How the International Primary Curriculum can be used as an approach to achieve Education for Sustainable Development

– Concerning the educational vision, educational mission and teachers competences

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Preface

The inspiration for writing this research is coming from the practice of education. As a primary school teacher, I have been working and been greatly inspired by the International Primary Curriculum. In combination with my love and care for nature and environment, I have related the International Primary Curriculum in my mind to Education for Sustainable Development. How terrific would it be when the International Primary Curriculum would carry out Education for Sustainable Development? We have so much to win according our behaviour and education towards sustainability.

A great word of thanks to the responding educators of the participating schools; the St. Mattheüsschool, De Sprong, De Rank & De Keizerskroon. Without the participating teachers this research could not have been carried out.

A word of deep appreciation towards Anna Vaughan, for all her kindness, interest, time and openness. This made it possible to ask all the questions I had concerning the International Primary Curriculum.

As last I want to thank Emilia Fägerstam, Denise Ganitsky and Sybrich Vlas, for all their patience and advice. This supported me through the process of my research.
**Abbreviations**

**ESD** - Education for sustainable development

**GAP** - Global Action Programme

**IPC** - International primary curriculum

**LVDO** – Leren voor Duurzame Ontwikkeling - Learning for sustainable development

**NOB** – Stichting Nederlands Onderwijs Buitenland - the Foundation of Dutch Education Abroad

**OCW** – Onderwijs, cultuur en wetenschap – education, culture and science.

**OE** – Outdoor Education

**SD** – Sustainable development

**SDGs** - Sustainable Development Goals

**SLO** – Stichting Leerplanontwikkeling - the national expertise centre SLO, the Dutch Institute for Curriculum Development

**U.N.** – United Nations

**UNCED** - United Nations Conference on Environment and Development (UNCED)

**UNECE** - United Nations Economic Commission for Europe

**UNESCO** - The United Nations Educational, Scientific and Cultural Organization

**WCED** - World Commission on Environment and Development
1. Introduction

This chapter is dedicated to the explanation of the causes of the research, the importance, the relevance and the justification of choices that are made beforehand and in the process of researching.

1.1 Introducing the topic

Education for sustainable development (ESD) is a frequently discussed topic. Many researches concerning the content, achievement, ethics and implementation in educational systems have been done. For example Boeve de Pauw, Gericke, Olsson & Berglund (2015), who are discussing the effectiveness of ESD, Kopnina (2012) who is arguing ESD in the context of environmental ethics. & Malcolm Barnes Vare (2014) who is criticizing the inherent contradictions of the implementation of ESD and notes that many teachers are teaching ESD or Environmental education without being aware of this.

While with the sustainable development goals (United Nations, 2015) the importance of sustainability is becoming more and more clear. That our attitude towards the environment and our environmental behaviour has to change, can be made obvious with a quotation of Jutvik & Liepina (n,d) about the emergence of Sustainable Development;

‘Melting glaciers, toxins in blood and breast milk, 50 percent fewer species of butterflies, rising temperatures, a Baltic Sea with a reduced cod population, dying sea bottoms … the list is endless.’ (Jutvik & Liepina, n,d. P.8). Jutvik & Liepina (n,d) are noting that if the people in the Baltic Sea region continue living with the same lifestyle and consuming habits, there would be two extra planets needed to make it possible.

In the reform of our environmental behaviour and the will to live sustainable, all people from different work fields and nations have to cooperate.

'The greatest transformations will not be achieved by one person alone, rather by committed leadership and communities standing side by side. This booklet serves as a reminder that only through genuine collaboration will we see real progress in the new global sustainable development goals. Midwives, teachers, politicians, economists and campaigners must find common ground in their quest to achieve groundbreaking and sustainable change.’

However, ESD is a broad educational concept which is carried out in many different ways. ESD is asking for a professional change of educators, policymakers and society. Besides the fact that teachers can not carry this responsibility alone, there are no clear tools or approaches for teachers to actually work with ESD. (Malcolm Barnes Vare 2014, UNESCO 2014 & Jutvik & Liepina, n,d &).

As a primary school teacher in the Netherlands I got acquainted with the International Primary Curriculum (IPC). At my international master study of Outdoor environmental education & outdoor life, Linköping, I rapidly made a link between ESD and the IPC. Both ESD and the IPC are famous in education, but the link between them is not been made before. With my research I want to make clear that the concept of ESD can be related to the approach of the IPC and that this can ease the achievements of ESD.
Build on the context and problem definition, my main research question is:
To what extent can the International Primary Curriculum be used in the Netherlands as an approach to provide primary school pupils with Education to sustainable development, concerning the educational vision, mission and teachers competences?

In my research question I am only focusing on the similarities and differences of the educational vision, educational mission and the teachers competences. Concerning the teachers competences, I am interested in how the competences fit in the literature and how teacher experience the use of the ESD competences in the IPC. This is bringing me to an analysis of the literature review and an investigation in teachers experiences.

My definition of an educational vision is the way that the education is designed, based on a pedagogical vision on learning (Alkema et all, 2009). The educational mission are the educational aims that are related to the vision, the mission is about what exactly you want the pupils to learn. Accordingly, the mission is what you want the pupils to learn, the educational aim, the vision is how they are going to learn it, the pedagogics (Alkema et all, 2009).

1.2 Purpose of the research
The main purpose of my research is to show by quantitative and comparative research that the IPC concerning the educational vision, mission and teachers competences, can be used as an educational approach to provide schools from ESD. So, analysing two different frameworks. When it is clear in how far the IPC is related to ESD, achieving the aims of ESD becomes more accessible. Additionally I have the purpose to analyse in what extent the teachers competences of ESD and IPC are corresponding to each other and in how far IPC teachers are already making use of the ESD competences (possibly without being aware of using them), which is occurring through investigating in teachers experiences.

1.3 Significance of the research
Scientifically seen there is an enormous urgency for sustainable change. As explained in 1.1, education is an important means to (for example) achieve the broad global development agenda (UNESCO, 2014). There was also stated that sustainable change is not only depending on education, it is something that has to be carried, propagated and done by the whole society (Amina J. Mohammed, 2015). ESD is making use of the environment and community around the school (Jutvik & Liepina, n,d). In that way, not only the young pupils and teachers, but also all the other involved will learn about sustainability. With the relation between ESD and the IPC, there is a concrete approach that teachers can use to create a sustainable and behavioural change. A big advantage is that the IPC is already in use in over 90 countries (Fieldwork Education, n,d) and that therefore it has not to be newly introduced. This makes that the connection between the two frameworks is of great importance of easing the achievements of the aims ESD.

