

Education in the 21<sup>st</sup> Century.

Anne Wehrmeister

VID vitenskapelige høgskole

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## FORWORD

This final examination is the final product of my Master's degree in Global Studies at the VID / MHS and is also the beginning for the realization of my vision to shape schools sustainable.

We live in unsafe and troubled times, in which the economic crisis, among others is an expression of the lack of trust in the institutions of our systems and, above all, of the educational institutions.

Our principles of living together and the understanding of complex processes must be understood in order to be able to deal with the coming crises and challenges and to solve them at best. Creativity, knowledge and good judge of human nature are therefore necessary in order to achieve an economic, ecological and social stability, and thus lead a happier, self-determined, free and fulfilling life in a community. Our present society evades people's emphatic empathy, which is necessary to take responsibility for their own actions, because of their defined values about competition and achievement and not with creativity and compassion.

I would like to thank warmly all members of Misjonshøyskolen for their professional, administrative and personal support who have accompanied me through the study.

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Thanks to my family, dad, David and my three children Malizia, Lino and Mila, who have been my motive engine for the entire study. You are the next generation and the reason why this work has come about - this work is dedicated to you.

Naomi, to you my special thanks for your unbiased help linguistic, critical expressions, for your empathy and to comfort me and your humanity!



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## INTRODUCTION

Children of *Die Wende* [who grew up in East Germany before reunification] grew up with two political systems, they are familiar with change and crisis. They know that suddenly everything can change and they have the ability to influence change. These children are a highly diverse generation who, because of their dual socialisation, have a balancing, triangulating position as mediators. This enabled the *Wende* children, all those characterised by transformation since 1989/90, to advance to a key generation in Europe. (Netzwerk 3Te Generation Ostdeutschland 2015: 4)

This quote from “Netzwerk 3.Generation Ostdeutschland”<sup>1</sup> encouraged me to view this thesis, not just as the conclusion of my studies, but as a way to actively participate in the change process (renewal and reorientation of the curriculum in Norway). As a child born in former East Germany and growing up at the time of the *Wende* and reunification, I became more and more interested in the course of my studies, “Global Studies” in the increasing interconnections in the areas of our society and markets. In particular, I think it is important to enable everyone in a society to understand and start discussing the issues of global connections and dependencies. In my opinion, this is a task for education, and should begin in the early years of childhood.

### BACKGROUND TO THE CHOICE OF TOPIC

Just as in ancient Greece, where there was great debate between sophists and Socratic teaching, we are today at a turning point of education due to globalisation processes and the challenges they pose in the 21<sup>st</sup> century. However, unlike in ancient Greece, mankind must now focus on sustainability if we are to ensure the wellbeing of the next generations. Education and life-long sustainable learning are the basis for this which UNESCO formulated in its goals and which now need to be implemented.

Since the beginning of my studies, it was clear to me that I should concentrate my thesis on the topic of education. In my own life and experiences with different educational institutions (requirements, goals, content, values and attitudes) in different states, even as a schoolchild, I

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<sup>1</sup> A network of people who were born between 1975 and 1985 in East Germany (before reunification in 1990 in the Soviet occupation zone).

wondered why I would need this or that and why there was enormous pressure to perform well at school particularly during puberty, when my mind was on anything but school. The schools I went to at the time did not correspond with the developmental-physiological development phases of a child in its curriculum and forms of teaching. Later, as a teacher, it was very important to me to structure lessons in such a way as to enable each child to develop their own potential by using different didactics and methods and the options open to me to change the form of teaching. With this long-standing interest and the new findings from brain research in relation to learning which can now explain *how* children learn, I wanted to know if there are schools where children are taught based on the latest brain research findings and at the same time observe the requirements of UNESCO for sustainable development so that children can **learn** and **test** sustainable thinking. The goal competences for learning proposed by UNESCO correspond to my understanding of learning for the future and are thus a focal point of this thesis. After moving to Norway, and adopting a helicopter view of developments and movements in Germany, I soon began to see and interpret what was happening there, while at the same time trying to find similarities and differences in comparison to Norway. School systems and education, if well designed, can lead to a happier and more satisfied life and are therefore in my opinion an important aspect of the development of children, and consequently of the future global society. This is where the idea of a case study originated. As Norway is currently undergoing a reform of its curriculum based on the requirements of how future learning should be (The Treasure Within) and UNESCO's Agenda 2030, the topic of my thesis was born: Education in the 21<sup>st</sup> Century.

## **RESEARCH QUESTION**

Derived from this topic and the current developments, I formulated the following research question:

*How can schools prepare future global citizens for the challenges of the 21<sup>st</sup> century?*

The question is based on one of six selected best-practice schools in Europe, the Evangelische Schule Berlin Zentrum, which were invited to Brussels to advise representatives on the topic of innovative learning for sustainable development. Based on their innovations, I derived the following research issue:

*How can sustainable and future-oriented learning with its forms, methods and didactic be implemented in Norway?* Thus, I would like to advance from the highest level of international politics to the micro level of planning lessons.



## DEFINITION OF TERMS

### *School:*

School in its original meaning, means “free time” or “leisure” and also called “educational institution or educational establishment”, is an institution, which has the educational task of teaching and learning, i.e to impart knowledge and skills through teachers to pupils. Schools should also of convey values in education and bring up informed and responsible personalities who can contribute to society.

Haan emphasises that education should not be confused with competence, because competence is considered to be quantifiable and objective,<sup>2</sup> unlike education which should be so individual that it cannot be compared. According to Haan there are four aspects which are relevant to a modern concept of education (Haan 2007: 26): The maturity and autonomy of the individual, the right to self-transparency/self-realisation, distance from merely useful, the understanding that self-realisation/individualisation can only be achieved in the context of a community.

### *Global citizens of the future:*

The term global citizens of the future refers primarily to students of today. Children starting school in 2017 are going to be shaping our world in 13 years with their knowledge. 13 years from now, it will be 2030, which means the end of Agenda 2030 and its sustainable development goals, which are critical for a sustainable world.

### *Challenges of the 21<sup>st</sup> century:*

I refer here to political documents which state future competence requirements, described as 21<sup>st</sup> century skills and which have consequences for primary schools and their roles and content. The main document used here is “Om fremtidens kompetansebehov. En systematisk gjennomgang av internasjonale og nasjonale initiativ” (About future competence requirements. A systematic review of international and national initiatives), which is a commission lead by Ole Erstad and addressed to the Ludvigsen Commission secretariat (public commission on the School for the Future).

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2 According to Haan, competences develop the right of the individual to fulfil his or her potential and to participate in social communication and distribution processes – understanding the sense of the term rather than as an instrumental competence term.

### *Sustainable and future-oriented learning:*

In order to implement sustainable and future-oriented learning into the Norwegian curriculum, I refer to the BLK programme,<sup>3</sup> Transfer 21 lead by Prof. Dr. Haan which supports education for sustainable development (ESD). Acquiring the *Gestaltungskompetenz* (shaping competence), which the programme covers, means focusing on the ability to engage personally and in cooperation with others in sustainable development processes and to systematically analyse and assess non-sustainable development processes. (Transfer-212007: 5) As Haan points out, the differentiated sub-competences can be used to relate to the existing curricula, subjects, areas of learning, school-internal curricula and school programmes. The reference framework I have chosen for the sociology of knowledge approach to discourse for the shaping competence is the OECD concept (key competences) as it can be applied internationally and is highly relevant to educational policy. The OECD is responsible for PISA tests and comprises the up-to-date competence concepts.

## **THESIS STRUCTURE**

This thesis covers two focal topics which will be examined in the analysis chapters of the paper. Following the theory section, comes the method chapter. I subsequently discuss an overview of the German schooling system which is important to understand the case study in the first analysis chapter. This is followed by a short discussion of education for sustainable development which is relevant to both analysis chapters. I then come to the first analysis chapter of the case study, Evangelische Schule Berlin Zentrum, which is examined as an example of sustainable development and for developing potential. The second analysis chapter discusses the implementation of education for sustainable development in the currently ongoing process of planning a new curriculum in Norway. I finish with a summary and conclusions.

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<sup>3</sup> BLK Programme is a federal and local-government joint commission for education planning and research promotion based in Germany.

**RESEARCH RELEVANCE:**

The research issue is very relevant in my eyes, as sustainable development which is the goal of Agenda 2030 and covers all three levels of our system, the ecological, social and economic, is due to be implemented by 2030 in all countries, including in the West. Education is of special significance because it can change lives. In addition, the on-going reworking of the curriculum in Norway is currently a topic of great interest and I hope that with my case study, I can offer an example of how learning goals can be implemented and suggest the existing Transfer 21 Programme as a useful tool.

# 1 THEORY

This chapter presents the theoretical part of my work and is the foundation for my analysis on the form schools should take in the 21<sup>st</sup> century to prepare future global citizens for the challenges they will face. To begin with I would like to assume a perspective from space to look at the earth and describe the two main systems from this standpoint, and explain *the earth* as the basis of life and *human beings* as the greatest influencing factors. This explains my first theoretical assumption of the systems. I will then present my two other theoretical approaches to the research issue, firstly, globalisation, and secondly, the theory of developing potential according to Gerhald Hüther and its fundamental elements. I will incorporate these into both analysis sections, the case study, *Evangelische Schule Berlin Zentrum (ESBZ)*, and an attempt to implement this new culture of learning into the Norwegian educational system.

## 1.1 SYSTEMS

### *From Space*<sup>4</sup>

#### *1.1.1 The planet earth...*

...is the only planet available to us, human beings. We could not survive without its resources.

Our earth is a complex system with several interconnected subsystems. These can be divided into two groups: natural systems which form the basis for all forms of life and which depend on each other (these include the atmosphere, lithosphere, pedosphere, cryosphere, hydrosphere and biosphere) and social systems. These are functionally varied subcomponents of a society interacting with each other. These include the economy, politics and education. Each subcomponent in turn is made up of different standards and institutions (for example, political parties, universities). Between all the systems and subsystems there is an ongoing exchange of information. They interact with each other and have different functions. Each time we interfere with natural resources, for example, changes are triggered, some of which are irreversible. As a result of globalisation, the risks are no longer contained or limited regionally. Jill Jäger characterises systems with reactions or interactions that are cyclical and can be viewed in terms of how they interconnect.

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4 All information from Liedtke, Christa, Maria J. Welfens et al. 2008:3

In the following I would like to quote a number of the relevant aspects of complex systems according to Jill Jäger (2007) of significant relevance to our understanding of the topic education in the 21<sup>st</sup> century.

- The system is in a state of constant flux.
- Strong, primarily non-linear interactions can result in small causes having a large impact or large causes having a small impact.
- Feedback loops – both positive and negative – self-reinforcing reaction loops should not overstrain the system's ability to self-regulate, or the system will die (for example, leading to the climate collapsing).
- A cause will often only have an effect after a long period of time.
- The system develops erratically and any evaluation of the development status is subject to a high degree of uncertainty (for example, weather forecasts will become more imprecise the further into the future they try to predict).
- Systems are always made up of subsystems which in turn interact with each other in complex ways (for example, region, country, Europe, world).
- Systems which organise themselves change their structure spontaneously and create new patterns of behaviour.
- Coevolving processes allow the system to adapt to conditions of each other while feeling its way forward “slowly” in a sort of experimental way, (reflexes, for example, the flight reflex or sucking reflex, incorporated into our genetic makeup)

Jäger points out that interactions and feedback effects are characteristic for systems and that cause and effect cannot be explained in terms of a single cause. If we look at Jill Jaeger's theory from a sociological perspective, we can see a degree of similarity with Gregory Bateson 1904 (reproduced from Eriksen 2003: 88). He maintained that all types of system have some common aspects and that elements react to feedback in the system, in other words, react to something that happens somewhere else in the system. The feedback transplants itself further, causing a new ring effect somewhere else. This process is perpetual. (Eriksen 2003: 88-89) It is important to note that all types of system, natural and social, are able to evolve which ensures the system's survival. As a

result, any interference that is significant enough to stop its evolution, can destroy it (Liedtke, Christa, etc.2008: 4).

Evolution in the system of nature requires, on the one hand a “large variation of genetical substances” (biodiversity), and on the other hand, “the chance for individual factors and information from this gene to combine, vary and transfer.” (Liedtke, Christa, etc.2008: 4). If the genepool is too small, interaction is restricted (for example, by extinction or barriers) to such an extent that it is no longer able to adapt to new circumstances (such as climate change and its effects). Subsystems are destroyed and may topple the entire system earth (Liedtke, Christa, etc.2008: 4). In the analysis chapter: Case Study *Evangelische Schule Berlin Zentrum (ESBZ)*, I will go into more detail about the social system.

### *1.1.2 The human being...*

...depends on the “services” supplied by the biosphere (air, water, land, plants and animals) in order to survive and to prosper (Liedtke, Christa, etc.2008: 8) At an ever-increasing pace, humans are having an ever-greater impact on the earth and its ecosphere without being aware of the consequences, and not being able to improve the situation or even making it worse with technology (ibid). Disagreements about the earth’s resources lead to an increasing number of social conflicts, such as migrations, wars over resources etc. An Indian proverb says, “Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself.” To answer my research question *how school can educate future world citizens for the challenges of the 21<sup>st</sup> century*, the guidelines are clear. The ecological dimension must guide economic and social development to ensure a peaceful world and future sustainability and guarantee a fair distribution of wealth. Natural resources are limited and human’s interference in the ecosphere means we risk losing them either partly or entirely (ibid 12-14).

## 1.2 GLOBALISATION

### 1.2.1 Globalisation Debate

Globalisation is a term that is firmly embedded in everyday language. We have all come across terms such as global player, global governance, global brands, global village or global sourcing. The term was not yet in use at the end of the 80s but spread rapidly within two decades, both in everyday speech and among various scientific disciplines. David Held and Anthony Mc Grew have identified two globalisation debates from a historical point of view. One is the *globalist* and the other is the *skeptic*. Skeptics see globalisation not as a new phenomenon, but as a continuation of trends which developed while Europe was colonising the world. The globalists on the other hand see globalisation as a real and significant historical development. In the numerous publications about globalisation, there are primarily two opposing opinions, the supporters and the critics of globalisation. The critics see globalisation as a threat and a problematic phenomenon, for example in the debate about social equity, the environment or the distribution of wealth. Its proponents welcome globalisation because they see it as a means to increasing prosperity and freedom. Globalisation critics are not just individuals as can be seen by the institutions and governments which take the threat seriously. The OECD understands itself as a forum to handle the economic and social challenges of globalisation (Kessler 2016: 19). A scientific study carried out by the Bertelsmannstiftung 2006 examined the attitudes of the European public from all 28 European Union member states with regard to European politics and their expectations for the future. The study examined, based on the rapid political changes (from established parties to populist parties), if fears of globalisation or values caused this shift, as these two explanations dominate the debate. Those that see a conflict of values as the reason, think that liberal values joining traditional values (topics such as male and female equality, same-sex marriage, ethnical diversity) is a provocation that causes people to become politically active. Others think that globalisation and fear is the explanation. The results of this study showed that it is primarily concerns about globalisation that causes some to turn away from the political mainstream and vote for populist parties.

The lower the level of education, the lower the income and the older the people, the greater the chance that they will consider globalisation to be a threat. In addition, those that affiliated with populist parties were guided by concerns about globalisation.

(Bertelsmannstiftung 2016: 3)

Results from brain research confirm this. People who lack a positive experience, for example with the positive aspects of globalisation or with newcomers or foreigners, do not activate the pleasure centre but the centre associated with fear and anxiety in the brain when confronted with these situations.<sup>5</sup> An opposing pattern of behaviour can be observed between those who avoid newcomers and those who approach and connect with them. People who are open to newcomers have a more interconnected and complex brain. This study emphasises the importance of education with regard to globalisation and its challenges.

### 1.2.2 The Main Features of Globalisation

“Globalization is best understood as a reconfiguration of social geography marked by the growth of transplanetary and supraterritorial connections between people.” (Scholte 2005: 8)

There is no one universal theoretical concept of globalisation and it is open to a number of interpretations. In the following, I would like to mention some of the thematic aspects of globalisation and explain them in theoretical-conceptual terms. In literature, reference is made to the concept of integration (increase in cross-border interaction in relation to domestic interaction), interdependence (increase in mutual dependence) and the concept of globalisation as a growing awareness of a world society (Kessler 2016:13). Scholte (2005) identifies five global concepts which have become established: internationalisation, liberalisation, universalisation, westernisation/Americanisation and de-territorialisation (respatialisation). These are stand-alone concepts, though they may overlap. Scholte’s *globalisation as internationalisation* covers the increase in inter-state dependency and cross-border economic activity. *Globalisation as liberalisation* also focuses primarily on economic processes (open markets, deregulation) while including the idea of (neo)liberalism. *Globalisation as universalisation* on the other hand refers to the process of spreading experiences and objects from people to all ends of the earth (for example, Chinese restaurants). While *globalisation as westernisation/Americanisation* characterises cross-border interaction and the spread of American values, ideas, religious concepts, cultural aspects (such as McDonald’s), also the social structures of modernity (capitalism, industrialism, individualism) which undermine the pre-existent cultures. *Globalisation as de-territorialisation and supra-territorialisation (respatialisation)* refers to the process of social disassociation territorially and the spread of transplanetary social connections. Scholte points out that *globalisation as supra-*

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5 The importance of the relationship between emotions and events will I present in Hüther's potential development theory.



*territorialisation* illustrates what is special about globalisation. Only when the first four globalisation concepts are combined with de-territorialisation are they complete.

The contemporary rise of transplanetary and supraterritorial connectivity has no means brought an end to territorial geography and associated economies, governments and identities. (Scholte 2005: 3).

The fact that global and territorial spaces co-exist is connected in a complex way. Scholte's definition of globalisation with the focus on the co-existence of global and territorial space is analogue to my view of the earth and human beings from space with systems that are interconnected and which influence each other and leave a footprint. Each action taken on earth, in a territory, has consequences that may be irreparable. Scholte points these out in the following:

The subject of globalization and production, argues that, at the same time that transplanetary connections have arisen partly out of capitalism, they have reverberated back to help reshape and extend capitalism. Contemporary accelerated globalization has done little thus far to challenge the predominance of capitalism that is, an economy centered on surplus accumulation. (Scholte 2005: 4).

Global relations have in this way left a "footprint" in the way in which processes of surplus accumulation operate.<sup>6</sup> Globalisation also affects a person's feeling of identity in so far as the state nations have lost their monopoly on the framework of collective identity. Scholte points out that there are also two opposing developments here. On the one hand, the spread of transplanetary relations has furthered a growth of micro-nations on a sub-state scale, region-nations on a supra-state scale, and transworld national diasporas. On the other hand globalisation has increased nonterritorial constructions of identity which are connected with it, for example faith, class, gender (Scholte 2005: 5) In this way, globalisation stimulates a pluralisation of identities with very different national and non-territorial frameworks which can subsequently lead to a positive sense of belonging.

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6 For example transworld corporate alliances, offshore arrangements.

### 1.2.3 *Modern Societies and Globalisation*

Both Norway and Germany, the countries relevant to my analysis, are modern societies and despite differences, have similarities with regards to their institutions and cultures. In the following, I would like to mention some important aspects of Hylland, which support the understanding of my analysis (Eriksen 2010: 286-287):

- The state and citizenship are general principles for social organisation.
- Paid work and capitalism are important foundations for modernity (ibid 286). One aspect is that capital is not restricted in space (for example, a company can invest where it is most profitable).
- We consume what we can buy with money.
- Politics and economics play a very important role, and have a ring effect.
- System integration takes place on a global level.

