapt to external demands.

PISA’s strategy for enforcing “adaptation to changing circumstances” (OECD 2001, 98) is built on a combination of “new knowledge and skills necessary for successful adaptation to a changing world” (OECD 2010a, 9), and the active fostering of “attitudes [...], motivation and capacity to continue learning throughout life” (OECD 2004, 110). PISA is quintessentially neoliberal as it counts on people governing themselves according to seemingly free choices in a way that contributes to the overarching aim of economic growth (Mikelatou&Arvanitis 2017, 501). Lifelong learning, in a neoliberalist framing, is the attempt to diverge the responsibility for the individual’s economic success back to the individual itself, rather than reflecting on it structurally. Demonstrating its hegemonic argumentative potential, to ensure people’s compliance, PISA incorporates and redefines ideas like “general well-being” (OECD 2006b, 84) and argues that the ability and willingness for adaptation to is an inherent quality to ‘successful citizenship’. Especially in later publications, it appears that citizenship is increasingly used interchangeably with a notion of the “educated person” (OECD 2006a, 21), which, in turn, is used to justify

and reframe adaptability under economic standards – both in terms of skill and attitude – as an educational aim. In *Assessing Scientific, Reading and Mathematical Literacy. A Framework for PISA 2006*, we read: “A mathematically literate citizen realises how quickly change is taking place and the consequent need to be open to lifelong learning.” (OECD 2006a, 76) Mathematical skill, in this quotation, is connected to (an undefined) notion of citizenship that is used to justify adaptability and the willingness to adapt to contingent developments, as ‘the rational thing’.

PISA’s attempt to justify its adaptation to strategy to ensure the educational provision of the required human capital, does not stop, however, with reference to reason, democratic values, or supposed well-being. In *PISA 2009 Results: What Students Know and Can Do*, adaptability is connected to competitiveness of nations, on a macroeconomic level: “The world is indifferent to tradition and past reputations, unforgiving of frailty and complacency and ignorant of custom or practice. Success will go to those individuals and countries that are swift to adapt, slow to complain and open to change.” (OECD 2010b, 5). “Economic growth”, PISA maintains further, “depends, to a large extent, on a workforce that is flexible and able to adapt to different needs.” (OECD 2010b, 94) PISA connects education to the overcoming of economic crisis (OECD 2013, 3). As a consequence, education is made directly answerable to economic developments, justifying monitoring and measuring of ‘learning outcomes’ of students, and ‘teacher success’ through quantitative comparison. Individual’s adaptability, i.e. the ability and willingness of adapt to changing environments through learning, is connected to macroeconomic success.

In this argumentation, education is put in a position of accountability which informs PISA’s definition of learning profoundly: Learning, within that accountability-rationality is commodified to an almost comedic degree when discussed in terms of “the rate of learning that occurs per hour” (OECD 2011, 20). PISA establishes itself as a necessary monitoring entity and argues that “direct measures of human capital are necessary to understand how various skills develop over time, and how they contribute to social and economic growth.” (OECD 2012, 3) In the same stride, competition is discussed as a necessary means to find best practices and to improve the ‘efficiency’ of education: “While national and regional evidence continues to be important for management and accountability, it has become increasingly critical for countries to be able to benchmark their measures of human

capital internationally for competitiveness and productivity.” (OECD 2012, 3) The rationality of measurability that PISA helped to establish has an enormous impact on how we view and research learning and teaching today: Learning is increasingly defined in terms of measurable outcomes and performance. The accountability-rationality also altered the perception of the teacher, whose ‘value’ is measured by the performance output of their student (Akiba&Shimizu 2012, 247). In the context of the neoliberalist formation of society and economy through educational policy, curriculum and practice reforms a, what Apple (2016) deems, “clearly a form of Social Darwinist Thinking” (505) re-emerges.

I contend that adaptation and adaptability emerge as key concepts of PISA. The OECD uses PISA to frame learning and education in a human capital approach, and thus reconstruct educational institutions as tools for economic growth. Adaptability is discursively reframed with reference to democratic values, citizenship, autonomy and well-being. However, in connection with PISA’s understanding of adaptation strictly as adaptation to that was developed in this chapter, we begin to perforate the true nature of PISA’s idea of adaptability and lifelong learning as serving a macroeconomic interest rather than the emancipation or *Bildung* of the subject.