At the master study Outdoor Environment Education & Outdoor Life, we have learned that there are many approaches and concepts that are teaching into environmental and sustainable awareness. Most of these concepts are broad and not very specific, the teachers has space for adaptations and it often differs on the natural environment how the education is actually taken place. This freedom can be a motivation for teachers, but it can also be very confusing. With the IPC as an familiar and possible approach for ESD, the study can offer a more concrete way of how ESD can be taught.
As a person and teacher, I have gotten more and more aware of the environment and the sustainability problems. It is clear that we need to change, but as a teacher I was not really sure how to do it. With my master study Outdoor Environment Education & Outdoor Life, I have learned that there are many ways to raise sustainable awareness, from which ESD is a very important one. For me personally this importance is coming from the holistic and positive view that ESD is carrying (Jutviek & Liepina, n.d & UNESCO, 2014), it makes it interesting and more hopeful to work with. The IPC is an approach that I have experienced as fun for the teacher, and even more for the pupils. The IPC is used by many schools, so it is very likely that I will work with the IPC again. With this research I can show the relation between ESD and the IPC and will it be possible to motivate myself and my colleagues to teaching into sustainable change.

1.4 Hypothesis

The hypothesis of my research is that the IPC can be used as an approach in the Netherlands to provide the pupils of the primary schools from Education to sustainable development. In here I expect that ESD and the IPC are not corresponding in all aspects, but that with some adaptations the connection between ESD and the IPC easily can be made.
2. Methods
This chapter is dedicated to the explanation of how the data is collected & analysed, and in how far there are limitations concerning the validity and results.

2.1 Quantitative & comparative research
In my research I looked in how far the IPC can be used as an approach to achieve ESD, concerning the educational vision, mission and teachers competences. The research methods were the use of a literature review (analysing the two frameworks) and a questionnaire about the teachers competences in the practice (investigating in the teachers experiences).

Qualitative research is about perceptions, quantitative research about measuring (Rutberg & Buoikidis, 2018). Quantitative data are collected through a standard measurement that is used for all cases of the research. The answers are standardized, numbers are presenting words (For example 1. Very satisfied. 2. Somewhat satisfied. 3. Neutral) (Hessler, 1992). In my research I am measuring, which makes it a quantitative research.

My decision for a quantitative research is based on the fact that I am comparing ESD and the IPC. In comparative research you look for the similarities and differences between several practices or theory and practice. For example criticizing how theoretical insights work out in the practice (Donk, van der & Lanen, van, 2012). This is exactly what I have done, I compared the educational vision, mission and teachers competences of ESD with the ones of the IPC. Hessler (1992) states that to do comparing, the most powerful way is to make use of percentages.
Additional influences for choosing quantitative research were the possibility to reach many respondents by the use of a questionnaire, which would make my research much more valid, and my stay in Sweden while my research was based on teachers in the Netherlands. For a qualitative research I would have done interviews and therefore I would prefer to be in the Netherlands so that I could do the interviews in person and not by phone.

2.2 Data collection
The data collection have I done by a broad literature review (chapter 3, 4, 5 & 6) and a questionnaire (chapter 6). To explain the concept of ESD and the approach of IPC as clearly and uninfluenced as possible, I have made use of many policy documents that are written about ESD and the IPC. For the ESD this meant many documents from UNESCO (The United Nations Educational, Scientific and Cultural Organisation) and for the IPC this were the documents written by Fieldwork Education, the developers of the IPC. Additional documents and articles have been used to explain specific theories. In connecting the two frameworks of ESD and the IPC, there is a lot of descriptive texts, but in the meantime the texts are already in the literature review being connected and compared to each other, which makes it directly a part of the analysis.
My decision on using a questionnaire is based on the fact that the information you collect will give standardized information (Hall & Hall, 2004). Next to that is a questionnaire from all cross-national comparative research, the mostly used approach (Hakim, 1987). Even though my research is not cross-national, it is about an educational concept and approach who are both cross-national used. The use of a questionnaire will give me a general overview and a good base for further cross-national research in the same framework.
2.3 Questionnaire

The questionnaire is about all 40 teacher competences of ESD. The competences, and so the questions, were divided into four categories. Every category was showing the associated competences and a scale per competence. Per competence the participant had to answer in which scale they experienced using these competence in the IPC. In here 1 meant not at all & 5 in a very high extent.

My decision for working with scales is based on the dedication of Donk, van der & Lanen, van (2012). They explain that working with scales is a very efficient way to calculate an average, calculate the results into a percentage and find the median. Scales help the researcher to interpret the meaning of all individual scores (from all 40 competences) and to summarize the results (Hessler, 1992).

The choice for a scale from 1 up to 5 can I came from the Likert Scale, designed by R. Likert in 1937 and also working with a scale with five possibilities. Hessler (1992) states that in this theory the respondent can choose between; strongly agree, agree, undecided, disagree and strongly disagree. Where Donk, van der & Lanen, van (2012), state that an even amount of choice possibilities is preventing the respondent of choosing a neutral point of view, is Likert giving this option. In my opinion is it not possible to use a teachers competence in a neutral extent, you are using it up to a certain extent or not. This made me decide to go for the five point scale, but adapted to my own research. I was asking about in which extent teachers experience the use of a specific competence, so I made my scale in a context fitting with certain amounts of extent:

1 = Not at all  
2 = Barely  
3 = To a reasonable extent  
4 = To a large extent  
5 = To a very high extent

Besides that scales are very precise to analyse, the scale was making the questionnaire more attractive for the participants. Using closed questions that can be answered just by ticking a box increasing the response time (Hall & Hall, 2004). There are 40 different teacher competences, and I wanted to know for every individual competence how the teachers experienced it. Asking an explanation per single competence would make the questionnaire way to long. Hall & Hall (2004) state that the questionnaire should be adapted to the audience, my audience are educators and from being an educator myself I know there is not much time to do extra things as answering questionnaires. This is why my questionnaire had to be as short as possible and easy to fill in. To make sure that the competences in the questionnaire would be readily understandable & to safe time of the educators, I translated the ESD teacher competences into Dutch.