### 1.2.4 *Key Dimensions*<sup>7</sup>

#### Disembedding

Economies and technologies, such as the internet, are the driving force behind *disembedding*, which is also used in schools, for example, to gain access to information, teaching and learning materials. A further example is enabling schools, students and teachers to connect with other schools in the world, made possible by online conferences, skype conversations etc. The use of these technologies renders the distance between two institutions irrelevant. Ideas, concepts and investment capital can travel faster and faster.

#### Acceleration

The use of communications and transport increased greatly in the 20th century and this trend continues. Mobile telephones, internet and television satellites enable immediate communication. Stress and speed are negative side effects of globalisation. Inexpensive flights and telephone calls are fusing the world closer together.

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<sup>7</sup> ibid 287

## Standardisation

Standardisation and its processes are increasing. Common measures and standards are intended to make comparison easier, for example PISA studies, the standardisation of third-level qualifications or international agreements.

## Connection

Networks are able to connect people across continents and are becoming faster and wider. Mutual dependencies and transnational connections necessitate an increasing number of international agreements and reorienting of foreign policies. However, this also offers new opportunities for restrictions or oppression.

## Mobility

The whole world is constantly moving, as a result of migration, business trips, tourism or international conferences increasing rapidly over the last twenty years. This has implications for society, politics and the economy.

## Mixture

The number, size and diversity of humans with different backgrounds and their influence on each other is increasing steadily.

## Vulnerability

Globalisation weakens borders and territorial policies struggle with unwanted forms of free movement, such as aids, transnational terrorism, environmental problems or floods of refugees. Erikson points out that our planet as a unit does not have effective tools to deal with the globalisation processes dominated by technology and economics.

## Re-embedding

Re-embedding is the answer to disembedding. It is a dimension that applies to all seven of the previous key dimensions and can be understood as a counter reaction, a counter reaction that actively seeks confrontation and creates alternatives. Thus, in addition to the mobile social world, a strong, morally binding network is established with a sense of local power, local values, local integration and national and local forms of identity policies.

### 1.2.5 Negative Consequences and Challenges of Globalisation

In spite of different opinions about globalisation, such as exaggerating or minimising its impact, globalisation is clearly having a long-term effect on humans and the earth. We can recognise ecological (for example, climate change, ecological destruction, pollution of fresh-water reserves), economic (for example, global economic crisis, growth of the gap between poor and rich, Brexit) and social consequences (such as the election of the US American President Trump, terrorism, changed democratic principles). Globalisation has also been called the age of insecurity, uncertainty and elusiveness. All of these issues are recognised in the international community and picked up in the concept of sustainable development. “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*”<sup>8</sup> (Brundland-Bericht der Weltkommission für Umwelt und Entwicklung 1987: 46), (Brundtland-Report of the World Commission for Environment and Development)

### 1.3 POTENTIAL DEVELOPMENT THEORY

With the theory on globalisation, I summarised the earth and its systems, now I would like to put the focus on human beings. Hüther’s *potential development theory* ties up with the idea of system thinking from a neuroscientific point of view, in so far as it relates to how each living system can best realise its potential in a coevolutionary process with other life forms (Hüther 2015). The term "potential" refers to the ability to develop skills that have not yet been exhausted. Hüther says that these skills are attached to the surrounding culture. When we speak of unforeseeable challenges in the 21st century, potentials will be formed which can be accepted by it. People are "open systems", which are in constant exchange with the world. Conditions change, and we ourselves lead changes through action / omission (Endres, Hüther 2014: 25). One of the most important findings of brain research is that the growing human learns almost everything in relationship to other things. The brain is thus used as a social organ. Relationship building competencies comes from trusting and constructive relationships that every person needs to grow. Public spirit can only develop from relationships when they experience the use of common effort (Endres, Hüther 2014: 29). These are important components for psychosocial competence, which, as Hüther says, is the key competency for the development of individual potentials. This can develop most widely when we meet as many different people as possible (Endres, Hüther 2014: 35). The connection and affiliation, the feeling of belonging and dependency, is picked up in Hüther’s theory and expands on this idea, until our

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<sup>8</sup> Translated by me.

innate creativity not alone but in community with ourselves and to find personal answers to the meaning of life. Hüther's theory is not based on requirements from the economic system or on ethical considerations or moral imperatives, but corresponds to the nature of human beings (Hüther 2015). Hüther explains the development of a living system as follows:<sup>9</sup> Living systems reconstitute relationship disturbances caused by internal or external influences by falling back on an internal pattern that is inherent in them. A central component of this pattern is the genome embedded in its cell nucleus (Hüther 2015: 63). Everything required for the expression of individual genetic sequences and for processing the resulting proteins is part of the genetic pattern used to maintain internal order in a cell. It determines when DNA sequences are shut down or written off. The other part required to maintain order in the pattern of a cell is changeable throughout the course of the life cycle of the cell's "experiences." Thus a cell adapts to the specific demands it meets in its particular living environment. Our organism creates a control system<sup>10</sup> which is only formed during the course of an individual's development, for example, the immune system, stress system, nerve system. They are always connected to the brain and also controlled and influenced by the brain. Hüther points out that even the *internal pattern* that each person develops in their brain plays an important role. The internal pattern comprises all the inner pictures that a human develops during their lives and experiences and embeds in their brains (own ideas, convictions, self-image, conceptions about people or the world). Hüther maintains that competition is not the driving force behind development, but merely forces living systems to become increasingly specialised (Hüther 2015: 65). Hüther derives from neuropsychological knowledge the solution to the growth problem of modern societies: "Unlimited growth is not possible by means of an increase in the size, but by a progressive intensification of the connections (...)." <sup>11</sup> (Endres, Hüther 2014: 45)

In order to develop a person's potential, according to Hüther, they would have to recourse to their defective DNA sequences (a pool of unused variations), the genome, to create structures and skills that are really new.

### *1.3.1 Structuring the Brain by Means of Experiences<sup>12</sup>*

The brain creates its structure based on the experiences made in relation to other people. If a child's reference person has developed ideas and internal opinions and attitudes that suppress the child's

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9 Whether it is a cell, a diverse individual, or a social network consisting of many individuals.

10 Automatically running reaction patterns within the internal systems.

11 Translated by me.

12 Hüther 2015: 116

own joy of discovery, relationship skills, compassion and creativity, then that reference person is stopping the child from developing its innate potential. How experiences are passed on in the form of attitudes determine how people live together, because the most important experiences that people have are relationship experiences. In our current culture of competition and performance pressure, we are mutually related to objects instead of being treated as subjects, says Hüther.

### *1.3.2 Neurobiological Fundamental Research about Learning*

To get across the theory regarding the research question I would like to include at this point neurobiological fundamental research concerning the topic of learning which has a role to play in the development of potential. It is essential for how it can be applied to practice, keeping in mind that this work is intended for implementation.

### *1.3.3 Motivation<sup>13</sup>*

Motivation is the driving force behind learning. The question as to how to motivate students is answered Bauer 2006 in neurological research with recognition, appreciation and attention. Joachim Bauer reproduced in Rasfeld, Spiegel 2013:235). In addition, choice and self-paced learning are further important factors for motivation. This means that each student can work according to their own pace and level with different points of approach. This freedom is reflected in trust and appreciation. Enthusiasm and meaningfulness are decisive if learning is to have a lasting effect (ibid). Gerald Hüther adds that our experiences are significant when we do something important with others. Manfred Spitzer explains in the context of learning, that curiosity and motivation are innate in us and natural, like hunger; it comes if you don't eat. Spitzer claims that motivation is naturally inherent in the human brain. Humans are *energetic* and *focused* if only they are allowed to be (Spitzer 2010: 149). Hüther also talks about enthusiasm as a driving force for learning and points out that the brain is not a muscle. The brain does not grow by filling it with more and more information until it is full, but that the material to be learnt must affect and inspire the student. The potential each one of us is born with and our creativity needs to be handled with care or we will lose it. A study shows that a large percentage of our creativity is lost by the time we finish school, whereby school and the current system are to a large extent responsible for this loss. Schools need to create the framework for students to pursue their questions and curiosity about what they are

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13 Hüther 2015: 65

interested in, and process it in different ways, for example, through art or experimental music. Both Hütter and Spitzer describe this natural motivation as curiosity and emphasise that the curiosity we all have can also be lost if not handled properly.

Curiosity is a character attribute that some have more than others. It has a biological basis, and is therefore embedded in our genetic makeup. The environment also plays a role in determining how well-defined this characteristic becomes. Curiosity, or wanting to know something that is not known, *to focus on something* has been researched within neuroscience (Spitzer 2010: 151). The analysis of studies shows that curiosity activates parts of the brain that are connected with memory and learning and also that curiosity leads to better learning. Spitzer presents the neurobiological picture of curiosity in combination with learning, expectation and reward, where reward is the answer to the question. Information is given the attribute of a reward. In turn, the happiness and learning system is activated, which enables the answer to be retained better and for a longer period of time. It should be pointed out that this process operates if an expected answer is not produced, but the environment provides an answer. For example, if the teacher asks a question which the students answer incorrectly, but then get a new, different answer from the environment (by autonomous learning, working the problem out etc. This is learning (ibid 150-154).

#### *1.3.4 Emotions*

When it comes to learning, emotions can accelerate the process. Pestalozzi's motto "learning with heart, head and hand" is still a guideline for many teachers. Everyone will have examples of learning through emotions. If you put your hand on a hot stove, you will not do it again. How does the brain learn using emotions? Two important modules important for learning are the amygdala and the nucleus accumbens which influence how we experience the emotions fear and happiness. Spitzer explains how fear is connected to the amygdala. If we see a lion running towards us, our body reacts in an appropriate and useful way (increased heart rate and blood pressure and the body prepares for fight or flight). Fear causes us to carry out simple, learned routines quickly and not to waste time finding creative problem solving strategies. We can learn fear in combination with a sound (for example, someone walking, footsteps coming up behind us in the dark) or a word etc. Studies show that neutral content is saved in different parts of the brain, depending on the emotional state in which it was learnt. For example, words with a positive emotional context are saved in the hippocampus, while words with a negative emotional context are saved in the amygdala. The way in which the brain works shows us that details are saved in the hippocampus where they are

retrieved while we sleep and transferred to the cerebral cortex (the “slow learner”) and saved in long-term storage within months. The amygdala, on the other hand, prepares the body and mind for fight or flight when information associated with this area of the brain is retrieved.

This is important in the context of education, since whatever is learnt in the context of fear (the amygdala) cannot be creative when it is recalled and is blocked. The emotional atmosphere is important for learning, particularly when we think of the subject that causes considerable anxiety, mathematics (ibid 137-143). In mathematics, the student cannot simply reproduce what has been learnt, but must *solve problems*. If learning with fear is bad for us, what about the emotions of happiness and joy? Some schools have introduced happiness as a subject and Bhutan refers to itself as the country of happiness and prefers to be rated by happiness rather than its gross national product. What does neuroscience tell us about happiness and what impact does it have on learning and education? (ibid 143-146). There is an area in the middle brain where neurons come together and produce the neurotransmitter dopamine which is transferred to two brain areas by fibre connections, the nucleus accumbens and the frontal brain lobe. The neurons are activated when there is an event that is *better than expected*. This causes the brain to release *endogenous opioids*, a type of opium which causes joy. The second effect is that dopamine is released directly into the frontal brain lobe which means that we can concentrate and think better and improves how we process information available at that moment. This causes more action potentials to cross more synapses which results in better learning.

### 1.3.5 Values

The relationships between brain development (maturity) and learning are relevant for all human cultural achievements, and therefore not just for learning language and mathematics but also for social relationships or circumstances in the world, for example (ibid 172). These relationships are particularly important for a person’s moral development. We learn values by living in a community of values. Both Spitzer and Hüther emphasise that humans must have the opportunity to make decisions and take action. Both agree that the right conditions must be provided, with role models and scope to experience. Hüther refers to the scope as community. Spitzer points out that playful action is not only important for children, but also for young people who learn values and virtues through action. And this is the only way they learn it (ibid 173). According to Hüther, young people need the opportunity to face conflicts and have the chance to take correct or incorrect action, to experience the consequences of their actions, and not to regard failure as a mistake. “A good



education is always the formation of personality” (ibid 174). Someone with a lot of knowledge can react to their environment in a more sophisticated way and approach others in a more sensitive way. Schools need to create opportunities for students to learn how to correctly evaluate situations, make decisions and take action. Rasfeld claims that the spirit of a school determines the attitude you assume.

#### **1.4 SUMMARY**

Summarising the background information about systems and the theories chosen for this research assignment, the globalisation theory and Hüther’s theory of potential development, the question arises as to what effect globalisation has on the natural systems and why does the well-being of natural systems or social systems matter? I would like to take a closer look at this question in the chapter, *Education for Sustainable Development (ESD)*, as this is the natural consequence of globalisation and part of the development of potential.

## 2 METODE

Social-scientific research offers a variety of methods. I would like to discuss the method I have chosen in general terms and then its specific application to my thesis.

The qualitative method is often used in social and socio-anthropological studies because analyses can be used for an in-depth study of a research field (Martyn Hammersley og Paul Atkinson 2004: 12). Interviews are often carried out and observations made in the field, text analyses can be made for acquiring and evaluating data. The qualitative method is criticised for being too subjective in acquiring data and in the subsequent analysis results and interpretations, when data is not collected using a uniform standardized structure (Cicourel 1974). However, Hammersley and Atkinson point out that if the qualitative method were not to be used any more, we would no longer be able to examine major social phenomena. The reflexivity and the consciousness of one's role as researcher and fitting into the research process can contribute more to social research than the quantitative method (Martyn Hammersley og Paul Atkinson 2004: 51). My empirical data was acquired from the following main documents: Agenda 2030 and the whitepaper *Meld. St. 28 (2015-2016)*. Data also came from the BLK-Programme<sup>14</sup>, Transfer-21, which was developed under the leadership of Prof. Dr. Gerhard de Haan and is a guideline for implementing education for sustainable development. Haan was Chairman of the German National UNESCO Commission for the UN Decade of Education for Sustainable Development (2005-2014) which coordinated the implementation of the Decade of Education in Germany and he is head of the Education and Futures Research Division (*Institut Futur*) at the Freie Universität Berlin. My primary literature references include the following books by Gerald Hüther: "Etwas mehr Hirn, bitte" (A bit more brain, please) invites us to enjoy our own thinking and rediscover the joy of being creative together, and "Lernlust. Worauf es im Leben wirklich ankommt" (The joy of learning. What life is really about). Hüther wrote this book in collaboration with Peter Endres and it addresses, among other things, the opportunities and obligations of professional life, it looks at new ways of learning<sup>15</sup> as well as developing student potential from different perspectives. The following books were helpful for analysing the learning forms and methods of learning used to support sustainable development and the development of

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14 BLK stands for "Die Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung" (commission for planning education and promoting research) in Germany and developed concepts, materials and structures between 2004 and 2008 to embrace education for sustainable development on a large scale.

15 From the perspective of brain science.

potential which I discussed in the case study *Evangelische Schule Berlin Zentrum: "EduAction. Wir machen Schule"* (EduAction: Setting a precedent for schools) by Margret Rasfeld and Peter Spiegel, and *"Schulen Im Aufbruch. Eine Anstiftung"* (Schools on the move. An incitement) by Margret Rasfeld and Stephan Breidenbach.

To counter the criticism of subjectivity, a number of methodically controlled procedures from qualitative social research were developed, such as the sociology of knowledge approach to discourse which claims to provide documented and intersubjective arguable procedures.<sup>16</sup> I use this method in my paper and would thus like to address it in more detail.

## **2.1 THE SOCIOLOGY OF KNOWLEDGE APPROACH TO DISCOURSE<sup>17</sup>**

The Sociology of Knowledge Approach to Discourse (SKAD) stems from the sociology of knowledge traditions of Peter Berger und Thomas Luckmann<sup>18</sup> combined with the discourse perspective of Michel Foucault.<sup>19</sup> It was developed by the sociologist Reiner Keller in order to analyse knowledge relationships and conditions in society. According to Foucault, the world is accessed by means of "socially constructed symbolic systems or orders which are produced in and through discourse" (Keller 2007: 57). Berger and Luckmann's approach illustrates that among interpretations and practical knowledge about the world, there is a certain amount of socially constructed symbolic orders and knowledge (Keller 2008: 120). Foucault emphasizes the importance of texts referencing each other in an analysis, which are organised and converge with institutions and practices which could be common to an era (Foucault 2013: 172). SKAD points at the discourse analysis of social knowledge conditions as well as knowledge policies and their consequences (Keller, Rainer; Inga Truschkat 2013: 28). The sociology of knowledge approach to discourse according to Reiner Keller which I have applied in my thesis is suitable to carry out a comparative study of large quantities of data both based on their content and their language and which, as an interpretation process, belongs to sociological hermeneutics. It deals with both action and structure theoretical elements of the sociology of knowledge (Keller 2007: 10). In the context of this paper, it looks at institutions (UNESCO, Norwegian government, schools) and examines their social effects. The social practice thus represents the discourse that analyses the overall view of the individual aspects in terms of inherent discourses and their interpretation patterns, classifications,

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16 Wikipedia. Qualitative Sozialforschung

17 All information from Tödter (Masterarbeit) 2015

18 Interactionism

19 Power-knowledge regime.

phenomenon structures and narrative forms with a detailed analysis in order to investigate the interpretation pattern of discourses (Tödter 2015: 39-40 (Masterarbeit)).

Tödter summarises that interpretation patterns are recurring interpretation figures or argumentation patterns which are part of the social knowledge repertoire and linked to each other in a specific way depending on the discourse. The connection between components of a statement must be investigated (ibid 40). The main documents used for analysis, Agenda 2030 and Meld. St. 28 (2015-2016), have a high formal equality of style, which is relevant for the second part of the analysis. For this reason, I have focused mainly on the content. Agenda 2030 is the main document used for the first part of the analysis, the case study. However, books by Gerhald Hüther were also used in the analysis. In this context, there are substantial differences, for example, in style and body of the text. Also, the terms used are different and this was addressed in the analysis. For reasons of space, I will not go into detail regarding the style and body of the texts, but will concentrate on the content and the terms analysed with regard to similarities and differences.

The sociology of knowledge approach to discourse covers a wide research spectrum and I would therefore like to describe the methodical approach I used and adjusted to my own particular interests. Taking my starting point in the knowledge and discourse area of education in the 21<sup>st</sup> century, I developed the following principle research questions to find an approach to my main research question:

*“How can schools prepare future global citizens for the challenges of the 21<sup>st</sup> century?”*

The second question is:

*“How can the sustainable and future-oriented learning with its form, methods and didactic be implemented in Norway?”*

I established a number of questions to help to answer and categorise this research question.

A typical helpquestion in discourse analysis that leads to knowledge is which power effects are derived from a discourse and how do they relate to social practice. In the context of my task, the question thus arises:

*How can the sustainable development required for Agenda 2030 be legitimized and what criteria needs to be taken into consideration in a future-oriented school? What is important for its implementation? What competences do humans need to meet the challenges of the 21<sup>st</sup> century?*

As previously mentioned, the sociology of knowledge approach to discourse poses in particular questions regarding social and institutional contexts in which statements of discourse emerge (Tödter 2015: 40). The research is therefore focused especially on the existence of statements. The following question arises: *Why do these statements emerge?* The main point of my discourse analysis is thus the institutional regulations of statement practices and their reality-constituting power (Keller 2004:7). Specifically, for the institutional regulation of Agenda 2030 drawn up by the UNESCO member states with its four pillars for sustainable education, the following questions for analysis arise (Schule im Aufbruch Kompass 2015).