I note, in agreement with Apple (2016) that interesting commonalities emerge between PISA’s definition of education and adaptation and a Spencerian concept of passive *adaptation to*. In PISA, just like in Spencer, the individual is not seen as an agent of societal change, but rather but in reactivity to contingent changes occurring externally. What defines the relationship between the subject and the world, on this reading of adaptation, is adaptability. Adaptability, in both Spencer and the studied PISA documents, is the aim of education as it ensures adaptation to contingent environments. While in Spencer, adaptability is conceptualised in his idea of preparing students for ‘complete living’, in PISA, adaptability is promoted through the notion of ‘lifelong learning’. They both look at education as instrumental to an externally defined societal aim; as I have argued above, in this perspective, an accountability-paradigm is introduced, which leads them both to connect adaptability with competition in a rationality of selection and comparison (Stetsenko 2017, 48).

Interestingly, at first sight, there exist similarities between PISA and Dewey as well. According to Bellmann (2007b), “several representatives of the German discipline of education” (421, translation mine) have associated American pragmatism, and Dewey in particular, with PISA. Oelkers (2003), to name a well-known thinker falling into that category, finds that “the philosophy of PISA is pragmatic: Learning is defined as lifelong adaptation.” (89, cited from Bellmann 2007b, 423) Indeed, adaptation as an unceasing process shaping the individual’s being-in-the-world is a core theme of Dewey’s pragmatic evolutionary theory of education and learning. This lends itself to a comparison with PISA’s notion of adaptation as adaptability to contingent (economic) developments. There is also without a doubt a parallel between Dewey and PISA in the focus on adaptability as an educational aim: In *Evolution and Ethics* (1898/2008) he writes: “If one is fitted simply to the present, he is not fitted to survive. He is sure to go under. A part of his fitness will consist in that very flexibility which enables him to adjust himself without too much loss to sudden and unexpected changes in his surroundings.” (41)

Despite these parallels, the association of Dewey with the philosophy of PISA is misleading. The richer evolutionary perspective developed in this thesis allows me to contribute to Bellmann’s (2007b) criticism of such an association between Dewey and PISA. This thesis has shown that educational concepts of adaptation are inherently ambiguous and require further clarification. Adaptation, as the analysis of Spencer in comparison with Dewey has shown, is a polysemic concept – to define learning as lifelong adaptation, as it is the case in Dewey’s educational philosophy of growth, does not mean the same thing as the passive ‘adaptation to’ philosophy at the heart of PISA. While PISA promotes a concept of adaptation to that lacks any notion of societal transformation, Dewey’s concept of adaptation is necessarily dialectic, involving ‘adaptation to’ and ‘adaptation of’ as part of growth. Experience, which, in Dewey forms the basis of growth, is “trying” to cause change in the environment; it is the “active sense of control of means for achieving ends.” (Dewey 1916/2008, 52) Experience can never exist merely in a one-directional way, forming and changing the subject without changing the subject’s surroundings. “Adaptation, in fine, is quite as much adaptation of the environment to our own activities as our activities to the environment.” (Dewey 1916/2008, 53) This transformative agency is missing from PISA. ‘Adaptation to’, in

Dewey, is supplemented with ‘adaptation of’ – to assume a kinship between Dewey and PISA is, based on the perspective presented in this thesis, false.

6.4 *Future possibilities for evolutionary educational theory*

The aim of education, following PISA, is the adaptation of the individual *to* the reality of an unpredictable economy. ‘Adaptation to’ in a contingent environment means to ensure adaptability; it means to make sure that individuals remain flexible to respond to economic demands by learning. There is virtually no trace to be found in any PISA documents to date that evokes an idea of social transformation. Then again, it does not exactly come as a surprise that the OECD does not have a deep interest in societal transformation outside of economic interests.