To prevent the influence of socially desirable answers, I have not informed the participants about the concept of ESD.

The preconditions for participating the questionnaire, were that the participant was and educator in primary school education and had worked at least one year with the IPC.

At the website of the IPC in the Netherlands, all Dutch schools working with the IPC are mentioned. 35 of this schools have been approached with the question to join my research. This schools were randomly selected and spread over the whole Netherlands, in order to create the broadest view possible. The schools have been contacted by e-mail. Out of the 35 contacted schools, five have agreed on participating. This schools are the:

St. Mattheüsschool, Friesland.  
De Sprong, Friesland.  
GBS de Rank, Drenthe.  
De Keizerskroon, Zuid-Holland
From the five participating schools, nine educators have answered the questionnaire. The participants had worked at least six years or longer in primary education, and between one up to ten years of experience with the IPC.

2.4 Ethical considerations
All of the 35 schools received a request to join the research, the schools who did not answer have gotten a second request. After that I have stopped contacting the schools. It has been the same with the schools who accepted my invitation to join. After their commitment of participation I have send the link to the questionnaire, and after two weeks a reminder. I have not send more invitations and reminders in order to respect the dignity of the participants (Bryman and Bell, 2017).

The participating schools could have felt judged in their way of using the IPC. Together with the will to protect the privacy of the participants have made me decide to make the questionnaire anonymous. The schools have been asked if they are okay with having their name included into the research paper, one school has not replied and thus am I not mentioning the name of this school. In order of privacy I have only written down the name and the province of the participating schools. This also applies to Anna Vaughan; she has agreed on my question of using her real name in my research. (Bryman and Bell, 2017).

To be sure that the participators are giving their full consent on participating on the research, I have only contacted the directors of the schools. The directors could consider if their colleagues would have the time and will to participate in the first case. In here the director could say directly no, to protect or unburden his colleagues. If the director agreed that they as a school would participate to the research, the teachers would still be free to answer the questionnaire or not (Bryman and Bell, 2017).

2.5 Analysis
The literature review, in which the two frameworks are analysed, is used to find the similarities and differences between the educational vision and the educational mission of ESD and the IPC. These is done by comparing the pedagogics, didactics and educational aims. All chapters of the theoretical review (3, 4, 5 & 6) have been used to find these results. This means that the literature review is not only existing out of describing chapters, but that in here the analyses is already present. In the writing the frameworks are already compared and connected to each other where possible.

The questionnaire is used to find the answer concerning the similarities between the teachers competences of ESD and the IPC and in how far teachers are already making use of the ESD teachers competences. In the questionnaire (the investigation in teachers experiences) I have used a five point scale, which gave me results with numbers between 1 up to 5. In the questionnaire there were questions spread over four different categories. To keep a clear overview, the data has been analysed as a whole and per specific category. This results have been calculated to percentages, to make it more easy to compare and calculate averages (Hessler, 1992 & Donk, van der & Lanen, van, 2012).

2.6 Limitations & validity
There are some limitations bound to the research. The questionnaires, which are send out by e-mail can reach many respondents in a short time, but since there is no direct contact between the researcher and respondent you can never be completely sure who filled the questionnaire in and in which way
(Hall & Hall, 2004). This was for my research the case as well. Another limitation related to the questionnaire is that I got only nine respondents out of 35 schools. This is affecting the range of my research and makes it harder to make statements, after all they are based on the experience of only nine educators. Positive is that the outcomes of the theoretical and practical research are corresponding, which is strengthening the practical results.

That there are not many respondents can be declared by the fact that teachers are very busy and that they do not have much time. I have only contacted directors, it can be that they declined my invitation without asking the teachers if there was anyone who would like to join. A third influence can be that the questionnaires were anonymous, so even if a director agreed in participating, there would still be no pressure for the teachers to actually answer the questionnaire.

As a second limitation I want to name that I have not given the teachers information about ESD before they answered the questionnaire. My reason was that this could have pushed the teachers into the direction of giving socially desirable answers. On the other hand there is a possibility that when the teachers knew more about ESD, it would have been easier to give the answers about the competences. Still I think that without giving this information beforehand, you get the purest answers. Maybe teachers are concerning the IPC supposed to use more of the ESD competences, but in their practice they do not. While getting into a routine of teaching you can get less aware of what exactly you are doing. This can say more about how the teachers are working with the IPC than about the relation between the teachers competences of ESD and the IPC. With giving the information beforehand you can awaken this awareness again and teachers will give answers of what they were supposed to do, but not about what they are actually doing.

The third limitation is that in my comparison of the two frameworks, the results of the vision and educational mission are based on my own interpretation and analysis of the literature. This can cause differences between how you as a reader and I as a researcher have interpret the correspondences between the educational vision and the educational mission of ESD and the IPC. This can be mitigated by the fact that I have done a lot of research and I know what I am talking about, I am a professional teacher who has experience with the IPC.

A last limitation is that I have not made use of teacher experiences from teachers who are actually working ESD or IPC (except for the questionnaire for teachers of IPC). This could have brought a more in depth view of how teacher are actually experiencing ESD or IPC and it could have added a lot to the information of the questionnaires. My decision of not putting in more information about what teachers experience (difficulties & advantages) while teaching ESD or IPC is only based on the lack of time.

Concerning the validity, Baarda, Goede, de & Teunissen (2001) are using the theory of triangulation to analyse the validity of a research:

*The use of data from different resources and perspectives*

The collected data is coming from different resources. This resources are bigger organisations as UNESCO and Fieldwork Education, but also articles and researches about ESD and sustainable development.

*The different ways of collecting data*

The data has been collected by a broad theoretical review and with questionnaires. Next to that I have done an interview with Anna Vaughan, who is head of the International Primary Curriculum and Education Lead.
This data has been collected by different persons

The theoretical data is collected only by me, the data from the practice is coming from nine different educators. Extra data has come from my interview with Anna Vaughan.
3. Sustainable Development
This chapter is focused on the explanation of sustainable development and the aspects that are needed to develop in a sustainable way. This is indispensable for the understanding of the concept of education for sustainable development.