Pillar 1, learning to live together:

*How can students practice living diversity together?*

Pillar 2, learning to be:

*How are students supported in developing their personalities and in learning responsibility for their own lives?*

Pillar 3, learning to know:

*How can students acquire knowledge independently?*

Pillar 4, learning to do:

*How can action orientation, competence development and self-efficiency experience be integrated into learning?*

In the second part of the analysis, I would like to use the sociology of knowledge approach to discourse to find out how the doubly formulated challenging character of Agenda 2030 (learning concepts to empower action and promote sustainable development) leads to education for sustainable development using the BLK Programme, Transfer 21 and the corresponding shaping competence and sub-competencies. One difficulty faced by education for sustainable development is in restricting the scope, because there is a very wide-reaching understanding of UNESCO in relation to sustainability and the tasks associated with it. As I refer to goal 4.7 of the SDGs, we can take from this point that:

By 2030 it should be ensured that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion

of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development." (Schreiber 2015: 6).

This mentions a number of topics for education for sustainable development which on the one hand occupies a learning field and on the other hand classifies everything that helps towards a positive development (Programm Transfer -21 2004-2006:4). In order to counter this overload, Haan proposes giving education for sustainable development a national character. This means, that if for example, a culture of peace prevails in Norway, it does not have to be included as a learning topic in Norway, but sustainable lifeforms would make sense. ESD is aimed at interdisciplinary and problem-oriented action and this is precisely where the BLK programme is effective, offering orientation help to acquire ESD competences<sup>20</sup> under the leadership of Haan. The following questions arise for the sociology of knowledge approach to discourse:

*How can students build up everyday knowledge and knowledge relevant for the future? And*

*How can knowledge be structured so it can be transferred to new areas of application?*

Haan emphasizes that due to the multi-complexity of the field of education for sustainable development the curriculum should be developed based on the competences to be acquired, and it must be clarified which sub-competences this includes. Content should therefore follow the competences. Building on the first analysis part in which the competence goals of the UNESCO and the OECD were examined to discover similarities and at the same time how they correspond to Hüther's theory of potential development, I would like, in the second part of the analysis, to examine the competence goals of ESD and Meld. St. 28 to establish similarities and discover if ESD can be implemented using the BLK Programme, Transfer 21.

## **2.2 PROCEDURE**

Following general research which includes gathering background information, I will create a body of data which examines how often certain elements appear in the text and then assign the elements to categories and interpretively code connections. Subsequently a detailed analysis will be carried out with a theoretical synopsis which should lead to the summary interpretation. Due to the restrictions of the scope of this thesis, I will concentrate on interpreting the contents of the texts and use them in the analysis, while nevertheless incorporating the situatedness (who, where and for

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20 Shaping competence and sub-competences

whom the statement is made) and the formal and language structure (type of document) (Keller, 2011: 100-106). Furthermore, in addition to the coding procedure, I will use another procedure, lexicometry. This involves the examination of quantitative relationships between lexical elements (words) in texts. This means working out the lexical relationships and the constitution of meaning in the text (Uni Erlangen *Diskursanalyse als Methode der Humangeographie* p. 177).

### **2.3 NEUTRALITY**

The pursuit of as much neutrality and objectivity as possible is of utmost importance in research. My German background gives me an insight and understanding for my research, however this understanding is at the same time also a challenge, as my cultural view with its values and interests influences me and my objectivity. By recognizing and being consciously aware of my role, my goal is to address the texts in a neutral and reflective manner.

### **2.4 PLAUSIBILITY**

As discourse analysis, unlike natural science, does not have an established method to guarantee the objectivity of its finding, therefore it is important for me to make each step transparent and argue why it is necessary for gaining knowledge (Uni Erlangen. *Diskursanalyse als Methode der Humangeographie* p 176)

### **2.5 DELINEATION**

As learning in schools depends on political guidelines of local government (content and goals), I would like to limit the scope of my thesis to Norwegian and German society, because in socio-anthropology, political power has often emerged as criteria for differentiating society (Eriksen 2003: 33). This political power determines the guidelines for the curriculum in the two countries examined in the subsequent processes. The Norwegian educational system differs significantly in its systematic structure from the German system, as it is characterized by its efforts to ensure equal opportunities and education for all. This is expressed in the ten years of basic schooling and the subsequent three to four years of upper-secondary schooling, which differentiates between general and vocational branches. The first part of the analysis, refers to upper-secondary education in

Germany, which is from 7<sup>th</sup> to 13<sup>th</sup> class. The second part of the analysis, the implementation of education for sustainable development in Norway refers to all school levels, however to limit the age groups, developmental psychological aspects (in particular the stages of moral development) should be taken into account as well as educational psychology findings (BLK-Programm „21“. 2003). In addition, when developing learning topics and forms it is important to familiarise oneself with the findings from brain and learning research as well as findings from youth research. Haan points to relevant studies which contain important statements and evidence regarding young people's interest in environmental and development topics, engagement in civil society etc. (BLK-Programm „21“ 2003: 24) Furthermore, in order to make education for sustainable development a topic in every lesson unit, I draw upon the idea of the spiral curriculum according to Bruner which states that any child at any stage of development can be taught any subject in some intellectually honest (Bruner 1973).

Individual lesson units build on each other and basic principles are repeatedly addressed on a higher level. Eriksen explains that the term society (*staat*) is a key word from a socio-anthropological perspective which is not easy to define and is often used in everyday language as a synonym for, for example, the Norwegian or the German state. A state is made up of several local communities and ethnic groups and is thus difficult to define precisely. Henry Maine differentiates between *status societies* (when one is born into a certain status in society) and *contract societies* (more highly developed and more complex than status societies) (Eriksen 2003: 32). Ferdinand Tönnies on the other hand made a distinction between two types of social groups, community (*Gemeinschaft*) and society (*Gesellschaft*). Community refers to a local grouping, the members of which are integrated as a result of their background and joint experiences (ibid 33). Society, according to Tönnies, refers on the other hand to a large impersonal grouping in which the state and large institutions have assumed the role of the family and neighbourhood (ibid 32-33). However, since our world is too complex to classify it into two distinct social forms, it is more common to study *social life* (ibid 33). The classification is thus based in politics. The Norwegian and German societies with their different political apparatus. Political power is also exercised at local government level and is thus a part of the state and of Europe on a higher level. In my analysis, I have for this reason used UNESCO with its goals for sustainable development as the highest level (195 member states) and which are reflected in the sustainable goals of Agenda 2030. The next level down in Norway are the government guidelines for education, the whitepaper Meld. St. 28. In my case analysis, I analyse how the UNESCO goals (highest level) are used in the *Evangelische Schule Berlin Zentrum (ESBZ)* which is on a regional, local level. A further delineation in my socio-anthropological thesis is



related to a type of comparison between the German and Norwegian educational systems, in particular with a German private school which does not represent the standard German school system, and the future Norwegian school system.<sup>21</sup> It is therefore not a direct comparison because the Norwegian school system with its new guidelines must first be implemented into Norwegian schools. It is therefore a future-oriented paper.

## **2.6 RELIABILITY**

To monitor the reliability of coding, there is the inter-rater reliability, which determines the degree of agreement between coders (Ludwig-Mayerhofer. Inhalts- und Diskursanalyse). Inter-rater reliability, also known as inter-rater agreement, in empirical social research indicates how much agreement there is about estimated results by different observers. In this way, the degree of objectivity can be measured, because the results are independent of the observer.

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<sup>21</sup> Future, because the Meld. St. is a guideline for the curriculum for 2017/18 which is currently being formulated.

## 3 SCHOOLS IN GERMANY

School in the 20th Century: The Serious Side of Life or the Joy of Learning?

In this chapter, I would like to present and explain the German school system in order to provide a starting point for the case analysis and to show the current status of the traditional schools in Germany in order to connect with the global future challenges.

### 3.1 THE FORMATION AND DEVELOPMENT OF SCHOOLS IN GERMANY

The first schools originated in the 8<sup>th</sup> century as convent or cathedral schools. The first schools for reading, writing and arithmetic were founded in the 14<sup>th</sup> century to instruct a large share of the population to read and write. With the emergence of the middle classes at the end of the 18<sup>th</sup> century, a type of secondary school, known as “Realschule” was founded to accommodate those who didn’t want to go to a “Volksschule” (the lowest level of secondary school) and couldn’t or didn’t want to go to a “Gymnasium” (the highest secondary-school level). The three-class society led to the tripartite system of education. Standardised regulations and obligations came much later with the Primary School Act of the German Reich (Reichsgrundschulgesetz) in 1920 with the law requiring four years of compulsory schooling. Compulsory schooling was introduced during the time of the Weimar Republic between the wars.

After the Second World War, the school structure in the occupation zones in the West of Germany continued as before 1933. However, in the Soviet occupation zone in the East of Germany, a common school form was established (the Einheitsschule). In East Germany children attended a common technical secondary school while in West Germany there were three secondary school types (Hauptschule, Realschule and Gymnasium). These were reformed in the 1960s to enable all children, regardless of their socio-economic background, to attend college after finishing secondary-level education. This was followed by the founding of comprehensive schools (Gesamtschule), technical secondary schools (Fachoberschule) and technical colleges (Fachhochschule). Primary (Grundschule) and lower secondary (Hauptschule) became the elementary school, “Volksschule.” This remains the structure of the traditional schools today.

The education system is still very much based on the ideology of the industrial age which demanded dutiful students and is hierarchically structured. This “assembly line” model was established to educate people for very different tasks and is outdated in today’s globalised world and with the knowledge we now have about learning. The core of the system is founded in norming and mediocracy and not in the developing of each individual student’s potential.

## 3.2 STRUCTURE OF GERMAN SCHOOLS

### 3.2.1 External Structure of German Schools

Germany has compulsory education enshrined in the constitution of each of its states or “Länder.” The German Basic Law (Grundgesetz) states in article 7 (1) that the entirety of the education system is under supervision of the State and, following a decision by the Bundesverfassungsgerichts (Federal Constitutional Court), the Länder may determine the extent of compulsory education. Compulsory schooling can be enforced with the use of fines, imprisonment and even the withdrawal of legal custody.

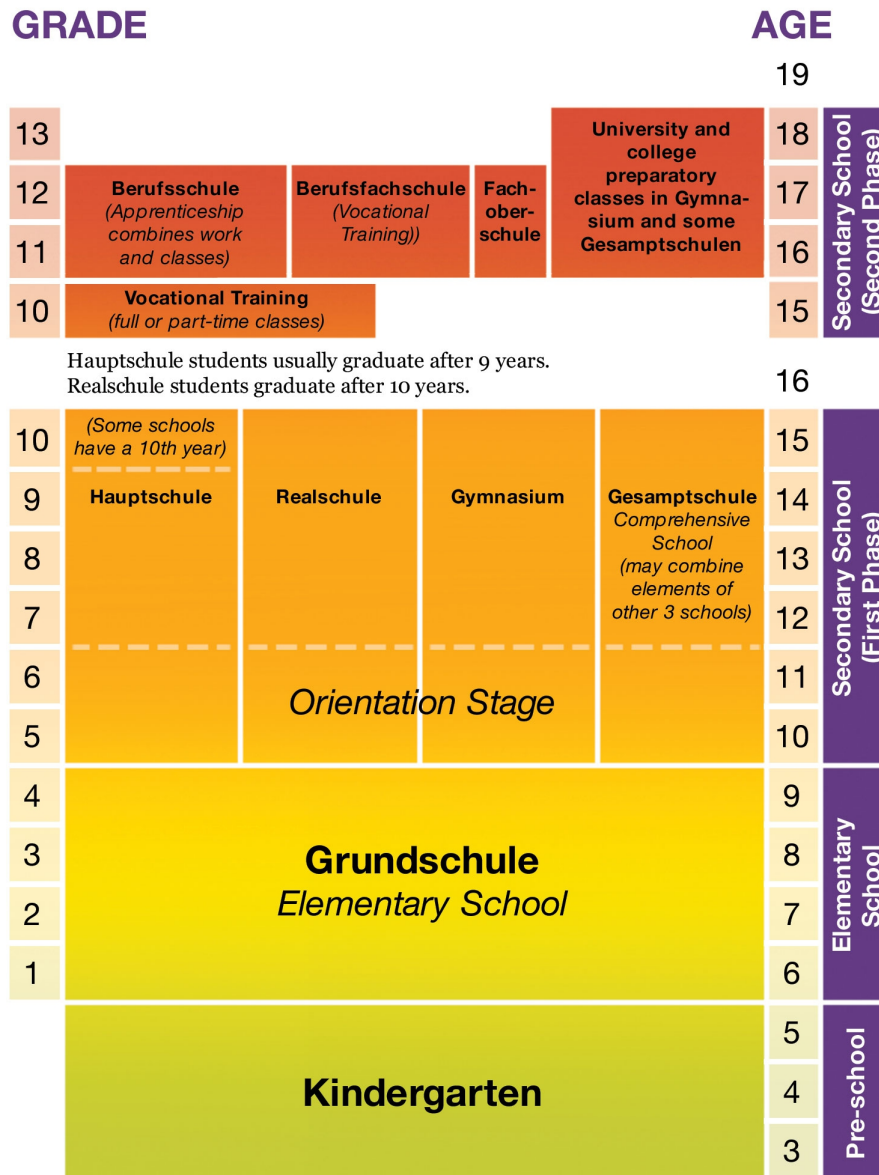
The German school is structured so that primary schooling, which begins at the age of six, continues for four years in most Länder (in some it is six). Teachers must then make a recommendation based on grades as to which secondary school a child should attend, *Hauptschule*, *Realschule* or *Gymnasium*. As can be seen in the diagram, this first decision made about a child’s course of education<sup>22</sup> determines what opportunities will be available for their professional future. A child who attends a *Gymnasium* will have the chance to graduate from university whereas a child who attends a *Hauptschule* will primarily learn a trade. In Germany, where wages depend greatly on the level of education, and in an age of globalisation with open markets and competition, a huge amount of pressure is placed on children to be even better and even faster, but without taking educational theory and the development of the child into account. However, the course of education and career choices are not set in stone, as students with good grades can move to a “higher” secondary school and can also graduate from school later in life. In addition, mention should be made of private schools and special-needs schools which provide additional support.

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<sup>22</sup> Means the educational path, which will go through in childhood up to the youth age. In contrast to the second educational path, which adults can go to achieve different degrees or to catch up.

### 3.2.2 The Internal Structure of German Schools<sup>23</sup>

Classes are taught by one teacher without teaching assistants or extra help. Classes run for 45 minutes leaving teachers to rush from one class to the next. A teacher may therefore teach around 100 students in a single day who they are expected to promote individually, but even with the best intentions are unable to do. This leaves many dedicated teachers demotivated and in the worst case, suffering from burnout syndrome or other mental-health issues. Studies show that most of those suffering from a mental-health illness, are in the teaching profession.



Source: [http://www.yeseurope.net/uploads/6/2/6/3/62636073/school\\_system\\_germany.jpg](http://www.yeseurope.net/uploads/6/2/6/3/62636073/school_system_germany.jpg)

<sup>23</sup> Rasfeld, Breidenbach 2014: 36-48

According to Rasfeld, this system sends the message that there is no time for what is most important; appreciation and relationships. Students are merely performers of educational content, working towards passing standardised tests. Students and teachers conform to the school system. The OECDs PISA test put education in the 1990s on the agenda as an economic factor in an attempt to improve competition, efficiency and comparability in education (Rasfeld, Breidenbach 2014: 54). The PISA debate had both advantages and disadvantages. One considerable disadvantage is that many schools in Germany now plan their teaching activities to prepare specifically for the PISA tests. They are under pressure to do better in national competitions and get a higher ranking and this, in turn, validates the current system.

As a result, schools resort to short-term solutions which do not yield any substantial change. The positive idea behind PISA exceeds the core subject competencies.<sup>24</sup> The OECD study, PISA and the selection of key competencies (2005) states (Rasfeld, Breidenbach 2014:55) :

Beyond school knowledge and cognitive skills: People not only need the ability to adapt but must also to possess innovation skills, creativity, personal responsibility and self-motivation. Many scientists and experts agree that to face the challenges facing us today, we need the ability to solve complex mental tasks which go far beyond merely reproducing accumulated knowledge. Key competencies require the mobilisation of cognitive, practical and creative skills as well as other psychosocial resources such as attitude, motivation and values.<sup>25</sup>

(OECD study 2005 reproduced from Rasfeld, Breidenbach 2014: 55).

Rasfeld holds a mirror up to society by claiming that schools are a part of our social institution and that the attitude, content and aims of a society are reflected there. She goes on to say that a society should visualise possible future scenarios and take necessary steps now to ensure its best possible future.

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<sup>24</sup> The core subjects are math and german.

<sup>25</sup> Translated by me.

### 3.3 GRADES

Hüther writes about a reward mechanism in the brain for positive experiences where important information gets “under the skin” and emotional centres, groups of neurons in the middle brain, are activated. These release neuroplastic messenger substances and stimulate the production of proteins which are needed to develop and strengthen neural pathways. Interconnections are established in the brain which are activated for solving problems and embedding new information. If the material you are trying to learn doesn’t affect you, it won’t stick (Endres, Hüther 2014: 27).

Hüther explains that we have an incentive system (reward, punishment) which activates our emotional centres through interconnections in the brain and is strengthened when rewarded (good grades). However, these will do anything to be rewarded and avoid punishment. Using grades as incentives<sup>26</sup> leads to merely trying to be good at school. Students reproduce the learned subject matter as well as possible, but do not always develop a desire to improve personal knowledge and skills. Behind this logic, according to Hüther, is the experience students make which forms their inner attitude. These attitudes and convictions can be either favourable or unfavourable for their further development in life (Endres, Hüther 2014: 27) In addition, extrinsic motivations can ambush the intrinsic motivation. When confronted with negative emotions humans tend to think narrowly and precisely and are unable to think creatively. In practice this means that fear should have no place in schools if children are to become creative problem solvers. Confronted with positive emotions, humans think creatively (Spitzer 2014). Learning for grades and exams is also known colloquially as bulimic learning (memorisation and regurgitation).

### 3.4 LEARNING AT THE SAME PACE

Subject matter is worked through within a prescribed timeframe and does not leave much scope for students’ individual abilities. All students learn the same material at the same time as specified by their teachers and textbooks. This standardisation conflicts with the newest findings from brain research about learning and the requirement that students themselves determine when and how learning takes place based on their interests and at their own pace. Standardised learning stifles the development of the potential in children which is essential for facing the challenges of the future. Everyone can contribute to society based on their own abilities. Sir Ken Robinson made the point that standardisation is a reason for non-divergent thinking (Robinson 2012). Divergent thinking is a

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<sup>26</sup> This is mainly used in business.

prerequisite for creative thinking and is the ability to see a number of possible answers to one question, not just thinking along a linear and convergent path, but playfully and with an open mind. The study that Robinson quotes proved that of 1500 children in preschool, 98% were considered geniuses when it comes to divergent thinking. After five years, the children were tested again and only 32% made it into the same bracket. Five years later again, aged between 13 and 15, the number had dropped to 10%. This shows quite clearly that almost everyone is born with the potential for divergent thinking and that it decreases as we get older. Birkenbihl also sees standardisation as the reason for this; trying to keep pace in schools today. She also includes another important aspect, which is associative thinking (being allowed to think for oneself) which is embedded in humans. The neurotransmitters and neuromechanisms in our brains play an important role in learning. They are activated when learners:<sup>27</sup>

- are activated in one way or another
- are interested
- are allowed to think for themselves
- are allowed to move around

The motionless classroom situation, having to sit quietly at a desk, is an explanation for why 80% of children with learning difficulties which make it difficult to attend school are boys, because boys need more physical activity than girls, says Birkenbihl. Developmental psychology claims that boys and girls develop differently. Girls develop fine motor skills first and then gross motor skills later, while for boys it is the other way around.