Due to the hegemonial rhetoric of PISA and the success with which it has established itself as ‘the gold standard’ in education, it seems almost impossible to think of education outside of its role in the provision of human capital. As a result of the wide acceptance of the accountability paradigm governing education on the level of educational institutions, to use the words of Stetsenko (2017), “the schoolroom today that is the scene of a large-scale experiment in Social Darwinism with its principles of natural hierarchy of inborn capacities presumably fixed by biological inheritance that necessitates constant control and testing.” (20)

This thesis has shown that there exist alternative ways of thinking education and learning in reference to evolutionary movements and adaptation. Both Dewey and Vygotsky present alternate, less restricted concepts of adaptation that embed individual development, learning, and educational practice within broader evolutionary developments, while at the same creating spaces for intelligent, agentic, and purposeful activity. In closing this chapter, I want to use the findings of this thesis to reflect on alternative ways of thinking education as adaptation; ways that go beyond PISA’s instrumental perspective on education. To that end, I will sketch out some lines of thought emerging from Dewey’s and Vygotsky’s alternative education concepts of adaptation.

Most fundamentally, Dewey’s and Vygotsky’s evolutionary perspectives provide a potential alternative for PISA’s individualistic and simplistic conception of

learning. Following its “neo-Darwinian ethos” (Stetsenko 2017, 171) PISA is focused on competition and comparability. It thereby perpetuates a focus on the individual’s cognitive activity and promotes a conception of learning in terms of the measurable output it produces – individual performance in testing situations and ‘learning’ are equalised. In both Dewey and Vygotsky, the social aspect plays a significant role in learning and both problematize the idea that learning is primarily cognitive and individualistic. In Dewey, ‘the social’ is part of the environment that influences the subject’s behaviour, and is, in turn, influenced by it. “Social adaptation” (Dewey 1902/2008, 261), he emphasises is key for the development of the human species and their ability to form democratic interactions and develop common meaning. What is learned through the process of reflective ‘undergoing’ – both in terms of cognition and habits of conduct – depends largely on the ‘doing’, the acting in a social environment. In Dewey, learning is also not happening in separate, closed ‘units’, but rather, in a Jamesian perspective, in the form of a stream in constant flux. In Vygotsky the social is even more constitutive in the individual’s learning and development as, on his view, all mental functions first exist in collaborative action. Teaching, on a Vygotskian perspective, which is a particular kind of social relationship, makes qualitative transformations of the subject’s activities and her/his relationship to the world possible in the first place. Vygotsky’s ZPD also introduces an alternative understanding of performance, as it moves away from a mind-set that only values activities that the individual can do without help, to a collaborative view on learning and creating.

When it comes to Dewey’s particular contribution to envisioning alternative perspectives on education, English (2013), Saito (2005), or Reich et al (2016) emphasise the transformative element in Dewey’s concept of education and use it to criticise current agendas forming education in a way that I think is well applicable to PISA’s one-sided idea of education as adaptation to. What I can add to that discussion is the evolutionary focus that has brought to light the significant difference between Dewey’s and PISA’s educational concepts of adaptation. Dewey’s educational concept of adaptation describes the dialectic movement of growth that transforms that subject and the world simultaneously. The relationship is adaptive in the sense that the subject’s decision-making is reactive to external realities, manifesting both in the form of passive ‘adaptation to’, and active

'adaptation of'. I argue that to read Dewey with an evolutionary focus draws out at least two important aspects of his thinking that could be used to develop an alternative, less one-sided notion of education than is currently promoted by a neoliberal discourse: his anti-instrumental view of education, and the open-endedness of educational processes.

A Deweyan concept of adaptation informs a perspective on education that goes beyond learning, beyond institutions, and beyond 'human capital' (Reay 2016). In Dewey, education is growth, and growth is life. Dewey is, to use Rorty's characterisation, an "edifying philosopher" (1979, 370) who is focused on the process, rather than its outcome. This makes a Deweyan view on education fundamentally anti-instrumental: Educational practices do not have to justify themselves in the light of outer purposes; they are not held accountable by the 'output' they produce. Instead, I argue, in a Deweyan perspective the focus lies on the 'input' that educational practices and environments open up for further processes of growth. Following from Dewey's anti-instrumental and functionalist view on education comes the acceptance of the contingent nature of educational processes. For some of Dewey's critics, the dialectic flipside to this openness is its openness. Rorty (1979), for example, in his understanding of growth that - as discussed at length in chapter 4 - has been criticised by Saito (2005) and Greene (1987), sees in growth the "conformity to the norms of the day." (367) Because transformation is seen as "organic growth" (Dewey 1916/2008, 66), it is submitted to the principle of functionality, which makes it contingent on external factors, rather than directed by chosen purposes. To use the words of Reich et al (2016): "For Dewey, ideals can be immensely valuable, but only if they can connect to the actual" (1001). While some thinkers - such as Stetsenko (2017) for example - see the open-ended conception of growth as problematically relativistic, Dewey himself supposedly saw in the principle of functionality (as a foundation to growth) a safeguard against the instrumentalisation of education such as he observed in Spencer and his followers, but also in Marxist philosophy (Dewey 1898/2008).