3.1 The rise of sustainable development
The first international environmental conference was organised by the UN and held in Stockholm in 1972, during which the western world’s environmental problems were discussed. (Jutvik & Liepina, n.d. p.9).

The term sustainable development has become more and more distinguished since the ‘Our Common Future’ (1987), also known as the Brundtland Report, which was created by the United Nations World Commission on Environment and Development (WCED, founded 1983). In ‘Our Common Future’ the WCED describe sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (the United Nations Educational, Scientific and Cultural Organization, 2014. P.10). The main aim of the Brundtland Report was that the urgency of rethinking our lifestyle and way of governing would be signalled. When responsibly congregating the aims and ambitions of humanity, we have to face problems in new ways and think about international co-operation. (Strange & Bayley, 2008).

The work of the WCED led in 1992 to the United Nations (U.N.) Conference on Environment and Development (UNCED), held in Rio de Janeiro. At this conference there were over 130 representatives of states and around 130.000 members of non-governmental organisations present. Two nonbinding agreements have been drafted and signed; The Rio Declaration on Environment and Development, which is a statement that contains 27 ideals for sustainable development. The other agreement is the Agenda 21, with as content a global plan for the achievement of sustainable development. (Dernbach, 2000).

In 2002, ten years after the Rio Conference there was the World Summit on Sustainable Development, in Johannesburg. The first proposal of the in January 2005 accepted UN Decade of Education for Sustainable Development was enclosed in the Johannesburg Plan of Implementation. Twenty years after the Rio Conference (2012) there was the United Nations Conference on Sustainable Development, again in Rio de Janeiro. Part of the conference was the topic of how ESD could be promoted to incorporate SD in a more active way in the educational systems. Even though the main focus was on SD itself, within the conference the role of education had become much more important. (UNESCO, 2014).

3.2 The concept of sustainable development
To create a valid view on what sustainable development is, I use the explanation of the United Nations Economic Commission for Europe (UNECE). UNECE states that ESD is underpinned by

‘an ethic of solidarity, equality and mutual respect among people, countries, cultures and generations; it is development in harmony with nature, meeting the needs of the present generation without compromising the ability of future generations to meet their own needs’"

The UNECE Expert Group on Competences in Education for Sustainable Development (2012, p. 6.)
The definition that is stated by UNECE is also used by the United Nations Declaration on the Right to Development in 1986 and the Rio Declaration on Environment and Development, 1992. The UNECE Expert Group on Competences in Education for Sustainable Development (2012, p. 6.)

Dernbach (2000) describes sustainable development as a new way to look at the environment and the relationship between the environment and all the other things we care about in our society. Sustainable development is about the want to grow in things we value, for example in effectiveness and the labour market. On the other hand is sustainable development about reducing the things that we do not value; such as poverty and contamination.

Within these actions of growing and reducing, we have to think broad; across borders and over generations. The decisions that we make now will have impact on our society, economy and environment. This is why we have to consider the way of impact our actions will have and think about the different perspectives in relation to our world. (Strange & Bayley, 2008).

Jutvik & Liepina (n.d) describe the goal of sustainable development as ‘‘relevant, comprehensive and meaningful’’ (p.10). On the other hand are they explaining that the concept is difficult to understand and that it might be even harder to bring it into practice. There are for example different opinions about what is most important for development in order to be sustainable. In this opinions the point of view can be related to the necessity of democracy, equality, a stable economy or the value of cultural heritage and understanding.

There are many people and all of us have different economic and social standards. Jutvik & Liepina state that the environment will not be protected until all people have accomplished their own necessary standards. This is strengthened by Kollmuss & Agyeman (2002), who state that when people feel satisfied about their own personal needs, there is much more chance that they start to act environmentally friendly. This is because this people most likely possess more money and have more possibilities. That makes them have a more restricted amount of social issues and therefore the chance that they environmentally care grows.

This is why it is so important that sustainable development is approached with a holistic view;

‘‘Sustainable Development is to create a proper balance between economic, social, cultural and ecological development and needs’’ (Jutvik & Liepina, n.d, p.12).

This is further explained with the ‘‘Chair of sustainable development’’ (Macer, 2004) and amplified by the theory of Strange & Bayley (2008), who state the importance of the interconnection of economic, social and environmental aspects of development. They explain that when you focus on only one of these categories it can lead to long term damage in the environment or society, which is an unsustainable outcome where we are not unfamiliar with. Besides the holistic view Strange & Bayley (2008) state that for sustainable development you have to look beyond borders for being able to make decisions together and to create strategies. Sustainable development has to be global.

3.3 The chair of sustainable development

Jutvik & Liepina (n,d) explain Macer’s Chair of sustainable development (2004) as follows. The chair has four legs, and for keeping the balance and equality between the four legs, all of them need to be equal. They are all of the same importance for the comfort of the chair. The four legs of the chair are representing the cultural, ecological, economic and social needs. The deeper explanation of the legs is based on the information of Jutvik & Liepina (n,d) and reinforced by the elaboration of the Erasmus+KA2 Strategic Partnerships for school education project „Sustainable Development - our Way of Life“ (n,d).

For a further explanation about the chair of sustainable development there is a broad explanation in
appendix I, that is focusing on each leg individually. For now I only focus on the summary on the resemblances between the four legs.

Resemblances between the four legs
An important part of sustainable development is the holistic view. This becomes clear with the Chair of sustainable development. The chair is dividing sustainable development in four categories of needs, cultural, ecological, economic and social. The chair is referring to the importance of the balance between these four categories to be able to make the development sustainable. Within the explanation per leg it becomes clear that the categories are inextricably connected, in each category there is referred to one of the other categories. This clarifies the theory of Macer (2004) and stresses the need of a holistic approach.

In short: my definition of sustainable development
The definition of sustainable development that I am using in my research is the way in which you create a balance between social, ecological, economic and cultural development. In this way of development you stay in harmony with nature and take the needs of future generations in account.