### **3.5 HIERARCHY AND CONTROL**

Control and fear are cornerstones of the hierarchical system and the concept of compliance. By making tests easy to compare and having a form of standardisation that is controlling is supposed to make the system more efficient. Classes are planned from beginning to end so at the beginning of the class you already know what the result will be. According to Rasfeld (Rasfeld, Breidenbach 2014: 43) this is incompatible with the idea of man on an equal basis, contributing resources and developing new ideas. A constructive approach to the unexpected and to change is not relevant

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<sup>27</sup> TEDxRheinNeckar Vera F Birkenbihl 2010

today. Fear does not allow you to be in the flow state<sup>28</sup> or have the freedom to determine what you want. Fear stifles the ability to enter the flow state, it needs to come of its own accord to allow you to lose yourself in a task. Humans like to learn and this is very similar to happiness from a neurobiological point of view. Developmental psychology and brain research have shown that everyone has a rhythm and learns according to their own structure. It is important that schools do not demotivate children but allow them to follow their own development and their own structure. They can then find out what they enjoy and contribute to society. That is true happiness in life and should be the responsibility of the education system.

### **3.6 LEARNING WITHOUT LIFE EXPERIENCE**

The traditional understanding of teaching in today's schools is based on the principle of instruction. The teacher is at the centre, and the students are recipients of prescribed knowledge. The curriculum and textbooks determine the content, goals and time frame. The learnt knowledge is reproduced in exams and these form the focus rather than the focus being on the actual process of learning itself. Reports of students suffering from burnout and other mental-health issues can, amongst other things, be traced back to a pressure to perform. Students do not see the point or relevance in learning facts. Hüther blames this on the lack of background experience. They find it difficult to relate to the content because they do not have the experience to back it up. Many students complain about the lack of motivation and pointlessness of what they are expected to learn. Rasfeld describes schools in the 20<sup>th</sup> century as "listen and talk" schools which places the focus on learning from books and writing notes on what they are told. What is missing is experiences in community spirit and the feeling of empowerment gained by learning and participating in life (Rasfeld, Breidenbach 2014: 42-43).

### **3.7 FRAGMENTATION, PACE <sup>29</sup>**

Complexity, according to many experts, is a challenge we are facing in the future. However, today's traditional schools still consider the transfer of knowledge as their primary task. These one-sided cognitive abilities are being piled onto the curriculum to keep up with the pace of globalisation. However, the curriculum is already full to capacity and does not allow time for intensive

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28 Flow: Condition of „I'm with the things“.

29 ibid 37-38



learning. The result is an incoherent string of subjects and time allocations. Subjects tested for the PISA study are given priority and the short breaks determine a hectic time and study schedule.

### **3.8 SHIFT FROM HOLISTIC APPROACH TO COGNITIVE SKILLS<sup>30</sup>**

Pressure and directives from external sources (local government, political parties, parents) exerted on schools to focus on cognitive skills result in the humanistic fundamental idea and Fröbel's holistic approach (heart, mind, hand) being relegated to a back seat with regard to their educational mandate. The holistic approach is given lower priority to make way for the quantity of material students need to get through, and ethical subjects, artistic and musical subjects, theatre and sport are given minimum attention. However, connections in the brain are only made by focusing on an all-round approach, which can in turn be applied in complex situations. The other important aspect that research has discovered is that the basis for mathematical abilities are finger games, climbing trees and playing.

### **3.9 CONSEQUENCES OF THE SYSTEM<sup>31</sup>**

Rasfeld and Breidenbach sum up the consequences of the school system in no uncertain terms and warn that conformity instead of heterogeneity, a fragmented rather than an interdisciplinary approach, and worksheets with answers in text books cause ideas to be neglected. These methods stifle innovation, autonomy and autonomous thinking, judgement, personality, courage and the ability to take an interdisciplinary approach. Children run the risk of being brought up as passive consumers and dutiful performers rather than as creative problem solvers. PISA and other comparative studies cause factual knowledge to take precedence over compassion and empathy. By sorting students, Germany's schools are producing winners and losers. Extra tutoring has become the norm for many in order to achieve the results to get into a *Gymnasium*. In turn, instead of creating equal opportunities, the gap, which is already a considerable problem in Germany, grows larger. Higher-income families can afford to invest in extra tutoring while lower-income families may not have that option. Another problem that accompanies extra tutoring and the repetition of something that hasn't been understood in the first place, is the focus placed on what the student is not able to do rather than concentrating on what they are good at. Spitzer uses an example: Someone who is unable to walk but plans to do a hundred-metre run will take longer in rehab than a patient who first concentrates on training their arms and gains strength before training their legs.

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30 Bündner Schulblatt 2012

31 Rasfeld, Breidenbach 2014:46

Concentrating on what a person *can* do and what they are good at and not focussing on their weaknesses is something that is common practice in the area of physical rehabilitation, however, has yet to be accepted into the education system (Spitzer 2014). This system not only produces losers and winners but also has a quantitative problem, as Rasfeld and Hüther point out. Students that get through school successfully and do well in their exams have not discovered their full potential. The one-sided cognitive focus on knowledge transfer does not allow students to develop meta competencies and other potential. They have simply conformed to the system. The system as it stands does not permit the development of lateral thinking, risk taking and entrepreneurial spirit.

Students are under a huge amount of pressure which Hüther, Rasfeld und Spitzer recognise is a result of anxiety about school and the increasingly fast pace they need to keep up with. In addition, certain politicians, and others wishing to advance the economy, claim that reforms must constantly be implemented, with ever more material in a shorter period of time, to prepare children for the future and the economic development of a country in a globalised world. These claims are based on the belief that the education system needs to be made more efficient.<sup>32</sup> This means that students need to learn even more in a shorter period of time. The argument is that children must adapt to the economic competition which drives the world (Rasfeld, Spiegel 2013: 12). A quantitative problem in the German education system, which Rasfeld and Breidenbach point out, is that 25% of students leave school without any qualifications (Ibid 23) and the qualitative problem is that it leaves no opportunity for open-minded thinking. Student's enthusiasm, and as a result, their creativity, is stifled. Rasfeld maintains that creativity needs room to fail without judgment (ibid 23). Also Robinson claims that you cannot create something original if you are not prepared to make mistakes (Robinson 2014). Sir Ken Robinson points out that in the current education system, the worst you can do is to make mistakes. The school system causes children to lose their ability to be creative and to be open to trying new things by making them afraid of failure. Robinson quotes Picasso who said that every child is an artist. The problem is how to remain an artist once he grows up.

A UNESCO study called "The Wow Factor – Global research compendium on the impact of the arts on education," showed that arts education has a very positive impact on children and young people, for example, on school performance (problem solving, critical thinking), reading and writing abilities, promoting various social competencies (team work, responsibility, tolerance), better ability to use new technologies, awaken interest in children and encourage independent research.

Not only students suffer as a result of constant pressure to perform with immediate evaluation, but also teachers. Their aim is to promote each child individually, which they are unable to do because

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<sup>32</sup> School forms differ in Germany from state to state, as are the length of primary school, transgressions, curricula.

the curriculum is not designed to allow for it. The current school system conveys a spirit of competition as its inner attitude, that there are losers and winners and the most important thing in life is to be the best. The number of “losers” in the German system is high. 47,000 young people left school in 2014 without any qualifications (Caritas 2017). A system that produces as many “failures” per year as a school does, would be investigated in any industry. Those let down by the system are made up of students who need to repeat<sup>33</sup>, special-needs students<sup>34</sup> and children being prescribed Ritalin.<sup>35</sup> Those given the blame for failure are often the victims. Many schools are lacking areas where students can explore together and learn from one another and create together. Large numbers of students have missed out on the most important aspect of a successful education, of successful relationships, of successfully developing their personality and, as a result, of successfully shaping their future lives: the joy of learning, and exploring and creating with others (Hüther 2014: 20). Hüther claims that schools, universities and companies are not set up or geared for this, but rather that they serve others and their own interests. Hüther goes on to point out that if a society is on the verge of losing its own development impetus, its innovative capacity, its spirit of discovery and inventiveness, it is high time to reflect on the foundation of its future sustainability in a global world: the joy of humans to discover and create together in this new environment (ibid). The idea that life is only about knowledge and quality and not about relationships, is still widespread. People should not be treated as objects but as subjects, as they are often seen only in terms of their usefulness, for example by human resources departments (Endres, Hüther 2014). Raßfeld’s vision and that of other international experts sees the school of the future educating young people to be responsible for forming the system, who experience a sense of belonging, and know that they can shape the future with humane and social values. The focus is on acquiring experiences and skills with a view to creating a humane and supportive, environmentally and economically aware, multicultural world (Raßfeld, Breidenbach 2014: 48).

In the following, I would like to compare the old traditional German school system with a future system to clarify the changes that need to be made to meet the challenges of the future and to enable children to master their lives (inspired from Rasfeld, Spiegel 2013: 27).

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33 Students who have to repeat the school year due to a lack of performance.

34 School with conveying focus.

35 ADHD is a very controversial disease pattern and the associated drug Ritalin inhibits the child's development. The debate is about sick children or a sick society.

<b>The Serious Side of Life,</b> The traditional school of today	<b>The Joy of Learning, The Future School of the 21<sup>st</sup> century</b>
Teacher as curriculum performer	Teacher as a developer of potential
Instruct children	Encourage children
Institution for traditional instruction	Future workshop
Receive	Construct
Informing	Learning
Instruction	Self-organisation
Pretend-learning in a classroom	Learning from life experience
Finding answers to set questions	Searching for answers to their own questions
Right or wrong answers	Several possible answers
Students as objects decided over by others	Students as autonomous subjects
Standardised learning processes	Individual learning processes
Linear thinking	Interconnected thinking
Classroom	Future lab
Hierarchical relationships	Equal relationships
One instructor	Learning from each other
Heterogeneity as a burden	Heterogeneity as a treasure
Reports and grades	Portfolio and certificates
Selective spirit – focus on deficit	Inclusive spirit – focus on bring out the best
Mistakes bringing grades down	Mistakes seen as a chance to innovate
Reproducing subject facts	Discovering complex interconnections
Stored knowledge	Reflective learnin

Head	Head, heart and hands
Evaluate	Value
Culture based on fear	Trust and courage
Knowledge	Meaning
Fulfilling a duty	Self-effective creators
Students completing worksheets	Flexible understanding
Cognitive intelligence	Developing diverse intelligence
Working through material	Flow
Accepting prescribed perspectives	Ability to change perspectives
Curriculum-based pace	Learning-based diversity
Burn out	Burn for

## 4 EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

Following on from the theory chapter on the consequences of globalisation (the ecological future challenges with regard to generational equality and developmental political aspects), and the theory of developing potential (competencies which correspond to the challenges of the future and the research from brain and learning research), we come to *Education for Sustainable Development* (ESD) as the necessary consequence for schools of the future and a to trigger a mental shift.

Almost 200 years ago, the pedagogue and education reformer Johann Heinrich Pestalozzi (1746–1827) developed the theory of holistic education: Learning by head, hand and heart. Education for sustainable development (ESD) follows on from this universal concept and develops it as a competence concept. ESD strengthens the ability to communicate and act, recognises practical knowledge, calls for the ability to anticipate, takes motives and emotions into account and covers a range of sub-competencies with its concept of “shaping competence” (Haan 2007: 30). Firstly, I would like to explain the competence term on national and international levels, and after a short look at how the competence term ESN (“shaping competence”) was established, to examine the content agreed upon by UNESCO and determine whether or not ESD is legitimate on an international level. Competencies formulate requirements, which “by the way, are never made by people, but always by the market, globalisation or even by the future“ (Liessmann reproduced from Haan 2007: 25)

### 4.1 THE COMPETENCE TERM NATIONALLY AND INTERNATIONALLY

The OECD determined key qualifications based on the global challenges and modernisation which should enable us to find our way in our interconnected and diverse world. The OECD focuses on technological changes which require us to interpret and implement information. From a social perspective, globalisation in the context of competence means that we face more collective challenges in the area of economic growth and sustainable development as well as wealth and social equality. The OECD attempts to summarise the overall complexity of globalisation and fit them to meet the framework requirements:

– *Media, Resource and Tools*

We should understand these tools well enough to adapt and use them for our requirements.

– *Acting Autonomously*

We should be able to act autonomously, accept responsibility for our own lives and understand our lives in a larger context.

– *Interacting within Socially Heterogeneous Groups*

We should be able to successfully interact with socially/culturally heterogeneous groups and take action together.

(OECD 2005:7)

These three categories should be seen as an integrated whole. The ability to think and act in a reflective way is considered a central competence. Reflecting does not just mean the skill to act routinely when dealing with a particular situation, but also to deal with changes, to learn from experiences, and to think and act critically.

#### *4.1.1 International level<sup>36</sup>*

Over the past decades, international groups of experts have formulated learning requirements, and with the existing and progressing process of globalisation and the 50% of untapped potential in schools, this is more relevant than ever (ibid 50). The UNESCO study on goals and the future of the education program *Learning to be, 1972*:

Teaching, contrary to traditional ideas and practice, should adapt itself to the learner; the learner should not have to bow to pre-established rules for teaching.

(UNESCO 1972:220)

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36 Rasfeld, Breidenbach 2014: 50-53

*It also states:*

In present circumstances, taking the increased possibilities for future action into account as well as experience already gained, partial reforms will not in general be adequate, even if they are major ones. We must innovate and envisage fundamental alternatives to the very concepts and structures of education. (UNESCO 1972: 181)

This idea was taken up in 1979 by the Club of Rome in its report *Das menschliche Dilemma. Zukunft und Lernen* (The Human Dilemma, Future and Learning) (Rasfeld, Breidenbach 2014:51). A few years after books began to be published on the subject of globalisation, the human dilemma was described as “the discrepancy between the increasing complexity of all relationships and our ability to meet these challenges in a meaningful way” (UNESCO 1972:25). The disparity between power and knowledge is reflected in the dilemma we face with the many unforeseeable challenges, and we are the pinnacle of our scientific findings (Rasfeld, Breidenbach 2014:51-52). The report continues that the “ethical dimension” must be filled with its values. The concept of human potential is taken up and portrayed as “wasteful” due to the effects of “blocked innovative learn processes.” (UNESCO 1972:112). The UNESCO report considers the removal of separate subjects the basic principle for innovative learning processes.<sup>37</sup> Furthermore, the separation of university and society, and the separation of school and life need to be broken down. A more recent UNESCO report by Jaque Delors, “Learning: The Treasure Within” sets the course as to how competence potential can be improved. The report shows that human advancement depends greatly on the growth of competencies, which we need to control overall development in a reasonable way. Economic growth plays a minor role. The Delors’ commission determined four main pillars of education, considered to be of equal importance: (The Treasure Within.1996)

Learning to know

Learning to do

Learning to be

Learning to live together

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<sup>37</sup> The Finnish education system introduced the concept this year and aims to have it implemented completely by 2020.



The UNESCO commission justifies these areas as follows:

Yet formal education has traditionally focused mainly, if not exclusively on learning to know and to a lesser extent on learning to do. The two others are to a large extent left to chance, or assumed to be the natural product of the two former. The Commission believes that equal attention should be paid in all organized learning to each of these four pillars, so that education is regarded as a total experience throughout life, dealing with both understanding and application, and focusing on both the individual and the individual's place in society. (Delors, Mufti, et al 1998:86)

*Learning to know (ibid)* refers to the ability of a person to learn, and requires concentration, memory, the ability to think, and also a reasonable amount of general knowledge as a basis for their understanding of the world.

*Learning to do* deals with the competence to confront different, often unexpected situations and to take action and use knowledge to act. This requires the ability to work as a team, the competence to solve problems and also willpower and courage. In order to act, we need opportunity, to accept responsibility and show commitment.

*Learning to be* (Rasfeld, Breidenbach 2014:77) Refers to the ability to develop personality and self-awareness. This includes body and soul, intelligence, sensitivity, aesthetic sensitivity, personal responsibility and spiritual values. Education must enable people to make their own decisions (think critically) and take responsibility for themselves. The UNESCO commission emphasises that it is important to give children the opportunity as often as possible to discover and experiment in all areas, for example, aesthetics, sports, science, culture and society (ibid 81-82).

Imagination and creativity take on an increasingly important role in an ever-changing world, as we need these abilities to create social and economic innovations. This also means being able to mobilise individual and communal sources of strength, to develop trust and vision for the key competence of innovation. Experiencing self-effectiveness leads to developing self-confidence and a belief in your ability to change things.

*Learning to live together* is the fundamental challenge of the future and is about avoiding conflicts or solving conflicts by learning to respect other people, their cultures and spiritual values, to

appreciate diversity and understand global dependencies. This can be achieved by slowly discovering each other and experiencing the same life goals.

These four pillars belong together and are interconnected. The key message in the four pillars follows the goal of developing a person's competencies, and their full potential, personal responsibility and independence to think and decide themselves, to creatively and responsibly be in control of their own life and learning (ibid 52). Learning should therefore contribute, as Hüther agrees, to "creating an active community, (...) Everyone should be encouraged to accept their responsibilities towards others" (ibid 52). The Commission states clearly that striving for an ideal and values (morals) is of vital importance to humanity and that education has the task, with heart and mind, of reaching a universal level and surpassing itself (ibid 53). UNESCO's competency concept is similar to Hüther's concept of potential development and opposes the traditional school idea with its focus on knowledge acquisition.

#### 4.1.2 Competence Term in a School Context <sup>38</sup>

Following the concept of competence as described above, schools are faced with the question as to how *what* and *how* they teach is viable for the future. The question of a shift in society, a radical rethink arises to deal with the complexity of globalisation and also to conceive a totally new understanding of knowledge and learning (Rasfeld, Breitenbach 2014: 25). *What* should be taught at school was discussed as part of the competence concept, however for the sake of completeness, I would like to mention a study carried out by Morgan McCall who showed that only 10% of what we need to know to complete tasks in "real life" is learnt in school.

The 70:20:10 Model:

- 10% of the competence we use is learnt in formal teaching (classroom teaching, interactive workshops, e-learning).
- 20% we get from role models and imitating
- 70% we get from having to deal with difficult tasks or challenges (Larbi 2017).

Schools, which should be trying to develop competencies, must radically change their teaching formats or we can only exploit up to 30% of our potential of what we really need in life. Knowledge acquisition and competence development have very different learning approaches.

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38 all informasjon from Larbi 2017

The 70:20:10 model would have the following considerations (Larbi 2017). Teaching content would have to be examined on the basis of its relevance. The school would need to become a place where a wide variety of “role models” can visit, and on the other hand, the students would have to leave the school to spend time with these “role models.” The school would challenge students to spend a large proportion of time at school working individually and in groups on content that enables the students to grow. In addition, schools would need to examine their teaching formats based, not only on the *content*, but also on the *type* or learning, as to their relevance for developing competencies. Students would have to take action in their environment and community.