In summary, at least two interesting contributions of Dewey's evolutionary perspective in rethinking education emerge: Firstly, his anti-instrumental view of education as a value in and of itself stands in stark contrast to the accountability-perspective prevailing in current educational discourses. This understanding of

education comes with the fundamental acceptance of educational processes as contingent and open-ended, which, in turn, poses particular demands on educator's ability to deal with that uncertainty and induce educative experiences based on it. Based on to the Darwinian framework, Dewey rejected the Hegelian absolute and thought of 'unfolding' and development as dependent on the environment (Reich et al 2016, 998). Secondly, Dewey's dialectic educational concept of adaptation allows us to think of education beyond the limited human capital scope of PISA and brings education out of the economic domain, and 'back into life' by connecting out-of-school learning with school learning (Reay 2016, 34). Education, on Dewey's view, is not preparation for a pre-determined future, but relevant to the very core of the subject's present relationship with itself and the world leading into a contingent future.

The particular contribution of Vygotsky lies, in part, in the way he goes beyond Dewey and also contradicts him. A Vygotskian perspective opens up reflection about human activity as having potential beyond its functioning as a tool of adaptation – it allows us to think of individual agency and responsibility in transforming society according to democratic ideals, to strive for equality and social justice. On a Vygotskian perspective, human evolution is dependent not on external factors, but on what is "taken up by people" (Stetsenko 2017, 35). On that view, development and learning as socio-culturally formable and conceptualises innate tendencies as the foundation for processes of negation, rather than manifestation. Everybody, in Vygotsky, has the potential to become an actor of social change if participation in the co-creation of the socio-cultural reality is enabled. In Vygotsky, "in contrast to the idea of mind as consisting of innate potential that can be developed only within very limited parameters, the idea implicit in a sociogenetic approach – that mind is not just developed but created by social activity." (Derry 2013, 44) Endowments at birth, on that view, play the role of the starting position for the artificial formation within the socio-cultural reality at hand, rather than being paths to be manifested with reference to environments. With the historical-materialist idea of the leap, Vygotsky creates argumentative grounds for thinking of something human conduct beyond mere functionality.

Vygotsky's perspective is at the heart of a popular research program in evolutionary psychology today. Evolutionary psychologists embrace Vygotsky's

pluralistic evolutionary framework and the fact that he makes a qualitative difference between biological evolution and cultural evolution based on human's ability for culture, tools, and purposeful transformation of their environment in a collaborative effort. The so-called "Vygotskian intelligent hypothesis" (Moll&Tomasello 2007, 647) claims that due to the collaborative nature of human activity, the human species built out a particular way of relating through "shared intentionality" (Moll&Tomasello 2007, 645). Vygotsky's post-adaptation paradigm, in other words, seems to be confirmed in the current discourse (Moll&Tomasello 2007, 647). However, moving away from a merely psychological perspective on learning into a critical-educational lens, the emphasised normativity in Vygotsky presents an important challenge. Educational theory has to go beyond the mere study of learning and its 'effectiveness', delving into questions of values, aims, and the desirability of those from different perspectives (Biesta 2016). Vygotsky, while presenting interesting starting points for thinking education today, cannot suffice. While Vygotsky's unique potential lies in the fact that he abandons an adaptation paradigm, and makes non-adaptive, purposeful social transformation imaginable, the fact he abandons Dewey's functionality principle is also Vygotsky's biggest liability in terms of reintroducing the normative component that Dewey sought to control by focusing on functionality.