* I am aware of the fact that there are critical voices concerning sustainable development, and I feel like I should mention that this voices are here. On the other hand are this critical voices not relevant for my research, since I focus on the connection between the two frameworks of ESD and the IPC. To stay close to the purpose of my research (analysing the two frameworks and investigating in the teachers experiences) have I decided not to make use of this critical voices within my research.
4. Education for sustainable development

In this chapter the concept of education for sustainable development (ESD) will be explained, as well as the aims for teachers and pupils that belong to ESD. Besides the aims there is the explanation of the pedagogics behind the concept and a view on the educational concepts that are closely related to ESD. This will make clear what ESD exactly is and it is directly showing with which characteristics the ESD will be compared and connected to the IPC.

4.1 The concept of education for sustainable development

The growth of ESD has started quite fast after the discussion and the importance about SD started. The main reason for the evolvement of ESD is that SD had to be promoted. In chapter 36 of Agenda 21 it is described that education is critical in the promotion of SD and absolutely necessary to improve the capability of people to address approach the environment and developmental issues. From 2014 on ESD is closely intertwined in global frameworks and connected to the major accomplishments of SD. ESD is fortifying SD and from 2014 on they are inseparably interconnected (UNESCO, 2014).

In 2005, the United Nations Decade of Education for Sustainable Development started off. The main aim was to make use of education for promoting SD. In 2012 the first major accomplishments were made after the UN conference on SD in Rio. UNESCO has had a major role in creating these major accomplishments, and from 2012 on ESD became more internationally recognised. In 2013 the General Conference of UNESCO supported the Global Action Programme (GAP) to come with a continuation for after the Decade. From 2015 the goals had to become more concrete and scaled up. The new proposed goals for the post-2015 agenda were accepted and included by the Muscat Agreement (2014) and in the Sustainable Development Goals (SDGs). From then on the goals and involvement in education became more precisely and focused and later in 2014, at the UNESCO World Conference on ESD, the Global Action Programme on ESD was launched. In here the first global promotion and introducing plan of ESD was presented. (UNESCO, 2014).

In 2014, UNESCO has given their explanation of ESD as follows:

‘ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society.’’

Unesco (UNESCO, 2014, p. 12.).

ESD is education that is equal and accessible for everyone. In the chapter about SD I explained at the social leg that it is important that everyone is getting a chance to participate. In SD it is about common commitments, and to make this successful everyone has to join. Society has to be seen as a whole, SD knows a holistic approach and therefore everyone and all needs (cultural, ecological, economic and social) have to be involved and equally treated. This makes that there is a necessity of democracy, equality, a stable economy and the understanding of cultural heritage. To teach the understanding of these concepts, the basic education has to be improved first, since education is not in every country accessible for everyone (UNESCO, 2006). Besides improving the actual education, it is stated in Agenda 21 that after the improvement the education has to be reoriented to address SD and that there is need to develop public understanding and awareness. As last they note the importance of training; the training of individuals which is meanwhile promoting an awareness of the environmental issues and the challenges of SD, and so the importance of democracy, equality, a stable economy and the
understanding of cultural heritage. Jutvik & Liepina (n.d) state this awareness of environmental issues too and note that it is important that everyone develops SD skills. Within these skills they understand the will and the capability for influencing the lifestyles and the conditions of living. With the skills you can motivate in the direction of changing into a more sustainable lifestyle. To be able to make this change, we need to increase our knowledge, create choices in the possibilities and let people find a personal driving force. As Jutvik & Liepina (n.d) say; an inner and outer motivation.

*Teaching and learning encompass processes that promote knowledge and also include skills, values and attitudes that affect the individual’s, the school’s and the community’s ambitions to create a fair society, economic security, ecological sustainability and democracy.* (Jutvik & Liepina, n.d, p.21).

As said before, for these skills – and so for the attitudes and values - we need knowledge, choices and a personal driving force. Jutvik & Liepina (n.d) explain knowledge as (the collection of) facts, practical skills, understanding and familiarity. They explain that motivation can grow when there is personal conviction and explain the influence that your surrounding can have, as well as the influence of the social norms and the stimulation of the economy. This makes once again clear how important the holistic perspective of ESD is.

In every SD program that includes ESD the conditions of the local environment and economic and social situation have to be deliberated. This situation is depending per country and most likely even per province or city. This is the reason for ESD being carried out in many different forms around the world. (UNESCO, 2006). Contexts and problems that are used should be connected to the local environment and the economic and social situation of the students. Using recognizable situations that are close to the daily life of the students is giving them the possibility to see and experience the relevance of what they are learning, you empower the learners and with that their motivation will grow (Jutvik & Liepina, n.d.). This does not mean that the education is only about the local environment. ESD concerns global, regional and local aspects of sustainable development. The holistic approach has as condition that different subjects are taught interdisciplinary (Rentsch, 2015). This importance of relevance is corresponding to the statement that UNESCO made in 2017, in which is noted that ESD has to be truly relevant to the learner and should be connected to the challenges of the present (UNESCO, 2017).

ESD is aiming to let the students develop competences that help them to reflect on their own actions. Within this reflection they have to consider the impacts that their actions will have on their current but also on their future cultural, economic, environmental and social situation from a local and global perspective. (UNESCO, 2017). The competences will help the learners to develop moral criteria and will stimulate their desire to participate in the public decision making and society. When the participating is growing, the amount of choices that one can make will grow. These competences are letting the believe in a sustainable society increase. The long term aim is that we will be able to fulfil our needs and live as good as possible, but that we do this without harming the nature and society. (Jutvik & Liepina, n.d.).

Developing close contact with the local environment is important to get the best out of ESD. You can think about dialogues with people from the community, politicians, companies or parents. With all of them you can cooperate. There is a vicious relationship between education and society. The society is having a big influence on the (local) education, but on the other hand can a school in which ESD is
well developed be an essential stakeholder in the establishment of the local SD. To help develop the ESD and the establishing of the local SD you can cooperated with the community, politicians, companies or parents, so that you stimulate the teaching & learning and on the other hand the democratic processes of the society (Jutvik & Liepina, n.d).