## **4.2 THE WAY TO ESD AND THE UN AGENDA 2030 <sup>39</sup>**

The key message of ESD is that education is a vital requirement for implementing sustainable development. New technological developments and the globalisation processes are challenging the education system, too. For ESD is no definite definition, but can be derived from the modern concept of education by a pedagogical approach, and means a widely shared understanding of education (Haan 2002:4). The modern concept of education consists of three dimensions: the openness, the reflexivity (to reflect changes and reflect them), the ability to assume a future (risk-taking in the context of global change), and the acquisition of design competence. (Haan. 2002: 4). In the following, I would like to outline how ESD was established and describe the goals and task of ESD.

## **4.3 SUSTAINABLE DEVELOPMENT**

Sustainable development calls us to behave in such a way as to enable all humans to live well now and in the future. The Brundtland Commission published a report in 1987 for the UN World Commission on Environment and Development calling for sustainable development to “meet the needs of the present without compromising the ability of future generations to meet their own needs.” The UNO Earth Summit in Rio in 1992 brought this vision onto the world’s political stage and 182 states signed Agenda 21, committing to the objectives of sustainable development. Sustainable development covers three dimensions which are its key components: economic, social and ecological. These include, for example, alleviating poverty, civil rights, peace, ethical issues, responsibility on a regional/global level, democracy/ state leadership, judicial system, security issues, human rights, healthcare, gender equality, cultural diversity, rural and urban development,

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<sup>39</sup> BLK Programm, 2003

economics, production and consumer behaviour, corporate responsibility, environmental protection, management of natural resources as well as biological and agricultural diversity (UNESCO. 2006).

#### **4.4 EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)**

The BLK Programm emphasizes that education is not only a human right, but also an essential requirement for supporting sustainable development, and thus also for promoting democracy, decision-making and good governance (BLK Programm “21“ 2003). The UN General Assembly proclaimed the years 2005 to 2014 the World Decade of Education for Sustainable Development. Education for sustainable development is vital for facing the challenges of the future, such as changes in the labour market, the globalisation of capital flows and production locations, which in turn makes career paths global and flexible, the development of democracy, and ecological issues. Education for sustainable development promotes future-oriented and application-based learning.

#### **4.5 SUSTAINABLE DEVELOPMENT GOALS (SDGS): EDUCATION 2030<sup>40</sup>**

The universal education agenda Education 2030 with goal number 4 aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” is a component of the new UN Agenda 2030 for sustainable development. Sub-goal 4.7 states: <sup>41</sup>

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.” (UNESCO)

#### **4.6 TASKS AND GOALS OF EDUCATION FOR SUSTAINABLE DEVELOPMENT**

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (BLK Programm “21“ 2003: 8).

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40 Education 21. <http://www.education21.ch/de/bne/bne-international>

41 UNESCO. <http://sustainabledevelopment.un.org/post2015/transformingourworld>

Education for sustainable development requires a combination of social, method-based learning with factual learning. As Jill Jäger and Hüther point out, it is a characteristic of systems which influence each other and each action has a consequence. These sources also state that competencies do not exist without action and context but by taking action. Competence focuses on practical problems and certain fields of activity. Hüther, in the theory of potential development, mentions that potential is developed within a society, which can be traced back to ancient times. Hüther points out that individuality should not be confused with isolation and describes an “individualised society” as a society in which people experience their uniqueness *and* their belonging. This leads to a sense, or knowledge, of attachment (Rasfeld, Breidenbach 2014:59). Competence in the context of ESD is developed in a group of students who all put their own specific competencies together and work on specific projects and issues as a team. Team and group competencies are also considered as key competencies by the OCED in the UNESCO pillars of education (ibid). ESD is the result of the UNESCO Delors Commission which defined the “shaping competence” (Gestaltungskompetenz) and its sub-competencies as its central educational objective.

The term “shaping competence” describes the ability to apply knowledge about sustainable development and to recognise problems of unsustainable development. This means being able to draw conclusions from present-day analysis and from future studies on ecological, economical and socio-cultural development and their interdependence and to take decisions based on these elements, as well as to implement them jointly and politically (Haan 2007:6.)

Haan emphasizes that this contains a clear reference to learning pathways, recognising knowledge gained from experience, which can also be acquired outside the classroom, and strengthens communication skills and capacity to act, while linking knowledge gained from experience with anticipation skills, and taking emotions into account. Haan describes shaping competence with the “forward-looking ability to modify and to shape the futures of those societies we live in via active participation in terms of a sustainable development.” (BLK- Programm „21“ 2003: 10) Shaping competence focuses on the future, the variety of choices and active modelling, as esthetical elements are found here just as much as in the question of what forms the economy, consumerism and mobility could take, or how leisure time and everyday life will be spent, how living with people from different cultures can be arranged and how local politics and national and international relations can be organised (Haan, Seitz p.3) Haan emphasises that creativity and imagination are

important elements of this competence. This goes hand in hand with a shift in perspective, learning from the emerging future rather than learning from the past. Haan points out that ESD helps to acquire shaping competence and should not be seen as a subject in itself, but as an area of activity to be filled with knowledge from factual subjects. ESD does not replace subjects, but connects in a variety of ways to the knowledge acquired, adds to it and puts it into a new context (Haan 2007:13). With his BLK Program Transfer-21 program, De Haan has developed and tested the concept for the acquisition of design competence, and has developed and implemented implementation strategies that have been successfully implemented in schools in Germany.

#### 4.6.1 Shaping Competence in Comparison <sup>42</sup>

Traditional Competence Terms	Competence Categories according to OECD (2005)	Sub-Competencies of the Shaping Competence
Factual and methodical competence	Interactive use of media and tools	T1: <ul style="list-style-type: none"> <li>-Acquire knowledge in an open-minded way integrating new perspectives</li> <li>-Forward-thinking analysis and evaluation of developments</li> <li>-Gain new interdisciplinary findings and act on them</li> </ul>
Social competence	Interacting in heterogeneous groups	T2 <ul style="list-style-type: none"> <li>-Plan and act in groups</li> <li>-Participate in collective decision-making processes</li> <li>-Motivate self and others to act</li> </ul>
Self-competence	Autonomous action	T3

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42 *ibid*, 14

		-Reflect own and others' role models -Plan and act independently -Show empathy for others
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If the ESD shaping competence is split into its sub-competencies, these abilities can be transferred to the competence skills of the OECD.

In the following paragraphs, I would like to explain how a number of the shaping competence sub-competencies (referred to as T1, T2 and T3) can be equated to competence categories and discuss how they can be applied to schools using an example (all information from Haan 2007: 14-24).

T1) Forward thinking is necessary for understanding global processes, and to conceptualise different approaches and perspectives (different points of view and forms of knowledge) between cultures and nations and future scenarios. Forward thinking within the context of shaping competence is also important for assessing non-sustainable behaviour patterns, and for defining and evaluating cultural and ecological diversity. Students can use “future studies<sup>43</sup>” to anticipate future developments to ecological systems, social equality, economic developments and political action. Acquiring interdisciplinary knowledge in sustainability research is a transdisciplinary process. Students could, for example, assess and describe concepts and visions of social equality.

T2) Participating in decision-making processes is necessary because joint decisions are not just based on fact, orientations or evaluations, but also on emotions. Participation contributes to the cultivation of democracy and is a learning process. Students could, for example, describe solidarity for humans and nature as a joint and social project. Being able to motivate others is a sub-competence because sustainable development is dependent on working together. Students could describe successful learning paths, which they develop themselves or with others, within the context of sustainability, and examine how these can be used for further learning.

T3) Being able to plan and act independently is considered as a sub-competence because sustainable development demands collective and global change. Individual action<sup>44</sup> is therefore a requirement for the ability to change

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43 For example, scenario technology, planning games, future workshops.

44 Consumer behaviour, innovative spirit, dealing with uncertainty.

Students could, for example, describe and implement their own career paths and personal projects within the context of sustainability. Empathy and solidarity are important because decision-making processes and action are not possible without emotions. Sustainable development is based on a vision of intergenerational equality and “we” ethics. For example, students could portray ways in which empathy and solidarity with oppressed people can be practiced on local and global levels.

Education for sustainable development’s concept of shaping competence can be seen as a way of coping with the global risks associated with the development of the world on a social level as well as an educational contribution. The thematic focus is how to deal with the effects, causes and possible solutions to global problems (Haan, Seitz p.7).

#### **4.7 SCHOOLS AND ESD**

The school must be responsible for finding cooperation partners, demonstrating the importance of ESD, promoting the communication of content, values, emotions, the ability to cooperate, to deal with conflict and work as a team, as well as providing learning opportunities which Hüther describes as “basic conditions.” The core of ESD comprises the components: knowledge and skills, thinking and feeling. The outer shell is the activity surrounding the action taken, and includes reflecting, planning and organising networks.

#### **4.8 SUMMARY**

ESD expresses a vision of education which should help all humans to better understand the world in which they live in the context of sustainability. This is of particular importance for understanding the complexity of the relationships between globalization, economic development, consumerism, environmental impacts, population development, healthcare and social conditions. ESD is an interdisciplinary vision of education and learning which aims to provide knowledge and scope for action to ensure a sustainable future for the earth. It must therefore express its goals, content and methods in terms of didactics. The concept of ESD aims to enable students to actively shape an ecologically sustainable, economically efficient and socially fair environment in consideration of global aspects, democratic principles and cultural diversity. (Kultusministerkonferenz und DUK 2007:1)



ESD is in line with the competence concept on an international political level (OECD and UNESCO) and is therefore legitimate both politically and pedagogically (Haan 2007 :5) as it strengthens communication skills and the ability to act, recognises practical knowledge, promotes forward-thinking skills and takes motives and emotions into account. In the context of this chapter, I would like to suggest that education for sustainable development is the answer to the question from the theory chapter as to what effect globalisation has on ecological systems and why we should care for our ecological and social systems. The fact, confirmed by environmental and climate research scientists, is that the human habitat is at risk and non-sustainable development and globalisation are driving it forward. These include pollution and overexploitation of fresh-water reserves as a result of economic activity and competition for water usage, excessive use of energy and resources, particularly by Western industrial nations, a rapid population growth rate and corresponding energy consumption, damage to the ozone layer, anthropogenic climate change and the loss of species due to overuse or misuse of natural resources. And globalisation is contributing to this trend.

However, we have a chance to turn this development around and ensure a future for humanity and a good life for future generations. Experts agree that education is an important factor. We must focus on the ecological dimension if we are to guarantee a sustainable society with stable economic development and a fair distribution of wealth (between today's and future generations, between states and within states) (Liedtke, Christa; Welfens, Maria J et al.2008: 12). Our social system, such as our political and educational systems, must develop joint economic directives with content, goals and methods. Our natural resources are limited and must remain functional for the sake of our economy. Therefore, we need to consider the economic system as well as social and ecological systems, for example by implementing integrated approaches that support the systems and subsystems (ibid 14).

“Even though the future is uncertain, one thing is certain: Our future depends on what we do today and in the future.” (Rassfeld, Spiegel 2013:34)

## 5 EVANGELISCHE SCHULE BERLIN ZENTRUM (ESBZ)

In this analysis section, I would like to examine the *Evangelische Schule Berlin Zentrum* (ESBZ) as an example of best-practice for innovative and future learning and look at the new structures it uses to enable learning. Building on the basis of the theories of globalisation and potential development, I would like to analyse how well the *Evangelische Schule Berlin Zentrum* promotes the development of potential and what learning formats are used to prepare future world citizens for the global challenges ahead. I will assign different learning formats used by the school to the four sustainable learning objectives for education in the 21<sup>st</sup> century laid out by the UNESCO: learning to be, learning to do, learning to live together, learning to know.

### 5.1 LEARNING TO KNOW

In order to discuss the area of competency *learning to know*, I would like to outline a day and week schedule from the start to the end of the school day.

At ESBZ students learn at their own pace, individually and autonomously. The *learning office* and *logbook* were established to make this possible. The day begins for students of the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> year groups with a choice. They can decide if they want a double class (90 minutes) in mathematics, English, German or nature/society. The students from these years groups divide into four learning offices with around 26 students in each. Whoever gets there first can stay, and if more than 26 students are interested in one subject, the last to arrive has to choose a different learning office. A teacher is present in each learning office along with modules with learning material from 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> year groups which the students work on by themselves. There is no instruction-style teaching. Each module consists of a card index box with cards containing a prepared topic, with explanations, tasks and additional material and self-monitoring. These module materials are developed by the ESBZ teachers themselves.<sup>45</sup> The teachers lay out *learning pathways* for orientation at the beginning of the year to ensure that the students get through the material prescribed for the school year. The learning pathway lets the students know what they need to have learnt by the end of the year and roughly what to expect when. The sequence is laid out for some learning pathways, for

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<sup>45</sup> Based on the German framework curriculum and textbooks.

example, if topics build onto the knowledge gained in the preceding topic. Students for the most part are responsible themselves for deciding what they want to learn when. The teacher is asked for assistance only after a fellow student has first been asked. This has the advantage that the student explaining the material to another student must repeat it and can see if they have really understood it correctly. The student takes on the role of coach and there is a mental shift from “you must” (the teacher at the front of the class, determining what happens) to “I can” (Rasfeld, Spiegel 2013: 94). Students learn individually as far as possible but also in groups. The concept of “learning offices” and “students as coaches” puts each child into focus; they are taken seriously and are free to develop their potential without fear of failure. As Hüther explained, the student is not the object of a learning process (student filled with facts) but the subject of their own learning (with a variety of options to shape and decide) (ibid). Students can spend a different amount of time on each subject. They can invest less time in subjects they get through quickly and spend more time on subjects they struggle with. There are different levels of difficulty for assignments adjusted to each student’s standard. Students also decide when they are ready to provide “proof of learning”. When the teacher/tutor has corrected their work, they speak to the student about what they have learnt. The “logbook” was created for the learning office, to complement the development process of independent learning. It is used for planning, monitoring, for showing proof of learning, it documents goals and findings, agreements and feedback. It supports communication between the school and parents and forms the basis for a weekly talk with tutors, as well six-monthly talks to assess performance and goals (ibid 101). The logbook also contains a section where students can write down something each week they are particularly proud of. Weekly talks are essential for maintaining good relationships and decisive for learning and commitment, which promote long-term learning. ESBZ puts emphasis on establishing good relationships with regular talks between tutors and students (ibid 104). Hüther’s theory of potential development also perceives emotional relationships and appreciation as being essential. Setting this framework stabilizes esbz and instils confidence in the student’s own ability. Successful relationships are also a motivating force, when the other person is appreciated and receives recognition. The brain releases neurotransmitters which promote psychic energy, a sense of well-being and a willingness to trust and cooperate (Rasfeld, Breidenbach 2014: 84). While a student is talking to their tutor, the other students have a study period. The tutors have a good relationship with their students, know them and are able to take an interest in them. Learning objectives are discussed in six-monthly and annual talks with their tutors to determine which modules have been completed and are sometimes given extra encouragement if

they are not utilizing their full potential. They agree on goals, which are not just based on the subject matter.<sup>46</sup>

Students do not receive grades until 9<sup>th</sup> class. Instead they get certificates for competencies recorded in a development report. Assemblies at the end of each semester acknowledge the “most socially committed,” “best performer” or “achiever of the year” etc. The students themselves decide who is honoured and for what. There is also a “responsibility party” to celebrate particular achievements of 7<sup>th</sup> and 8<sup>th</sup> year group students in project challenges. Students thus receive attention and appreciation.

Side note: Mindfulness

Future researchers consider mindfulness the term of the 21<sup>st</sup> century. In our modern world, the media swamps and overstimulates us and often strains our capacity to cope. Globalisation seems to have changed our understanding of relationships by connecting all areas of our lives. Facebook and co. lead us to believe that technology can replace relationships and social ties. It is now even more important to learn to refocus on ourselves and others. Mindfulness teaches us to find solutions by looking at the problem. In the context of school structures, it is worth considering if the increasing number of mental-health issues and ADHD in our modern society is a result of the system. Arno Gruen calls for more empathy and compassion, attributes he thinks will determine the future of humanity (Arno Gruen 2015).

Tests can be different in each subject. Students can present what they have learnt in different forms depending on the subject and content. In English, for example, the student might give a talk or show what they learnt in a performance game. The tutor keeps very detailed feedback on the student’s competencies in a portfolio. The student receives individual feedback which tells them more than a grade. As brain research has shown, enthusiasm is a basic requirement for successful and sustained learning. When students are allowed to learn at their own pace and according to their own abilities, they experience that their strengths are noticed and their weaknesses are strengthened (Rasfeld, Spiegel 2013: 95). In the future, humans will have to take more individual responsibility for their lives. Thus, students learn intrinsically from self-motivation rather than working and learning with extrinsic motivation. Experience from self-determined learning teams in learning offices showed that initially the learning teams were made up of students who were already friends. However, finding out that their best friend is not necessarily the best person to learn with, is an additional

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<sup>46</sup> There are studies that show that when a student sets a goal and he/she pursues and then improves through the practice, the pupil also automatically becomes better in the school performance.

competence. At ESBZ students can also choose where to learn, depending on the module task. For example, if students chose to study and later recite a ballade, they can rehearse in the school yard, or on the stairs (ibid). This freedom to choose leads to more variation and provides a good balance, especially for children who find it difficult to sit still for long period of time. The area of developmental physiology documents the difference in development between boys and girls. Girls develop fine motor skills first and then gross motor skills later, while for boys it is the opposite. This has consequences for the mostly diagnosed “problem children” who are predominantly boys. Experience at ESBZ shows that some students have to get used to working autonomously, as children don’t get the same impulses as in traditional frontal teaching. The class begins with a short introduction and talks given by students. Following the learning-office format and a short break, students meet in their classrooms and have subjects such as social learning, religion, sport, natural sciences, reading time or class council. Foreign languages are an elective subject. The school day ends at 3.45pm, except for Fridays when it ends at 1pm. There is no homework, instead there is “study time” for students to go over what they have learnt in more detail or pursue their own interests.

The argument of critics who claim that students do not acquire enough cognitive knowledge with all the project work and meta competencies can be countered by the results of final examinations which are accessible to the public. For instance, in 2011, students from ESBZ had above average results in a comparison of Berlin’s schools, and the same was the case in a comparative school test, called VERA-8. Results from scientific research accompanying a pilot project for comprehensive schools in Berlin in 2012 showed that students were significantly better at reading, writing, English, mathematics and natural sciences in the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> year group (Rasfeld, Spiegel 2013: 97-98).