Based on these reflections, what can be concluded regarding future potentials of evolutionary ideas emerging from a Deweyan and Vygotskian perspective? Both educational concepts of adaptation present unique benefits, while also inheriting their own set of issues. It might be worth pondering whether, instead of an *either/or*, Dewey's dialectic adaptation and Vygotsky's post-adaptation paradigms may be fruitfully combined without forfeiting either of their positive potential. Maybe functionality as a leading principle can be preserved without abandoning Vygotsky's idea of the leap. In that way the new space created in Vygotsky's post-adaptation paradigms for human agency in transforming societal conditions purposefully would be preserved, while at the same time integrating Dewey's 'normative safeguard'.

Without attempting to fully expand such a perspective at this point, I argue that growth and negation may exist alongside each other in the struggle that is human existence in a complex society. Such a perspective is consistent with both

Dewey and Vygotsky: Vygotsky's concept of learning, which he qualitatively distinguishes from development, inherits a space for the accumulative movement we find in Dewey's growth. The leap, therefore, already depends on its dialectic counterpart, the ascending, the accumulation. And even though Vygotsky's concept of struggle is perhaps embedded more clearly as a constitutive part of his wider philosophy, Dewey's idea of growth did not exclude struggle. "Opposition between the individual and the group" (Dewey 1932, 69), in Dewey, is a necessary component of growth; it forms discontinuities, which, as elaborated at length above, are necessary for change and progress. Growth and breaking, accumulation and leap, I conclude, are both already part of Dewey's *and* Vygotsky's perspective – albeit with different foci.

In an output-oriented view of education and learning, moments of crisis that would potentially give rise to positive breaks and leaps are considered something to be overcome as quickly as possible (English 2013, 55). If we were to embrace both the accumulative, smooth nature of educational processes, and the negative, breaking elements with them, both the integration of the old and, at times, its negation, the inherent contingency of educational processes could be seen not as a problem that ought to be controlled through testing, unification and compartmentalisation, but as a key asset. Instead of fostering compliance with the existing system through 'adaptability to', we could think of education in terms of enabling and fostering positive struggle. In this positive struggle with the status quo, movements of integration *and* negation become possible in the process of simultaneous transformation of the individual and society. Rather than thinking of education only functionally, we could think of it as based on what is encountered in reality, with the ongoing struggle to leap beyond that encountered reality. If released from the "regimes of accountability" (Ozga 2012) that PISA's understanding of adaptation as 'adaptation to' engenders, educational institutions could be aiming at critical citizenship that could be both problem-solving, problem-finding and problem-creating, rather than the production of human capital. Teaching, on that view, becomes the practice of the learner cultivating freedom from external powers, a practice of the "mastery of external determinations" (Derry 2013, 85). The aim of education would be to grow and, at times, to negate, combining processes of accumulation and integrations with moments of breaking, of discontinuity; it would

be focused on current societal issues (outside of economic crisis), while at the same time allowing for moments of leaping outside of the immediate.

6.5 Thesis summary

In this thesis I have studied the evolutionary educational theories of Spencer, Dewey and Vygotsky. Based on a conceptual framework developed for the assessment of evolutionary frameworks in education, I have studied and compared different evolutionary educational concepts of these three thinkers. It transpired from that analysis that even though all three thinkers draw from evolutionary concepts, they differ greatly in their more detailed assumptions about the nature of evolution. It also emerged from that analysis that acknowledging those differences enables novel understandings of some key educational concepts, such as Dewey's *growth*, and Vygotsky's *ZPD*. As a first key insight, this thesis has demonstrated that acknowledging evolutionary underpinnings in educational theories and studying them based on an informed scientific-conceptual framework aimed at capturing evolutionary concepts in an educationally relevant manner, is a significant undertaking that produces new insights and meaningful perspectives.