The education has to take place at the location where the knowledge is cultivated at its best. In most educational systems the education is taking place inside a classroom. However, you can ask yourself if this is really the place where the knowledge is coming to its right. There are many cases in which the teaching would be much more meaningful when you go outside, so that the knowledge is suiting the location and environment. This can be connected to the need of knowledge, choices and personal driving force. When you go outside you are exposing the learners to a direct experience, which will become something of themselves. (Jutvik & Liepina, n,d) The education is getting a more personal touch and this is helping them to grow their knowledge and driving force and in some situations it can give them more (possibilities into) choices.

Next to that the individuals have to get empowered of knowing how to act in complex sustainability situations, forcing them to take new directions. Another important behavioural change that should be made is the participation in political processes. Students have to learn that they have the power to move their societies into the direction of SD. (UNESCO, 2017).

ESD should be seen as an intrinsic part of quality education. With ESD there is the vision of lifelong learning, in which all kinds of formal and non-formal education should consider their role and responsibility of dealing with and acting resembling to SD. The sustainability competences can be used in all kinds of education (UNESCO, 2017).

**In short: my definition of education for sustainable development**

The definition of education for sustainable development that I will be using in my research is education that is equal and accessible and in which the learners develop a critical way of thinking and reflecting, so that they know how to act in complex sustainability situations. ESD has to stimulate the participation of the learners in society and decision making, and motivates to behavioural change; into acting environmentally as good as possible.

The education is connected to the local environment and everyday life of the learners, but will broadening this to regional and global perspectives of sustainable development. Because of the holistic view there has to be taught interdisciplinary and there is a focus on cultural, social, environmental and economic sustainability.

**4.2 Concrete learning aims**

McKeown has in 2002 developed an ESD toolkit, in which she makes the aims that are set for pupils learning in ESD more clear. She explains the concrete skills a child will need to behave sustainable as follows:

- The ability to communicate effectively (both orally and in writing)
- The ability to think about systems (both natural and social sciences)
- The ability to think in time - to forecast, to think ahead, and to plan
- The ability to think critically about value issues
- The ability to separate number, quantity, quality, and value
- The capacity to move from awareness to knowledge to action
- The ability to work cooperatively with other people.
• The capacity to use these processes: knowing, inquiring, acting, judging, imagining, 
  connecting, valuing, and choosing.
• The capacity to develop an aesthetic response to the environment

McKeown (2002) notes that to make ESD successful, you have to help the learners to achieve these 
skills. The skills named before are practical, besides these practical skills McKeown (2002) explains 
how important it is that the learners develop a broad level of understanding, so that they are able to 
assess situations from different perspectives.

To be able to assess situations from different perspectives the learner should understand that:

• Social and environmental problems change through time and have a history and a future.
• Contemporary global environmental issues are linked and interrelated between and among themselves.
• Humans have universal attributes (e.g., they love their children).
• Looking at their community as well as looking beyond the confines of local and national boundaries is necessary to understand local issues in a global context.
• Considering differing views before reaching a decision or judgment is necessary.
• Economic values, religious values, and societal values compete for importance as people of different interests and backgrounds interact.
• Technology and science alone cannot solve all of our problems.
• Individuals are global citizens in addition to citizens of the local community.
• Individual consumer decisions and other actions effect resource extraction and manufacturing in distant places.
• Employing the precautionary principle by taking action to avoid the possibility of serious or irreversible environmental or social harm even when scientific knowledge is incomplete or inconclusive is necessary for the long-term well-being of their community and planet.’
  (McKeown, 2002, P.21).

The practical skills and the components of understanding can be seen as a summary of all the essential 
elements of ESD. This is what ESD is about and what is necessary to behave and act sustainable.

4.3 Teachers competences
In ESD there are aims for what the pupils have to learn, but there are also aims for the teachers. These 
aims concern the teacher behaviour and learning directions.

To teach ESD, the teacher has to be a facilitator (Jutvik & Liepina, n.d). Facilitators are able to 
connect the learning experiences to the needs and values of the learners and when needed they are 
capable of adapting the learning experience to create this connection. The teacher, or facilitator, is not 
the most important factor in the learning process; the student is its own main actor in the process of 
learning. The teacher is guiding, his task is to creating an learning environment which is positive and 
challenging. Besides the teacher is supporting, asking questions, fostering discussions and organising 
activities. There is a constant circle of processing and reviewing the knowledge, understandings and 
views, which helps ESD to teach into behavioural change. (Jutvik & Liepina, n.d).

UNSECO (2012) has developed concrete competences for teachers who are working with ESD. These 
competences should be seen as an aspiration for all educators who work with ESD and are providing
the framework of professional development for educators, individuals, groups and institutions. UNESCO (2012) developed these competences to increase the abilities of educators and leaders who work with ESD, as they underline the importance of the contribution of education to sustainable development. UNESCO is not the only one who has done research about the teachers competences, Dahl Madsen (2013), has been describing the importance of teachers making us of multidimensionality, simultaneity, rapidity, unpredictability publicity & historicity. These teacher competences are very broad and not really specific, that is why I have decided to use the teachers competences of UNESCO. As the competences of UNESCO are giving a clear view of what exactly is expected from teachers who are working with ESD, I use this aims as the main guideline for the research.

The aims are divided in the four main categories of; learning to know, learning to live together, learning to do and learning to be. These main categories have aims focused on the holistic approach, envisioning change and achieving transformation. You can find the specific aims in appendix II.

4.4 The global pedagogy behind education for sustainable development

In this sub section the pedagogy behind ESD will be explained in a global way. In section 5.1.1. there will be focused on the ESD pedagogics and didactics in the Dutch perspective, which are more specific. The reason for this distinction is that ESD is been carried out in many different forms around the world, due to the attachment of local environmental, economic and social situations. (UNESCO, 2006). This strengthened by Jutvik & Liepina (n.d), who state that there is no common agreement about the concept of ESD.

4.4.1 Social-constructivism

First I want to explain the learning theory that is fitting best with ESD, the constructivism and the social-constructivism. Constructivism is a learning theory that is mainly based on how people learn and gather their knowledge and social-constructivism is mainly looking at the role of social-interaction and culture in the learning processes. Constructivism is existing out of two main thinking directions, the metacognitive and the social direction (Brinkel, 2011).