ESBZ’s fundamental idea of openness and further development is based on the involvement of all teachers, students, partners and parents. This idea is embedded in the school’s ethos. As brain research confirms, students who can realise their own ideas and are not simply told what to do, will be more enthusiastic about their work (ibid 110). ESBZ gives students freedom, is flexible and characterized by the basic principles of learning for the future. As we saw in the chapter on education for sustainable development, the future sustainability of a society depends on its creativity and ability to innovate. An important concept for promoting creativity is the competence to solve problems, networked thinking and the ability to cooperate. At ESBZ, this is the *design thinking* concept which is applied in the competence goal *learning to do*. This approach is more common in the USA than in Germany and describes the shift from “ego-system” to “eco-system”. Eco-systems are ideal and show that each individual part can be seen as an intelligent part of the

whole. This corresponds to Jill Jäger’s portrayal of systems. Each one is important and contributes to the stability of the whole.<sup>47</sup> Heterogeneity is considered positive, because monoculture would harm an eco-system. In the context of schools, ESBZ has made the transformation from the traditional ego-system to an eco-system, as seen in the following (Schule im Aufbruch p. 6):

Ego-system	Eco-system
Selective spirit	Everyone learns together
I am better	Everyone contributes their skills
I - competition	We together – everyone counts
Specialisation	Multi perspective
Monoculture	Living system
Fear; needing to be the best	Faith in being able to solve problems together

The design-thinking concept as applied to the learning competence, *learning to know*, makes people, with their needs and habits, the centre of interest. There are six phases in this method which passes through an interdisciplinary team. The first phase is understanding the problem, and being able to define it as clearly as possible. The second phase is field research to find out the requirements of the people an innovation is to be developed for, questioning and observing them without being led by assumptions. This requires a 360-degree view to be able to take in different perspectives. The team develops a “persona” in the third phase based on their findings. This is an idealistic visualisation of a target person which personifies the attributes and life situation as seen by the field research group. Visualisation means that a team member dresses up to turn into that person. This is meant to help the team to understand complex relationships, gain a joint understanding of the problem and exchange views (Rasfeld, Spiegel 2013: 113). Brainstorming begins in the fourth phase, which results in a number of feasible solution approaches because of the preceding steps. In the fifth phase, the solution approach is again visualised, this time with a prototype created using craft materials to make a concrete form. If the solution is a service, this is portrayed in a scenario. The prototype is tried out in the final phase, and tested by the target group, i.e. the people the solution was made for. Failure is considered to be an essential element of the

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47 See also chapter theory, systems and source: Schule im Aufbruch.

design-thinking process. Those who avoid failure will maintain their existing thought patterns and find them harder to overcome (ibid 113).

As Sir Ken Robinson explains, creativity is the basis for innovative development. Creativity enables humans to create something new and innovative. ESBZ developed “creative confidence” from the design-thinking concept with the goal of implementing this forward-thinking method of interdisciplinary and process-oriented working in teams into German schools. Thus, creating an interface between education institutions and economic/social organisations of economy/society (ibid 115). Students are part of this think tank and gain insight into a range of working and living environments, laying the basis for later life and future career paths. In the same way as Hüther envisages developing one’s potential in a community of people with a range of different backgrounds, ESBZ has created an innovation in two ways. On the one hand, it helps students already during their time at school to develop entrepreneurial and life-affirming skills. On the other hand, it breaks the pattern wherein only specialists develop innovative solutions. The more diverse the students and their experiences are, the more balanced, complex, innovative and sustainable the results will be. For students to find innovative and sustainable solutions with other students/helpers, they need to build a trusting and constructive relationship, and they must experience the usefulness of joint efforts (Endres, Hüther 2014: 28-29). Hüther verifies the innovative concept of autonomous learning from a neurophysiological perspective (ibid 50). He explains that when we complete a task because we are obliged to do so, we will only do it as well as absolutely necessary. However, with dedication and enthusiasm, we work without supervision or rewards, and the results far exceed those of any work we do because we have to. This state of presence and connection is called flow or coherence; a feeling of happiness or freedom and connection with ourselves. Hüther claims that to trigger enthusiasm and dedication, we have to understand, create and recognise a sense of purpose. Flow, and thus, a joy of learning, can only happen if all three components are present. ESBZ set up a student company based on what students wanted, whereby “creative confidence” (network of different areas) was instrumental in the implementation phase. This is a win-win situation for both students and project partners. Partners benefit from the students’ fresh perspectives, while at the same time promoting the next generation, and students get an insight into future professional and working life.

## 5.2 LEARNING TO DO

ESBZ sees responsibility for project learning as an answer to how we can integrate the ability to orient oneself towards learning, develop competencies and experience self-effectiveness into learning. Rasfeld explains that students learn to take action when they work on real projects. Then by means of trial and experiment, students learn where their strengths lie and how to develop them. At ESBZ, students have time for “commitment” where students work together with a range of external project partners (for example, companies or associations).

Hüther explains that two things are needed for students to show responsibility and commitment. The emotional area in the brain must first be activated, and this happens when events or experiences affect us deeply (ibid 63). This doesn't happen just by thinking about others, but when we feel what others feel, i.e. empathy. Only then can the frontal brain lobe break down existing attitudes and opinions and change our way of thinking to accept responsibility for others and for ourselves (ibid). The second thing required for commitment is integrity based on shared values. The school must trust students to act in line with shared values without strict and detailed rules which students must abide by. Of course, there are rules which must be obeyed, but self-regulated autonomous action is given greater priority (ibid 52). Experience from a sense of self-effectiveness and responsibility from taking action, teaches the students neutrality and democracy skills, and allows them to develop mindfulness, reverence and the courage to embrace visionary thinking, the “power of the heart“ (Rasfeld, Spiegel 2014: 39). Attitudes and opinions are formed by confronting situations both in and outside school (ibid). Students also see a sense of purpose in their work. This simultaneously covers two of three OECD competencies: acting autonomously and interacting within socially heterogeneous groups.<sup>48</sup>

We learn to do by doing. ESBZ gives students the opportunity to promote self-effectiveness and commitment. Projects which enable the students to interact with the real world and shape the community are a form of learning which results in interdisciplinary learning and successful interaction within heterogeneous groups<sup>49</sup>. Project learning doesn't work in 45 minute classes, and ESBZ has therefore three obligatory formats embedded in the curriculum:

- Project responsibility
- Project challenge
- Project instruction

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48 See chapter ESD competences.

49 Two of the three central OECD guideline goals for educational strategy, see the chapter on ESD.



### 5.2.1 Project Responsibility

Project responsibility, is for the 7<sup>th</sup> and 8<sup>th</sup> year groups, it runs over one year and comprises two hours of class time a week where the students find a responsible task in the community. Students may, for example, visit a retirement home and spend time with the residents, cooking together, going for a walk etc. At the end of the school year they present their experiences at a “responsibility party” at which special achievements are also honoured.

Students accept responsibility for themselves and others by having to make their own decisions. These are also sub-competencies as described by the UNESCO for a democratic society based on community spirit and responsibility. However, this freedom to learn freely can lead to insufficient learning activity. Experience has shown that it takes time to change over from an extrinsically motivated context (learning for exams and grades) to an intrinsically motivated context. Learning that failure is an essential part of the learning process can help. In tutor talks, the tutor acts as coach and can support students to find their passion, motivate them to keep going and give a structure to their free learning. Experience from ESBZ shows that “project responsibility” supports and reinforces the following skills (Rasfeld, Spiegel 2013: 58):

Creativity, planning and organisation competence, cooperation and communication skills, self-confidence, courage, tenacity, understanding, awareness of their own and others’ perceptions, and a sense of responsibility

The student’s sense of importance and making a difference is strengthened and they realise that commitment is important for themselves and for others. They receive recognition for their efforts, and in a personal encounter with others, they encounter themselves. At the same time, there is a sense of purpose in their actions. “Burn for” instead of “burn out” (ibid 53). Rasfeld emphasises that local references and experiences are essential in an increasingly virtual world and networked society in terms of “think globally – act locally” and points out a *Social Report for the Federal Republic of Germany* that in the face of increasing individualisation, demographic change and the loss of social ties, civil society is becoming less and less active (ibid). Hüther explains that our brains, our frontal lobe, is a model of self-organisation and the circuit patterns formed in this region form the image we have of ourselves and the world (self-effectiveness). This means focusing our attention on certain perceptions, planning action and estimating the consequences of our actions (motivation, impulse control) and putting ourselves in somebody’s position, developing compassion (the ability to empathise, social and emotional competence) (Endres, Hüther 2014: 25). We need

these skills to lead a fulfilling life, to help us find our way in life, to remain open to learning, hungry for knowledge and curious to find solutions together. Hüther explains that these skills can only be gained and reinforced by making our own experiences and imitating role models, they cannot be taught. Social commitment is therefore an essential requirement for acquiring social competence, and also psychosocial competence, which is the key competence for developing individual potential (ibid 45).

### 5.2.2 Project Challenge

Project challenge consists of a chosen task to be completed in a group or individually outside the Berlin school district and which poses a challenge for the students. The 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> year groups have a total of three opportunities, one at the start of each school year, for a period of three weeks to complete the challenge they prepared for themselves. Each student has €150 to cover travel expenses, accommodation and food. As the funds are consciously very limited for these three weeks, students have to get creative and find work somewhere, offer help etc. The challenges can take very different forms. For instance, one student wrote a 300-page novel, another went to a farm in France. The students are accompanied by adults (volunteer university students) who are only allowed to intervene in the case of an emergency. The young people are encouraged to take responsibility and make their own experiences. To complete the challenge, students present their projects back at the school. Brain research, developmental psychology, motivation research, resilience research and socio-cultural research agree that challenges are educational when you follow an idea, overcome challenges and experience self-effectiveness. They promote our joy of discovery, our spirit of adventure and enterprise, our daring and willingness to take risks, our sense of responsibility and self-confidence ( Rasfeld, Spiegel 2013: 62). At ESBZ students from the 11<sup>th</sup> year group go abroad for at least three months and can participate in social and ecological projects and afterwards they share their experiences, for example, in the form of an exhibition. As Hüther pointed out, we learn through enthusiasm and when we can see a sense of purpose in a task. In this three-month stay abroad, students gain self-confidence in their abilities and grow to face new challenges, “because they will find their own ways to break out into the world” (Rasfeld, Spiegel 2013: 64). In brain research, this is known as *experience dependent plasticity* (ibid). ESBZ with “project challenge” has created a paradigm shift from passive instruction to active experience.

### 5.2.3 Project Instruction<sup>50</sup>

Project instruction takes place for the 7<sup>th</sup> to 9<sup>th</sup> year groups once a week from 10.30 am until the end of the school day. This consists of multi-disciplinary topics and is supported by the class leader. Students can work in small teams. Content from the curriculum is covered and is understanding intensive. Project instruction enables students to pursue their own research questions using different points of access. The focus is on teamwork and interdisciplinary learning and the results of the projects are not prescribed, but emerge with the project work. As with the other projects, the results are presented to the public or to other groups. The students learn presentation skills, they learn from each other and teach each other in peer groups. Project work lets students work with external experts or gives them the chance to work in different environments. One example of such a project is the archaeology project, where students did historical research, unearthed a church wall and recovered historical treasures. On *Open Monument Day*, students presented their findings to the public. Another project was a group from different classes who worked on an “encounter project” to discover the biographies of elderly people by engaging with them. In addition, there have been a range of projects, for example, “school yard design” and “teacher training.” Teacher training consists of students training the teachers by speaking authentically with them about their motivation to learn. The feedback is very positive. One teacher stated after a training seminar: “great self-confident children who are proud of their school, but also tell you if they’re unhappy with something“ (Rasfeld, Spiegel 2013: 167). Teachers are thus able to choose their teaching methods etc. accordingly. Another project which was set up is called the “language ambassadors,” where students go do different schools and help other students to read and learn the language, for example for refugee or immigrant children. To plan this, the students write directives, develop project ideas and games. For example, they might cook a national dish together and incorporate questions about that country in the form of a quiz. Method training teaches students how to draw attention to their project and how to communicate with children who speak a different language. A project diary forms the basis of “reflection time” with the teacher (ibid 84). By opening the school to the community, social learning can be established in relationships. As this project continues to grow, there are plans to restructure it as peer education for socially disadvantaged children. ESBZ students help, for example, with homework or spend time with children they mentor. Socially disadvantaged children often have language difficulties and participation happens very naturally. The parents of socially disadvantaged children are also included, to plan a play, for example, sew costumes etc. The “language ambassadors” project improves equal opportunities in education and integration. The

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50 All informasjon Rasfeld, Spiegel 2013 and Schule im Aufbruch.

students from ESBZ participate in large social challenges, which is one of the basic principles of sustainable learning. Primary school teachers of socially disadvantaged children also see a significant benefit in their support (ibid 87). As Hüther claims, appreciation is a prerequisite for motivation and learning. The mentored children (primary school children often in problem areas of the city) experience interest and empathy with the intensive personal attention they get from the ESBZ students. Both sides establish a sense of solidarity in a multicultural society. Another popular project is “design thinking coaching for managers” where students coach managers. *Learning to act* can be implemented in a wide range of learning formats, for example, in learning subject matter, in project learning, in working groups or workshops, elective subjects or in very different time slots, such as “project challenge.” ESBZ promotes interdisciplinary competencies by linking learning to complex experiences, self-organisation and control, developing personal competencies and ethical components, such as community spirit, responsibility and values, complex meta competencies, such as strategic planning, flexibility, estimating consequences, problem-solving skills, frustration tolerance and impulse control (ibid 45-46).

Hüther describes this as executive frontal lobe function. Several studies describe the positive effects of learning through social engagement or enterprise, by breaking down prejudice and improving problem-solving skills and ethical thinking. Anna Sliwka (professor of educational sciences) lists the following criteria for learning through social engagement (ibid 46):

- A genuine need
- Connection to curricular content
- Reflection over experiences
- Certification of acquired competence development
- Public recognition for the young person.

Another successful project I would like to mention here was established in 2008. An ESBZ student met with the Kenyan Nobel Peace Laureat, in the course of a project on climate change. Together with others, Wangari Maathai planted more than 30 million trees to counter deforestation and soil erosion (ibid 5). The ESBZ student was inspired to start “Stop Talking! Start Planning!” and in 2011 was already able to plant trees in two countries. ESBZ carried out a school project for several weeks on the topic of forests which became “Plant for the Planet” and trains children to be climate ambassadors. Climate ambassadors give talks, for example, at the Vision Summit Berlin or at a convention for sustainable development for school directors in Berlin. ESBZ also brings the

“world” into the school by inviting “role models” or guests to encourage students to reflect, confront new ideas or question their opinions (ibid 89). For example, the best-selling author Klaus Werner was invited to give a talk on alternative globalisation. He pointed out the connections between international economic policy and everyday lives and explained how everyone has the power to oppose multinational organisations. Criticism that general education is lost with all the project work happening is countered by the argument that general education means educating the whole person, including their personality, which is one of ESBZ’s priorities. Education at ESBZ is to a large extent through experience and less through books, however students choose learning goals based on their interests to work on in project-based learning. Studies show that 95% of knowledge acquired for an exam is forgotten after leaving school, because the meaning and sense of purpose and the emotional context was not incorporated into the learning process. Knowledge from interdisciplinary projects is more interconnected and embedded. A further criticism is that students would not learn anything if left to their own devices. Experience shows that this is true, but that it depends on what is understood by freedom, because freedom without challenge and limitations is just randomness. Rasfeld says that the real challenge is students who have had the curiosity and joy of learning driven out of them. If these students are given freedom, they really do do nothing until they are able to make new experiences.

### **5.3 LEARNING TO LIVE TOGETHER**

We learn to live together in diversity by taking part in society. To create a democratic society, it is important for children to have positive experiences with democracy as early as possible in their lives. Acting democratically also promotes self-effectiveness and vigilant mindfulness in the face of threat. Mindfulness is the opposite of superficiality. However, not the focused mindfulness with which you follow a goal to its result. That can mean that you have lost opportunities to develop. Mindfulness is characterised by openness, according to Hüther (Endres, Hüther 2014:163). With its participating foundation, ESBZ has created creative spaces for experiencing democracy. As discussed in the chapter on ESD, shaping competence with global responsibility is one of UNESCO’s core missions. ESBZ’s creative spaces include self-determined learning formats, weekly assemblies and class council which promote democracy and the subject “social learning,” as well as the civic commitment in “project responsibility” and “project challenge.” Class council is a discussion forum, and a centre for planning and action. The goal and task of the class council is to solve problems. This is done by exchanging perspectives and promotes social and moral learning

processes. Class council is led by two students who are chosen by the class. One student explains the class council and participation opportunities as follows:

Class council and assembly are places where we can express our opinions and be included in making decisions. Everyone meets here. Projects and important topics are brought up here. (...) Here we can take responsibility for what happens at school and talk about problems and improvements. (Rasfeld, Spiegel 2013: 141-142)

School assembly is every Friday for an hour where the entire school community<sup>51</sup> is assembled and teachers, students, janitors are praised from the stage and the community is encouraged by a sense of “us and our school” rather than “me and my class“ (Rasfeld, Spiegel 2013: 144). School assembly is led by students (for example, a presenter and an assistant) and is a challenge for some students because anyone who wants to praise someone, can get up on stage and do just that. People from the public are also welcome and encouraged to take part. The students learn to treat others with respect. They learn how to make a contribution, and practice democratic competencies by speaking in public, having the courage to open debate and follow rules.<sup>52</sup> As mentioned previously, students from the 11<sup>th</sup> year group can go abroad. This too is part of a sub-competence, intercultural competence, which is necessary for a making a peaceful, humane and supportive world. As brain research shows, comprehending other cultures by engaging with them and forming relationships is the only way to form friendships and establish understanding and communication. Inclusion is one of the challenges facing us in the future and was given highest priority in international educational policies at the UNESCO world conference in 1994. In view of the ecological and social problems in the world, this means recognising each other’s strengths and working constructively together in socially heterogeneous groups to find innovative solutions (Rasfeld, Spiegel 2013: 121). At ESBZ, the learning formats for *learning to live together* promote understanding within society and contribute to peace. Also are the appreciation and a sense of community fundamental at ESBZ when dealing with others which sets it apart from the stigmatism and selection encountered in traditional schools in Germany<sup>53</sup> where children are placed in special schools or lower-secondary schools to adapt them to defined requirements (Rasfeld, Spiegel 2013: 122). What Jill Jäger says corresponds to the education reformer Otto Herz who claims that we humans are not here to adapt

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51 Approximately 400 people.

52 In Germany recognition is not broadly practiced.

53 Inclusion has long been normal practice in the Scandinavian countries, Spain and Italy.

to systems, but rather we should “see it as our vocation to create systems for, and above all with, fellow humans so they feel comfortable and experience a sense of purpose”(ibid 120). Inclusion and human rights are one in the same and are basic rights embedded in the UN Convention on the Rights the Child and the UN Convention for the Rights of Persons with Disabilities (ibid 121). Scientific research shows that inclusion results in less young people leaving school early and an increase in the average overall performance (ibid 123). By mixing up the year groups, inclusion at ESBZ is natural. A “learning office plus” was set up for students who need special support and has different materials and more tutors. However, this learning office is accessible to all students and this safeguards the school’s heterogeneous and inclusive environment. Experience at esbz shows that the sense of belonging and sense of dignity laid out in the UN Convention enables students to develop their own dignity by being trusted and “seen with the heart.” One student with Asperger’s syndrome was helped to overcome his fears and forge plans for the future by being treated in a nuanced and respectful way. Parents of ESBZ founded an Inclusion Company which combine the following factors for successful inclusion (ibid 130):

Trust in young people, mixed year groups, team structure, culture of praise and recognition, democratic structures (learning office, class council, assembly), joint experiences (school assemblies, classroom sessions).

An example of appreciation and trust in young people are some children with Down Syndrome (trisomy 21) who not long ago would have been considered as unteachable and put in homes. They were not valued as human beings or encouraged. Research has advanced and today we know a lot more about this genetic disorder and children are treated fairly. Some trisomy 21 children have finished school and are studying at third-level.