As a second core insight, in drawing together the findings of these hermeneutical studies, I found that adaptation is a constitutive element of the theoretical synthesis between evolution and education. Concepts of adaptation are highly ambiguous as they vary significantly in meaning depending on the evolutionary ontology they are built upon. Concepts of adaptation are complexly related to educational concepts. Adaptation describes the relationship between the subject and the world; concepts of adaptation function as 'bridging points' between evolutionary concepts, theories and paradigms, and concepts of education, teaching, and learning. This meaningful role at the intersection of evolutionary concepts and educational theory makes adaptation highly relevant as an educational concept. Three types of educational concepts of adaptation were identified in the studies of Spencer, Dewey, and Vygotsky 1) one-way adaptation, or adaptation to, 2) dialectic adaptation involving the simultaneous transformation of the subject and the environment with the aim of re-creating continuity, and 3) post-

adaptation, building on the assumption that instead of adaptation to external demands, human activity is defined by collaborative purposes.

These three types of educational adaptation inform different understandings of learning, teaching, and education. In Spencer, due to the Lamarckian evolutionism learning is replaced by genetic inheritance. Teaching, on that view, is a practice of preparing students for 'complete living', which means to make them adaptable to, and competitive in society. In Dewey's Darwinian understanding, education is a process of growth that combines the simultaneous transformation of the self and the world through educational experiences, i.e. experiences consisting of active 'doing', and passive 'undergoing'. Growth is the ongoing relating of the subject to the world. Teaching, in Dewey, means the enabling of relevant experiences and supporting learner's reflective processing of experience. In Vygotsky's Marxist-Darwinism, learning is understood as a precursor to qualitative developments that are facilitated through teaching. Education, on his view, is the negation of previous experiences and endowments at birth with the purpose of increasing self-determination. Rather than thinking of learning as induced by an external 'actual', Vygotsky thinks of learning as induced by collaborative, purposeful labour activity. This perspective puts collaboration in a group of learners at the forefront, while also preserving a strong concept of teaching in the ZPD.

Using the conceptual knowledge developed in this thesis on educational concepts of adaptation, I analysed currently prevalent educational concepts of adaptation promoted in the OECD's PISA publications. As a third core finding it transpired that PISA promotes an understanding of education as a means of 'adaptation to' that promotes adaptability to external demands as a core aim of education. In that, I have argued, a Spencerian educational concept of adaptation appears to re-emerge. PISA disguises its conservative agenda in the rhetorical disguise of a social-democratic quest for citizenship, equity, and wellbeing. Using this hegemonial argumentative strategy, PISA is able to push the economic, neoliberal agenda of the OECD and position itself as a necessary monitoring-agency ensuring societal progress. Using the alternative educational concepts of adaptation presented by Dewey and Vygotsky, in closing the thesis' argument, I sketched out the future potentials of evolutionary frameworks in education that go beyond PISA. Such potentials are the dissolution of a compartmentalised and

individualised concept of learning and the concomitant embedding of learning and education in all formal, informal, and non-formal aspects of life beyond childhood and adolescence. Furthermore, Dewey and Vygotsky promote and an anti-instrumental view on education as a value in and of itself, as well as a framework to embrace the contingency of processes of education and learning. In that, they refocus on the agency and responsibility of the learner in her/his own growth, as well as the growth of society. In that, they provide a frame for thinking of education and pedagogical practice as highly socio-culturally relevant and put a novel emphasis on teaching/the role of the teacher.

The aim of this thesis was to enhance our understanding of evolutionary theories in the context of educational theorising in order to enhance our ability to discuss evolutionary ideas entering the discipline of education critically and theory-informed. To that end I developed a tool for discussing evolutionary ideas prevalent in educational theories, identified adaptation as a core component of the synthesis of evolution and education and illustrated how these analytical tools are able to inform historical-hermeneutical studies as well as an informed critique of current and future educational discourses. The significance of such an informed critique has been illustrated with an in-depth analysis of the genealogy of the ideas like 'education as adaptation', or 'learning as adaptation' and their current manifestation in the current educational discourse. It transpired that there prevails, both historically and with regard to present discourses, a lack of appreciation of the ambiguous nature of educational concepts of adaptation. The categorisation developed in this thesis contributes to the clarification of educational concepts of adaptation. It may hopefully provide educational thinkers and practitioners with a tool for reflection and criticism, which will help the differentiation of educational concepts of adaptation and allows to protrude to the underlying and implicit assumptions about education, learning, and teaching.

7. Bibliography

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