Alkema et all (2009) describe the constructivism as follows. The constructivism came up around the 1980ths. Basic principles of the constructivism are that learning should be seen as an active process in which the learner takes more and more responsibility, that learning is a process of constructing knowledge, that learning should be built on the already existing knowledge, that learning is bounded to a context and that learning is a social process. They explain that in constructivism the development in the learning is becoming property of the learning. The new knowledge will be connected to what the learner already knows and related to individual or collective experiences. Alkema et all (2009) note that the combination of knowledge, skills and attitude can be seen as a competence, and in constructivism the pupils learn different competences that can be used in real situations. This makes the knowledge, skills and attitude meaningful. In constructivism there is the believe that knowledge is only arising when the learner is actually using the information.

In social constructivism there is the understanding that people construct their reality by interaction with other people. The learner should be challenged to be active and to learn in cooperation with others. In social-constructivism the individual needs of a pupil will be taken in account, there is a variety of realistic learning activities, the teacher is guiding the pupils in different ways, the pupil is steering its own learning process, the pupil is developing awareness of competences and the teacher is giving examples and formulating and guarding the aims. Attitude, cooperation and independence are important principles of social-constructivism. In social-constructivism the teacher has a more coaching role and is giving a lot of feedback, directly in the learning process and not only afterwards (Alkema et all, 2009).
As in ESD, (social)-constructivism emphasizes the importance of the use of real-life problems and cases. The focus of constructivism is on the competences of the individual. The experience of the student is important, the facilitator should understand what is going on inside the brain of the learner and build the education on top of this. In that way the child can build the new knowledge on what he already knows.

With ESD the educator is seen as a facilitator. A facilitator is asking many questions instead of just telling, avoids monologues and is constantly using dialogues, is supporting but does this from the rear and is giving the learner space to come to his own conclusions instead of sticking to a set curriculum. This strikes with social-constructivism, in which interaction is the base of the teaching. In constructivism learners are constructing knowledge and is frequently connected to pedagogical approaches who facilitate learning by doing. The understanding that children are developing and broadening their knowledge in a social context, and the fact that children in general are actively constructing knowledge is shared by four significantly respected pedagogues; Jerome Bruner, John Dewey, Jean Piaget and Lev Vygotsky.

A very important acknowledgement of Vygotsky was that he believed that all children learn in their ‘zone of proximal development’. This zone of proximal development is the difference of what a child is already able to do along and the things he can to when he is getting assistance. When you make use of this zone you can build on the experiences of the child and keep challenging him. The teacher, as a facilitator, has to offer the help in such a way that the child will keep developing itself. (Jutvik & Liepina, n,d).

4.4.2 The four pedagogical essentials

Constructivism is a learning theory that is corresponding very well to ESD. Next to the constructivism as pedagogy behind ESD, Eilam & Trop (2011) describe that according to practical research it turned out that ESD is existing out of four pedagogical essentials. These four essentials are really based on making ESD successful and they are more specific as constructivism. All of these four essentials have to be integrated in the same time to make ESD work and to reach the main aim of ESD; participation of the learners in society and decision making, and motivates to behavioural change into acting environmentally as good as possible. In their explanation they refer to Orion (2003).

1. Natural learning

Two extreme types of education are explained, the natural and the non-natural learning. They are the strong opposites of each other. With non-natural learning the learning is taking place inside, in a closed place that is having no connection to the subject that is taught. Mostly real life experiences are not included and it might be hard for the learner to see the relevance of what they are doing. The education is impersonal and at one-level; there is not much differentiation. The way of teaching is often only through verbal communication. A teacher is telling and the learners are taking notes.

Natural learning on the other hand is making use of direct experience, involving the learners, instead of telling the teachers are asking questions and making use of dialogue. The learning is taking place in the space where the knowledge is cultivated at its best. The education is more constructive and personal Eilam & Trop (2011).

2. Multidisciplinary learning

Multidisciplinary learning is when subjects are combined with each other and intertwined within the teaching. It is a more thematic way of working in which different subjects are involved. Eilam & Trop (2011) state that this multidisciplinary learning is supporting the learners to develop systemic thinking. This systemic thinking is very important in ESD, because we are used to see the world in lose elements instead of in systems. ESD is making use of a holistic perspective in which systems are very
important elements that most often are connected to one another. Eilam & Trop (2011) refer to Mogensen & Mayer (2005) who are stating that the multidisciplinary learning is a precondition for gaining in-depth acquaintance about environmental or sustainability problems.

3. Multidimensional learning
The learners have to develop a systemic way of thinking, so that they can approach environmental issues from a holistic view. To strengthen this systemic thinking, it is important that the learners also develop a contextual way of thinking. Everything is connected. Within contextual thinking time (history, present, future) and space (natural, economic and social environment) are combined, which supports the learners to think in a more different and creative way. They learn to investigate in their own and others relations to systems, spaces and times. This opens the ability of being able to see change and possibilities. Besides, when you are able to see the systems and contexts you can interact within the systems instead of in the individual parts. This is often more effective and will bring light to phenomena that otherwise would have been hard to discover. Eilam & Trop (2011)

4. Emotional learning
Learners have to be encouraged in expressing their feelings. This can be in an artistic way, by debating or discussing, through an interview or by planning activities. By doing this they will learn to negotiate between their emotions and what is going on in their surroundings. This is also applying to environmental issues and the better they develop this skill, the more motivated they will feel. It is important that learners get intellectual but also emotional educated. Emotions are essential to let our rational and conventional mechanisms operate. Especially rationality is important to let SD work. Besides emotions are a part of our internal motivators and will drive us to taking action. They are giving meaning to our life, shape our thoughts and change our perceptions. Emotions help us to question values and ethics. As the rationality, questioning values and ethics are very important for the success of SD. Eilam & Trop (2011)

Only using these four pedagogical essentials is not enough to change someone’s behaviour. Systematic thinking (which is taught within the multidisciplinary essential) is still just a frame, a structure. With the combination of the multidimensional and multidisciplinary learning the learners will develop a cognitive understanding. Both the systematic structure and cognitive understanding are not enough to directly influence or change ones behaviour. But with combining and implementing the four essentials – natural, multidisciplinary, multidimensional and emotional learning – in the learning program, synergy will be developed. The advantage off the synergy is that it is increasing the final outcomes enormous. With this kind of synergy the main focus is on the process of ethics and values, two important parts of SD. A co-implementation of the four pedagogical essentials, will lead to behavioural changes and active participation, which are the main aims of ESD (Eilam & Trop, 2011).