According to Hüther, potential development must be seen as a whole, with heart (being, emotions), hand (action, craft, skill) and head (cognitive knowledge). The hand – touching and feeling – are important neurobiological requirements for activating pathways in the brain. If students’ hands only experience technology and their only contact with nature is internet research on environmental and climate protection, it is fatal for this generation to never experience undisturbed, self-motivated “play” and unregimented roaming in the great outdoors (Rasfeld, Spiegel 2013: 149). In the wake of globalisation, we need to be open for new experiences and the unfamiliar. ESBZ does this with intercultural experiences and intercultural learning in their stay abroad, whereby the content and not the length of the stay is decisive.

### 5.3.1 Peer Learning

At ESBZ part of *learning to live together* is “peer learning,” which refers to the joint-learning process of (almost) all students of the same age. Students learn to work in teams that change regularly and which creates a sense of community and inclusiveness. According to Rasfeld, this is based on a higher identification with peers of the same age, and the qualification of peers is decisive for the success of peer groups. Peer learning takes place primarily in the learning office. Some students from the 10<sup>th</sup> year group take part an hour a week as coach in the learning offices of the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> year groups as part of their “project responsibility.” The 10<sup>th</sup> year-group students are then learning office assistants or coordinators for the coach. A coach may, for example, correct a test and talk it through with the students. This also lets coaches repeat the material again. Workshops offered by students are also a form of peer learning, for example dance workshops, karate workshops or hula-hoop courses. In “project responsible” peer learning happens when, for example, students offer their help to primary school children and learn with the youngest students.

## 5.4 LEARNING TO BE

The question as to how students can be supported in developing their personalities and taking responsibility for their own lives, is answered at ESBZ by challenges with intrinsic motivation. Students at ESBZ should learn for the sheer joy of learning and with enthusiasm, and not out of pressure to get good results. Enthusiasm comes from experiencing self-efficiency and a sense of purpose. Willpower, vision and creativity are competencies required for the future. These can be developed by encountering a range of possibilities and opportunities. ESBZ set up “discovery workshops” which are completely unjudgmental. This gives students an opportunity to experiment, try-out and find their strengths and weaknesses, make mistakes and be creative in an effort to overcome obstacles. Faith in the students is a prerequisite, because each student bears their own potential and is at their own stage of development.

Potential development at ESBZ means promoting each individual’s development in a supportive community and is characterised by applied values, such as appreciation, challenge, sense of purpose, freedom, responsibility and relationship. In the following table, I would like to show the learning culture for potential development as compared to the international, national learning goals competences (Schule im Aufbruch. Lernkultur der Potentialentfaltung):



International and National Goals	Potential Development ESBZ, Regional, Local
Health goal: grow up healthy	Taking personal wellbeing seriously
Key goal: Inclusion	Interacting with different people, creating equal opportunities in every-day life
Learning to know UN learning goal	Learning through given and self-chosen topics
Learning to do UN learning goal	Acting to achieve given and self-chosen goals
Learning to live together UN learning goal	Acting together with others and assuming responsibility for interaction
Learning to be UN learning goal	Reflecting on self-development as a human and conscious self-development of potential
Contributing actively to society and participating in local and global challenges UN Global Goals 2030	Contributing actively to society and participating in local and global challenges

All this is possible under current legislation in all federal states in Germany with existing budgets and in connection with examinations required for the transition from school to third-level education or to beginning a career. ESBZ has tried to implement this theory of developing potential, whereby ESBZ assumes responsibility for the children and the earth; a concept for life-long learning.

In the following table, I would like to give an overview of the overall analysis, taking its starting point in global change which led to international responsibility and is reflected in the UNESCO's sustainable development goals (SDGs). These correspond to the potential development theory and the ESD.

UNESCO Four Pillars of Education	Meta Competencies, Potential Development	Shaping Competence and Sub-Competences (ESD)	Globalisation Processes
Learning to know	Subject and method competence, authentic encounter with learning materials	Acquire interdisciplinary knowledge and act	Change in working environment, new technologies
Learning to live together	Social competence, participative and individual in society	Participate in collective decision-making processes	Cultural identity, development of democracy
Learning to do	Acting/shaping competence, problem solving, networked thinking, self-effective in real contexts	Acquire interdisciplinary knowledge and act	Ecological challenges
Learning to be	Self-competence, self-image, self-effectiveness	Reflect on own and other's guiding principles	Over-stimulation, inundation from media

## 5.5 SUMMARY

ESBZ has taken on the requirements of UNESCO's education goals and developed a new school curriculum, as the existing strategy is no longer sustainable with increasing competition on all levels. The challenges of the future make it imperative to encourage creativity, responsibility and individuality while at the same time promoting a sense of community, as these are the basic principles to ensure a peaceful co-existence. ESBZ explains this as the reason for developing its sustainable curriculum which corresponds to ESD. Humans today are shaped to the needs of the economy, and adapted to economic efficiency structures, but this is no longer compatible with the modern, globalized world we live in. Hüther described that human potential can only be developed in a society which fulfils certain requirements, but the difficulty lies in its implementation and on clinging to "what we know." Dr. Claus Otto Scharmer sees the reason in our inability to achieve "presencing." This is a new learning methodology, which doesn't rely on learning from the past, but on "sensing and actualizing one's highest future possibility" (Rasfeld, Spiegel 2013: 22).

To go back to my starting point, seeing the world from space, I can summarise by saying that ESBZ assumes responsibility for humankind (children, who will become the shapers of our world) and the earth, by making a vision of sustainability and future viability central to its curriculum and expressing this in its learning formats in accordance with international requirements (Agenda 2030). ESBZ thus combines the development of each individual's potential with the contribution of uncovered resources in the shaping of our world (sustainable, fair, peaceful) by means of making an active contribution in society and accepting responsibility.

## 6. ANALYSIS NORWEGIAN

The sustainable development goals (SDGs) form the basis for implementing education for sustainable development in Norway. The SDGs are based on the report, “The Treasure Within” from 1996 which introduced the *competence* term. This term was developed as a result of research to ascertain skills required for the 21<sup>st</sup> century and describes the central sustainable development goals, with education and the four pillars (learning to be, learning to do, learning to live together, learning to know) playing an important role. A significant aspect is the emphasis placed on humans in the development process, as humans are the “centre for sustainable development”<sup>54</sup> to achieve ecological, economic and social sustainability.

The global development agenda (Agenda 2030) aims to apply to all countries and take all national realities into account and is therefore the starting point for my implementation from international to national level and from macro to micro level. Haan points out that identifying the competences doesn’t explain *how* pedagogic competences can be supported and acquired (Umweltschulen BNE in der Schule). To enable this I would like to refer to the BLK Program Transfer 21 under the leadership of Haan.

To discuss the implementation of sustainable education in Norway, I would like to concentrate on goal number 4, which states: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations Educational p 5).

Goal number 4 has seven sub-points and three implementation strategies, the most relevant of which in this context is sub-goal number 4.7.

### SDG 4.7

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development” (ibid p 9).

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54 [https://de.wikipedia.org/wiki/Ziele\\_f%C3%BCr\\_nachhaltige\\_Entwicklung](https://de.wikipedia.org/wiki/Ziele_f%C3%BCr_nachhaltige_Entwicklung), see also chapter theory

This goal was adopted by the Norwegian government and has become Meld. St. 28 (2015-2016) *fag fordypning-forståelse* (Whitepaper no. 28. Subject In-depth Understanding).

The Government released whitepaper, Meld. St. 28 (2015-2016) in an effort to satisfy the social, economic and ecological challenges in Norway as well as global problems. This whitepaper is based on the Official Norwegian Reports, NOU 2015: 8 *Fremtidens skole. (The School of the Future)* and interim report NOU 2014: 7 *Elevens læring i fremtidens skole (Pupils' learning in the school of the future)*. NOU 2015: 8 refers specifically to *subject renewal and competence* and its implementation. NOU 2014: 7 talks about the Norwegian school today with its results and challenges for the 21<sup>st</sup> century. The competence term referred to here of life-long learning corresponds to the competence term as defined by UNESCO and overlaps with the educational goals for sustainable development.

Competence means being able to master challenges and solve tasks in various contexts, and comprises cognitive, practical, social and emotional learning and development, including attitudes, values and ethical assessments. (NOU 2014: 7 p 8)

This also points to the research findings which indicate that emotional learning is related to subject-based learning (see also Hüther, Rasfeld, Spitzer).

#### Side note: Norway's Future Challenges

Norway in the future will develop a more complex, diverse and fast-changing society (NOU 2015: 8 p 17). With the increasing diversity of nationalities in society, openness and dialogue are required to ensure that intercultural diversity is perceived positively and to communicate with one another to live democratically. Working life will be characterised by technological achievements and new developments, and the ability to use them. The shift from an oil nation to green sustainable development requires a change in attitude and innovative and creative solutions (St. Meld. 28 (2015-2016) p. 5).

We need to understand how countries depend on each other economically, ecologically and politically, so we can use knowledge and skills globally and locally and ensure sustainable development. Knowledge and competence form the basis for promoting children's skills in educational institutions. There were already existing challenges facing basic education in schools, which have not yet been resolved, such as too little subject-based knowledge and, as a result, not completing upper-secondary school (*vidergående skole*). Psychological problems among young people and a lack of motivation are negative side effects which can perhaps be blamed on students not understanding

the point of learning facts without comprehending their practical application. A research study carried out by Anne Bamford showed that Norwegian students are unable to develop their creativity properly in schools. There is what is known as the “cultural school bag” where a range of creative and aesthetic artists/performers come to schools to present their art, however students themselves do not have much opportunity in Norwegian schools to develop their *own* creativity. Research shows that teacher’s feedback was not precise enough for students, and they didn’t know what subjects they needed to work on more. In addition, researchers found that the learning goals and purpose of varied teaching methods were not evident enough. A decisive finding showed that teachers were not sufficiently able to help students to see what they were learning in a larger subject or knowledge-based context. There was more emphasis put on facts, terms and word identification than on pursuing in-depth knowledge (NOU 2014: 7 p 40).

In order to meet international challenges (SDGs) and national challenges, among others those mentioned above, the Norwegian curriculum (*læreplanverk*) is currently being reworked. The whitepaper, *Meld.St. 28 (2015-2016)*, states on page 5:

kunnskap, og evnen til å anvende kunnskap, er det norske samfunnets viktigste konkurransekraft.» (Knowledge, and the ability to apply knowledge is Norwegian society’s most important competitive force.

The focus is placed on mutual learning:

« Evnen til å lære av andre land er nært knyttet til befolkningens samlede kunnskaper og ferdigheter» (The ability to learn from other countries is closely tied to society’s total knowledge and skills) (Meld. St. 28 (2015-2016) p 5, 6).

## 6.1 THE LÆREPLANVERK

The *læreplanverk* curriculum is the Norwegian government’s central tool for determining what is included in children’s education and the most important competence goals they should meet. I would like to discuss the layout of the curriculum which defines structure and content and is thus what schools base their planning and implementation on. The curriculum is structured as follows (Meld. St. 28. (2015-2016) p 10):

1. *Generell del av læreplanverket*, the general part of the curriculum, which contains the main goals for education (the values society is built on, knowledge and learning concepts)
2. *Prinsipper for opplæringen*, the principles of education, which places the responsibility for education on schools according to law. This covers the principles for the entire primary education including all subjects and emphasizes the social and cultural competences, the motivation for learning and strategies, student's co-determination, instruction tailored to the students, equal opportunities and cooperation with the local community and parents. These principles are incorporated into the *læringsplakaten*<sup>55</sup>.
3. *Læreplaner for fag*, curriculum for subjects, which covers the entire 13 years of schooling and describes the competences expected of students in 2<sup>nd</sup>, 4<sup>th</sup>, 7<sup>th</sup> and 10<sup>th</sup> classes and for the subjects for all years in upper secondary (*vidergående skole*).

The major changes to be implemented in the Norwegian curriculum are prioritised topics which should be included in all subjects, as they need to be linked to several areas. These three interdisciplinary priorities are (Meld. St. 28 (2015-2016) p 7):

Prioritised Interdisciplinary Topics	Competences
Democracy and citizenship	Living in a multi-cultural society
Sustainable development	Local and global thinking and acting, ecologically, economically and socially
Health and healthy living	Knowledge about physical and psychological health, knowledge about a “healthy” economy and consumerism, physical mobility, which in turn has consequences for self-regulated learning, reflecting and metacognitive skills.

These topics should form the basis of all interdisciplinary cooperation, provide an overall understanding of the topics, and be a common concern for schools. The three prioritized topics overlap with education for sustainable development, for example the participation goal is emphasized in the sustainable development topic. The fact that all three topics apply to all subjects and are interconnected, points to the interdisciplinary concept of education for sustainable

<sup>55</sup> Part of the curriculum *læreplanverket*, containing the main obligations of the school.

development. The ability to see the issue from the perspective of several disciplines is important for recognizing and understanding system relationships and indispensable for dealing appropriately with the complexity of the topics.

### 6.1.1 General Part

The general part of the curriculum (*generell del*) deals with the values of the school, the development goals of its students and their purpose. According to the whitepaper, *Meld. St. 28 (2015-2016)*, this should be connected more closely to the subject curriculum and describe the elements which are to be applied to all subjects as interdisciplinary topics (Meld. St. 28 (2015-2016) p 20). The principle was adopted in 2008 by *Bostadutvalget* (Meld. St. 28 (2015-2016) p 20) (a government-appointed commission to rework the “purpose clause” for primary-school and pre-school education) and is intended to cover three aspects:

- Schools should be based on social values
- Students should learn and develop as humans, community citizens and future professionals
- The educational work of schools

### 6.1.2 ESD and Values from General Part of Curriculum

The general part of the curriculum should be realised in the individual subjects which improves the student’s subject-based competence. Both values and competence are thus interrelated. “Values are linked to education and development in a long-term perspective” (Meld. St. 28 (2015-2016) p 21).<sup>56</sup> In the following table, I would like to show the values and their development goals for students as laid out in the general part of the curriculum and how they correspond to the ESD sub-competences as part of the shaping competence and examine how they overlap (Meld. St. 28 (2015-2016) p 20-22).

Sub-Competences of Shaping Competence from ESD	Values from General Part of Curriculum
Self-competence, reflect own and other’s	Joint values. Including respect for human values

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<sup>56</sup> Translated by me



guiding principles	and nature, freedom of opinion, religious freedom, charity, forgiveness, equality and solidarity
Acquire knowledge in an open-minded way, integrating new perspectives	Open-mindedness and historical and cultural understanding. Schools should become more open for students to gain an understanding of international cultural traditions and also understand their own national cultural identity.  Schools should have an open-minded and inclusive attitude
Reflect on individual and cultural guiding principles	Cultural diversity and mutual respect. Acceptance of each individual student with their own cultural traditions and world views.
Ability to participate, interdisciplinary skills	Democracy and equality. Students should develop knowledge about democracy and exercise this knowledge within the school community.
Ability to participate, competence to reflect own and other's guiding principles	Abilities and attitudes, knowledge. School education should give students the ability to master their lives on social, practical and personal levels.
Competence to motivate oneself and others to act which requires the competence to reflect on individual and cultural guiding principles.	Critical thinking. Students should learn to think critically, reflectively and independently.
Competence to plan and act, competence to be open-minded, possess transcultural understanding and ability to cooperate.	Assume responsibility for climate and environmental challenges. Students should be actively responsible and take conscious action to

	ensure sustainable development.
Ability to participate, Forward-thinking competence	Joint responsibility and cooperation. All students have the right to co-determine democratically within the school community. Students should see that they are important for others. Ethical actions. Students should learn to act and reflect ethically.
Ability to show empathy, commitment and solidarity	Social competence and responsibility. Students should develop empathy and respect for each other and the ability to work together. Students should become independent individuals.

Prerequisites for learning are specified in the whitepaper, Meld. St. 28 (2015-2016), and emphasize that important aspects are motivation, the ability to take initiative and to work and learn in a focused way (Meld. St. 28 (2015-2016) p 22-23). It also points out once again the importance of values. In school life, values enable a good learning environment and are subsequently responsible for successful learning.

Creativity also plays a prominent role in Meld. St. 28 (2015-2016) and is part of the shaping competence in education for sustainable development, to keep focusing on the future, a wide variety of opportunities and active shaping.<sup>57</sup> The general part of the curriculum intends to emphasise that students should have the opportunity to explore and develop their creativity and in all subjects (Meld. St. 28 (2015-2016) p. 23).

### 6.1.3 NOU 2015: 8

As a result of the effects of globalization, a commission of selected and renowned experts, led by Sten Ludvigsen, worked out four areas of competence which should play a central role in schools of the future while also promoting social and emotional competences (NOU 2015: 8).

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<sup>57</sup> See also chapter ESD.

Area of Competence	Social and Emotional Competence
Subject-specific competence	Ethical perception, commitment, attitude towards subject and student's own learning
Ability to learn	Evaluate, plan and implement one's own learning processes, persistence, expectations of own learning
Ability to communicate, interact and participate	Express oneself and contribute, be prudent, show consideration for community by regulating one's own thoughts, feelings, actions, recognize mutual dependencies of interaction and participation, respect and value other viewpoints
Ability to explore and create	Create, be inquisitive, persistent, open, ability to see things from another perspective and take initiative

These four competence areas should enable the student to master challenges, solve tasks in different contexts and covers cognitive, practical, social and emotional learning and also deals with attitudes and values and ethical judgements (NOU 2015:8 p. 19).

## 6.2 BLK PROGRAMM TRANSFER 21

In comparison, Germany has developed three teaching and organisational principles to acquire competences as part of the BLK programme "21" and its transfer phase (BLK Programme Transfer 21). These principles are intended to enable students to learn to develop and evaluate proposals to solve key problems in the area of sustainable development, and subsequently find ways to take action (Transfer-21 p 17). These goals can be achieved by:

- Teaching inter-disciplinary knowledge,
- Promoting participative learning
- Establishing innovative structures.

I will return to these goals and principles later on and explain their didactic structure when I discuss, on a micro level, central questions for selecting topics for teaching.

### 6.3 MELD.ST. 28

I would like to come now to the subject-specific competences. Subject-specific competences should be seen in a more interconnected way to ensure better learning and a more thorough subject-related understanding. In addition, they should reflect the wide scope of basic education (Meld. St. 28 (2015-2016) p 36). Meld. St. 28 (2015-2016) specifies four disciplines for better connectivity and reduction in the quantity of subject content:

-mathematics, natural science and technology

-languages

-social studies and ethics

-practical and aesthetic subjects (Meld. St. 18 (2015-2016) p 37).<sup>58</sup>

In-depth subject learning is considered to be of great importance (NOU 2015: 8 p 10). In-depth learning in individual subjects is only possible when the student has a variety of choices and the teacher is familiar with varied learning forms. The commission states that these subjects are not too static, which means that a subject should not be defined only from a scientific perspective. The selection of subjects was justified on the basis that these groups of subjects have many things in common. Whitepaper Meld. St. 28 (2015-2016), for example, states that the language subject Norwegian is interdisciplinary, since it covers more than pure language skills, but also knowledge about Norwegian life and subsequently social studies (cultural knowledge). Critics think that there may be difficulties if the group of subjects is taken too literally and essential aspects of the subject are lost (Meld. St. 28 (2015-2016) p 37). Key elements of a subject must be seen in interrelation with the subject. The Ministry for Education and Research (*kunnskapsdepartement*) sees the advantages in timesaving and prioritising in individual subjects, for example, mathematics knowledge is an advantage for learning natural sciences. The Ministry for Education and Research is keeping the debate open as to whether these four subject groups will be retained. There are too many differences between aesthetic and practical subjects and too few aspects in common and this makes it difficult to find a common basis (Meld. St. 28 (2015-2016) p 37). School subjects should

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<sup>58</sup> Practical and aesthetic subjects include music, arts and crafts, food and health, sports.

have a correlation between the essential core element of a subject and meaningful knowledge of individual students and society (Meld. St. 28 (2015-2016)).<sup>59</sup> The ministry also emphasises that a future renewal of each subject should be based on its “building blocks” which refers to its most important methods, concepts, principles, connections and ways of thinking and can vary from subject to subject (Meld. St.28 (2015-2016) p 34). The importance of methods and ways of thinking is emphasised, as these comprise critical thinking, practical and theoretical problem and challenge-solving skills as well as technical and everyday problem-solving skills both alone and with others (Meld. St. 28 (2015-2016) p 34).

Overview of Norwegian areas of competence and their goals (NOU 2015:8 p 22):

Areas of Competence	Goals of Competence Areas
Subject-specific competence	Competence in <ul style="list-style-type: none"> <li>-mathematics, natural science and technology</li> <li>-languages</li> <li>-social studies and ethics</li> <li>- practical and aesthetic subjects</li> </ul>
Competence in learning	Metacognition and self-regulated learning
Competence in communicating, interacting and participating	-Reading, writing and oral competence <ul style="list-style-type: none"> <li>-Interaction, collaboration and democratic participation</li> </ul>
Competence in exploring and creating	-Creativity and innovation <ul style="list-style-type: none"> <li>-Critical-thinking and problem-solving skills</li> </ul>

Having presented the curriculum laid out by the Norwegian government (general part, values, interdisciplinary principles and topics and subject-specific competence) from whitepaper Meld. St. 28 (2015-2016), and *why* the curriculum is being renewed (globalization, sustainable development goals), I would like to discuss *how* and *what* can be taught. This is where the Norwegian

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<sup>59</sup> See also chapter ESD.

government finds itself at the moment in the development process of the new curriculum. I will suggest some solutions for implementation which could be realised with the help of the BLK Programme Transfer-21 (education for sustainable development).

#### **6.4 FROM MACRO LEVEL TO MICRO LEVEL**

How can the UNESCO goals for education be translated into practice for Norwegian schools?

By means of the didactics method of teaching. This deals with the question as to how to make a “topic” into a pedagogically sound and planned subject for a lesson, and is formed and worked on with didactics methodology. It is important to point out that didactical planning is aimed at teaching methods and cannot be limited to a theory of learning content.

In the following, I would like to discuss how the topic of sustainability can be integrated into teaching to show the path from the macro level, the political guidelines, to the micro level, the classroom (Adick 2002:7):

- 1. School system,
- 2. Type of school,
- 3. Subject for lesson,
- 4. Conception of the lesson,
- 5. Actual lesson

Topics correspond to various reference levels in the lesson and contribute to the didactical form (Adick 2002: 8):

1. UNESCO
2. Norwegian education system (curriculum, exams etc.)
3. Teaching subjects, subject didactics, curriculum, text books, partly depending on school form and type, interdisciplinary didactic concepts
4. Subject for lesson didactic analysis and lesson plans for individual units/topics
5. Teaching practice, interaction in class, teaching and learning processes

Having presented the transfer levels, I would like to come to the didactic debate regarding ESD which should ultimately take the tangible form of curriculum and textbooks in Norway.<sup>60</sup>

## **6.5 INITIAL CONSIDERATIONS**

There are considerable overlaps between the basic principles of sustainable development and whitepaper Meld. St. 28 (2015-2016), such as participation, interdisciplinary competence, opening of schools (innovation). The major areas of the sustainability debate correspond to the future-oriented innovation areas specified by the Norwegian government, in its transition from an oil nation to one of sustainable development. The overlaps cover, for example, the topics of building and living, health and life processes, consumption, use of resources and energy. These topics need to be covered, if schools are to prepare future inhabitants of the earth for the future.

## **6.6 IMPLEMENTING ESD INTO THE NORWEGIAN SCHOOL SYSTEM USING THE BLK PROGRAMME**

The education policy goal of UNESCO to integrate ESD into standard school practice (shaping competence) can be achieved using the basic structure of didactic ESD guidelines in the form of three modules: Interdisciplinary Knowledge, Participative Learning and Innovative Structures. Students should be empowered to take innovative action with regard to sustainability as part of the overall goal of shaping competence. I would like to take a closer look at these three teaching principles in the following.

## **6.7 TEACHING AND ORGANISATIONAL PRINCIPLES WITH RELEVANT ISSUE<sup>61</sup>**

### *6.7.1 Interdisciplinary Knowledge*

Interdisciplinary knowledge is linked to the development of problem-solving competences, network thinking and combining natural and cultural environments. The goal is to embed relevant content and teaching forms in the school curriculum and programme. Learning must be perspective, which means that different aspects of a phenomenon should be covered. These perspectives must also be

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<sup>60</sup> Due to the planning and development process of the new curriculum, the didactic discussion will probably not take place before 2018.

<sup>61</sup> Umweltschulen. *BNE in der Schule*

seen in relation to a subject. The lesson should lead the student to see interconnections and offer solutions to local and global issues.<sup>62</sup>

Relevant questions could include:

- What does my/our decision mean for people living in my/our region or in other countries, and vice versa?
- What does my/our decision mean for current and future generations?
- Is my/our decision compatible with economic, ecological and socio-cultural values? Are there inconsistencies, opportunities?
- How do economic, ecological and socio-cultural aspects relate to each other within a certain context?

In order to recognise connections within these complex subject areas (social, economic and ecological) and mutual interactions between them, we need to assume and investigate different perspectives. Künzli points out that if we want to explore different perspectives, we must take stock of our own position and our willingness to reflect on it and to look at how prejudices are established and how they are challenged, and refers to Nieke. Künzli points also out that this process must be led by the teacher, because it cannot be assumed that students will be able to see the relationships between different subject areas or parties by themselves. This didactic principle of interdisciplinary knowledge is based on understanding the world as a system in which the complete meaning of a topic can only be understood by examining its connections to other linked phenomena, according to Künzli.<sup>63</sup> This is also a basic principle of sustainability: integrating all three dimensions (ecological, economic and social) with spatial aspects (global, local) and temporal (current and future generations). Sustainable development and its various dimensions aspires to make us aware of this and to implement it when making decisions. A central approach of linking perspectives in the context of a particular lesson means that knowledge from different subjects and disciplines must be consciously drawn on and linked. This encourages students to reflect on their own world views and learn that there is no single objective truth (Künzli 2006: 48).

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62 All informations from Künzli 2006.

63 See also Jill Jäger in the chapter: theory.



### 6.7.2 *Participative Learning*<sup>64</sup>

Participative learning refers to UNESCO's major demand for all social groups to participate in the process of sustainable development and signifies a life-long development of learning and methodical competences. This relates on two levels to the didactic principle. Firstly, the individual personality of students who need to make decisions (alone or with others) about the areas that relate to them personally. And secondly, the class as a whole needs to deal with issues which are relevant to the whole class. Influencing decisions and accepting the consequences of decisions are essential aspects of participation, says Künzli and refers to Bättig (Künzli 2006: 48-49). To implement the didactic principle of participation in the classroom, Künzli suggests, for example, establishing a set of rules which all of the participants (including teachers) have to uphold. This type of agreement establishes a social and democratic foundation which enables the students to make relevant experiences (Haan) and shows clearly that the entire learning group shares joint responsibility for how well they function as a group (Künzli 2006 :49). In the context of education for sustainable development however, Künzli states, it should be ensured that not only social learning is taken into account (society) but aspects such as control, power, social organisation of interests, living in communities and means of control also need to be discussed. The guiding principle of education for sustainable development can be explained in terms of the major educational goals but also from a learning psychology perspective which states that human experience and learning are subject to construction processes influenced by sensory-physiological, neuronal, cognitive and social processes.<sup>65</sup> Students are seen as individuals with talents, abilities, potential and, based on these individual prerequisites, can gain insights by actively engaging with their environment. Students must be given a range of opportunities to (co-)determine or (co-)plan what they learn in class.

### 6.7.3 *Innovative Structures*

Innovative structures refer to the educational entirety of a school and must be established as a principle for education for sustainable development as part of a school's vision, based on the concept of a vision of the future. The vision serves as a planning instrument for determining the content and lesson structure and as a benchmark for decisions made during the lesson itself. Students should ask questions such as:

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64 All information from Künzli 2006

65 See also Hüther 2014.

How could my vision become reality and what knowledge and skills would be required?

What kind of future do I/we want and how can we achieve it?

Künzli points out that problems and also existing potential can be brought up. The students each deal with their own vision of the future in a subject-specific manner, they question their feasibility and differentiate them. Künzli calls attention to the fact that each student is an individual. A question in health education, for example, could be: What factors play a role in my own health?

Rasfeld, and also Künzli, referring to Bono, emphasises the importance of visions, and the opportunities children need to develop them while at the same time learning to think critically and creatively. The didactic principle of innovation also corresponds to an educational issue: to introduce students to the world and prepare them to shape a possible idea of the future (Schleiermacher 1964 in künzli 2006:52). Based on these three principles, the Norwegian system requires fundamental changes to its content, methodology and organization if it is to promote education for sustainable development in schools.

## 6.8 SUB COMPETENCES

In order to show a structure for lesson content (with regard to both subject and method), I would like to pose key questions to determine the sub-competencies of the shaping competence of the learning processes (BLK Programm 21. 2003: 13).

Sub-Competences	Key Questions for Structuring Learning Processes
Forward-thinking skills	Are possible developments for the future being presented/designed?  Are ideas and suggestions offered to develop (alone or with others) positive change scenarios in technical, social, ecological and economic areas? Are the risks of current, future or unexpected developments discussed?

<p>Open-minded and open to new perspectives</p>	<p>Is the relationship between global and local phenomena made clear?</p> <p>Are curiosity and openness aroused to discover other cultures and ways of life?</p> <p>Are the spatial and temporal consequences of one's decisions made clear?</p> <p>Are differing interests and problems from the viewpoints of different cultures, lifestyles and philosophies portrayed in a way it can be understood?</p>
<p>Interdisciplinary thinking and acting</p>	<p>Are different subjects, ways of thinking, approaches (scientific, aesthetic etc.) linked so that students are able to see how a problem can be seen from several perspectives and the complexity of developing solutions? Is emphasis put on inventiveness, creativity and explorative learning?</p>
<p>Ability to participate</p>	<p>Are the students developing competences to participate cooperatively in planning, implementation and decision-making processes? Is the ability to articulate oneself verbally or otherwise without violence spoken about?</p>
<p>Ability to plan and act in a way that is compatible with sustainability</p>	<p>Are the objectives of sustainable development established with regard to the amount of planning required and availability of resources?</p> <p>Is the necessary networking of parties taken into account? Are repercussions, long-term effects, delays considered?</p>

	<p>Have you discussed the fact that there are discrepancies between planning and acting as far as motivation is concerned? And how to get from good intentions to taking action?</p>
<p>Ability to show empathy, commitment and solidarity</p>	<p>Are students empowered to support others if necessary? Is the situation of the underprivileged or disadvantaged considered? Are principles of social equality discussed to encourage ethical reflection? Is cooperation offered on the basis of criteria such as equality, humanity and tolerance?</p>
<p>Ability to motivate oneself and others</p>	<p>Is it ensured that the student will possibly work independently on a topic? Are there elements that can motivate the student or others to address the topic beyond the classroom situation and take it into everyday life so that students can teach others? Are students encouraged to be self-effective?</p>
<p>Ability to reflect on individual and cultural guiding principles</p>	<p>Are students persuaded to think about their own patterns of thinking and acting, their lifestyles and habits? Are they encouraged to confront the conditions and borders of their own world view in a self-critical way? Are they enabled to reflect on the foundation of their own society (for example, consumption patterns, thinking in terms of growth and shortages)? Are opportunities offered to evaluate and draw conclusions based on their intentions, plans and joint projects and activities?</p>

The following questions can be used to independently select topics and to check the importance of topics in the current curriculum in relation to sustainability issues (BLK Programm-21. 2003: 15):

Criteria	Key Questions to Identify Key Topics
Central/global dimension	Does the content correspond to requirements, conditions and perspectives of future development globally and locally? Is its relevance ensured scientifically or through political debate?
Long-term importance	Is the long-term importance of the content (for example of a current event) assumed or ensured? Can it be assumed that the topic will also be important a decade from now?
Differentiated knowledge	Are different subjects, sciences and disciplines taken into account when selecting the topic? Is the topic perceived in a differentiated manner and presented with different experiences and opinions?
Potential to act	Are possibilities for action pointed out for individuals and/or society and/or the parties concerned in politics, business, science and technology? Are possibilities for individual and collective action specified? Are the limits, obstacles and potential of changing one's own behaviour and shaping politics discussed?

## 6.9 LEARNING METHODS

A range of methodical variations are possible to cover the topics mentioned above. However, Haan specified that education for sustainable development requires:<sup>66</sup>

1. Self-paced learning and learning in groups should take priority<sup>67</sup>
2. Action-oriented learning should be given priority over learning methods which are based on receiving knowledge and the accumulation of dull knowledge.
3. Learning through project work should be emphasised. Haan points out that project-based learning is advantageous for sustainable development because it tends to be interdisciplinary and is subsequently better for dealing with a complexity of tasks and problems than simple subject-based instruction. In addition, the open learning situation strengthens the ability to act autonomously and in socially heterogeneous groups.
4. School subjects should be easy to combine to enable interdisciplinary learning. This is important because topics relating to sustainability often deal with scientific as well as sociological and normative aspects.
5. Use the concept of service learning which is particularly pertinent for the social aspect of sustainability. Service learning aims to promote social commitment in everyday school life. (for instance, meditation at school, participation in the local Agenda 21) and can strengthen a student's social competence.
6. Exhaust the wide variety of methods available to activate and promote the shaping competence. These include using learning stations, transgenerational learning, excursions, field trips, study tours and other forms of learning in the field, learning using planning games, scenarios and other simulations, future-based workshops.

Künzli maintains that there should be a range of different learning methods available for lessons, because learning and teaching are individually different and based on the teacher or student's different prior knowledge. As students have different prior knowledge, the methods used in a teaching situation should be adapted, whereby the choice of method is not arbitrary but seen in relation to the decisions made for that lesson (content, goals, media, time, tests) and its learning requirements (Künzli 2006:57).

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<sup>66</sup> All information from BLK Programm-21. 2003

<sup>67</sup> It makes sense here to follow the guidelines and recommendations laid out in the BLK-Programm „21“ – Bildung für eine nachhaltige Entwicklung 21.

The selection of methods is linked to:

*-Learning objectives:* Social competences, for example, cannot be learnt at a lecture, but can be developed in a number of reflective group-work formats.

*-Content:* Different parties can perhaps impart the learning content using roleplay in a more intense and longer lasting way than by working on a paragraph of text.

*-Didactic principles:* If the method is selected based on interdisciplinary learning, then you should also aim to generate synergy effects between different areas of competence.

*-Abilities and preferences of the teacher and the student:* Teachers employ methods with varying levels of efficiency (Künzli 2006: 57)

Haan suggests addressing the following topics using different methods to independently select topics and to check the importance of topics in the current curriculum in relation to sustainability issues: the principles of sustainability, the fight against poverty, access to clean water, (political) shift towards renewable energy, climate and reduction of current emissions, consumer and production behaviour, biodiversity and natural resources, nutrition and health, gender equality, trade and globalization, corporate responsibility, the role of local government (BLK Programm -21).

## 6.10 EXAMPLE OF A LESSON

Example of a lesson based on the concept of Wolfgang Klafki's *epochaltypischen Schlüsselprobleme* (key problems of the present)<sup>68</sup>

Sustainable management: Business objectives (Liedtke, Christa; Welfens, Maria J. Et al. 2008:224):<sup>68</sup>

*Goal:* Students address the global economic developments and their consequences and learn about the challenges, goals and measures to achieve sustainable development. Students should address the economic objectives and strategies and learn about and take into account different influencing factors.

*Methods:* Discussion, text work and analysis, develop strategies

<sup>68</sup> This approach is oriented on the key problems of the present and aims to establish strategies for action and everyday decisions. Information is collected and put in the context or factual systems.

Competences: Ability to use an interdisciplinary approach, information competence, communication competence, interconnected and forward thinking

*Approach:*

Students work on and analyse texts. They should indicate the main points and groups should discuss the content. They should consider what would be required to achieve goals laid out in the text. They should choose between business, politics and society and write down the aspects using a metaplan.

*Possibilities for further study:*

-Draw up a strategy. Having discussed the goals for sustainable business, they can draw up their own strategies for “Sustainable Business 2050”. Key questions could include: Where are the biggest challenges?

-Which options are best suited to achieve these goals?

- Which measures are short-term and which are long-term?

-Group discussion. What influence do the megatrends such as consumption requirements, population growth, new technologies and innovations have?

What approaches and measures are available for implementation?

## **6.11 REASONS FOR A CHANGE OF DIRECTION**

The reasons for implementing education for sustainable development (ESD) in Norway are as complex as globalization but yet so simple, because learning processes and educational structures must change if they are to deal with the changing world of work, with cultural diversity, with the rapid advance of globalisation and the pressure on the earths ecological system, and also with the unlimited opportunities available for individuals (Schreiber 2105). “New” teaching methods (self-determined learning, situated learning, action-oriented learning, learning through project work, service learning, interdisciplinary learning, learning using learning stations, sustainability auditing as an evaluation method, planning games, “future search” conferences) are aimed at cooperation within the school (education for sustainable development as a joint task, school management,



team work) and also cooperation with external partners (excursions, field trips, school networks, environmental facilities, NGOs, local government, businesses, parents). Based on sustainable development goals, the BLK Transfer-21 programme has developed strategies, principles and didactic and methodical content for implementation in schools.

## 7. SUMMARY

The extent to which our world has changed as a result of globalisation can be seen in Agenda 2030. Globalisation and global change and its phenomena are the driving force behind the need to focus on education for sustainable development. The focus of UNESCO's Global Action Programme on ESD (2015-2019) should and must lead to a shift in society to preserve our planet in such a way that the quality of life of future generations is ensured.

In my research issue, I wanted to find out how schools can prepare future global citizens for the challenges of the 21<sup>st</sup> century. Based on the case study in the first analysis chapter, I was able to show how the learning culture of developing potential is closely linked to the resulting competences and skills for a sustainable world and to education for the 21<sup>st</sup> century which stands on four pillars and is geared towards shaping our world.

In the second analysis chapter, I was able to show how education for sustainable development can be implemented in Norway using the BLK programme, Transfer 21. Whitepaper, Meld. St. 28, overlaps in a number of places with the concept of the shaping competence and its sub-competences (ESD) and thus a good foundation has been laid for the continuing process of developing a new curriculum. The analysis demonstrated clearly that a fundamental mental change is necessary for sustainable development and subsequently for social justice, consideration of nature and economic and technological innovations. This requires the "commitment and participation of all social groups" and consequently "new forms of participation" (BLK Programm „21“ p. 9) I match with Haan that such an extensive process of mental transformation can require a change in consciousness in every one of us.

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