In short: the global pedagogy, and so the educational vision, of ESD is mostly based on constructivism, but to make ESD successful there has to be made use of natural, multidisciplinary, multidimensional, and emotional learning all in the same time. This means that there has to be direct experience, interaction, combined subjects who are overlapping time & space, and besides getting intellectual educated there is a big importance of education the emotions.
5. Education for sustainable development in the Netherlands

In this chapter there is a clarification of the pedagogics and didactic of the educational concept of ESD in the Netherlands, related to the national aims and the core curriculum.

5.1 Education for sustainable development pedagogics and didactics from the Dutch perspective

5.1.1 The eight pedagogic and didactic guidelines of ESD

From the global pedagogical essentials of ESD we are going to the more specific pedagogics and didactics of ESD in the Netherlands. Bron, Haandrikman & Langeberg (2009) who have done their research on behalf of the Netherlands Institute for Curriculum Development (SLO), state that the pedagogics and didactics that are mostly used are the ones who are based on the fifteen international education projects around ESD, developed by the Council of Europe. Out of this projects there are formed eight guidelines who explain the pedagogical and didactical view on ESD that is used in the Netherlands.

ESD is student oriented

The values, perspectives and ideas of the learner are the start of the learning process. Learners are able to introduce their own questions and should participate in an active at the growth of their own knowledge (Bron, Haandrikman & Langeberg, 2009).

1. **ESD is connected to the every-day life and the direct environment of the learner**

   In general the themes and projects are based on the local environment of the learner. In here the learner can cooperate with the local community. The next step is to connect this specific knowledge to the more general and global knowledge that the learners have. In this way the learners learn in and from the world in which they are living (Bron, Haandrikman & Langeberg, 2009).

2. **ESD is future-oriented**

   Children are developing ideas about what kind of life they want, they have their own ideas about what is for them the quality of living. These ideas are not always factual but while forming and changing these ideas, they will learn to create a sustainable future for themselves and others. In education we have to give the learners space for all this ideas so that it can increase and expand their view of life and the world (Bron, Haandrikman & Langeberg, 2009).

3. **ESD is action-oriented**

   It is important that we offer the learners knowledge and skills which they can use in the future. The way to do this is by offering them information and let them connect this with their own emotions, values and experiences. This will learn them to be independent and careful and give them tools to handle situations that are uncertain or changing in a fast way (Bron, Haandrikman & Langeberg, 2009).

4. **ESD is fostering critical thinking**

   Nowadays there is a lot of information available and this information is rarely objective and often contradictory. It is very important that the learners do not take this information for granted and that they think about what kind of information they use. Fathoming assumptions
5. **ESD is value-oriented**

In ESD it is not possible to just transfer norms and values, they have to be developed and it is important that the learners negotiate about them (Bron, Haandrikman & Langeberg, 2009).

6. **ESD is considering complexity as a challenge**

Many cases have often several causes and consequences. With considering this complexity as a challenge the learners will understand that processes are not always running as planned, that they can be unpredictable and sometimes the processes can even feel as unnecessary. Dealing with this is uncertainty is possible when you accepts the risks and unpredictability’s and still being able to manage the situations (Bron, Haandrikman & Langeberg, 2009).

7. **ESD is asking for participation**

When the learners are participating actively they are tended to feel more responsible about their own learning and acting. Active participation can arise when the learners are listening to each other’s opinions. There has to be space to negotiate about this opinions without forcing others to agree (Bron, Haandrikman & Langeberg, 2009).

### 5.1.2 People, planet, profit

As explained before SD is related to four main aspects, cultural, the ecological, economic and social aspect. This can be connected to three dimensions, because it is about human (dimension called people), the earth and environment (dimension called planet) and economy and welfare (dimension called profit). These ‘3 p’s’ are globally used in many different branches, and so for ESD. However, the 3 p’s are mentioned more often and more clearly in the Dutch literature about ESD and that is why it is placed in this chapter. This is not saying that it is not used for ESD in other countries.

Sustainability can arise when there is a balance between the ecological, economic and social consequences of the human behaviour. (Remmers, 2007). For the pupils who are learning in ESD it is about making connections between the p’s in their direct and living environment. Therefore it is important that the pupils are ready willing and prepared to take responsibility and to act in a righteous way. Remmers (2007) is explaining the content of the p’s as follows:

‘People - The pupil respects himself, his own community and other cultures, strives for justice and a balanced distribution of well-being.

Planet - The student appreciates and respects nature, is committed to the well-being of other living beings and the planet and is dealing with them in a respectful and responsible way.

Profit – the pupil recognises that there are different economic interests.’

(Remmers, 2007, p.11).

Bron, Haandrikman & Langeweg (2009) state that the three p’s should have a key place when it comes to making decisions at personal or policy level. They summarise ESD as getting insight in alternatives and consequences from the choices that are made and that you learn to use these insights to make sure that you make conscious considerations. Besides the three p’s Bron, Haandrikman & Langeweg (2009) name the perspectives of time (now and later) and place (here and there). This is
corresponding to the multidimensional learning that is named before (Eilam & Trop, 2011) and like Eilam & Trop (2011) they state that without using there perspectives there is no ESD taking place (Bron, Haandrikman & Langeberg, 2009).

5.2 The core curriculum learning for sustainable development
In 2008 Remmers has in cooperation with SLO developed a core curriculum for ESD in the Netherlands. In here they state the urgency of SD and mention that the youth is having the future (they are having an important place in the present and are ‘carrying’ the world in the future) and that education is playing a very important role in this (educational surroundings are offering many possibilities to get aware of sustainability issues). To interpret the role of education in SD, the core curriculum has been developed. Core curricula are presenting what the pupils at least have to know about a certain topic in the end of their education, in this case SD. Besides setting the aims for the pupils is the Core Curriculum giving a framework of ESD, and wants it to be of inspiration of the assessment of the current- and the development of new learning materials and methods. (Remmers, 2008).

More specific, the Dutch Core Curriculum of SD is aiming to:
- describe the essence of ESD in the Netherlands.
- give a framework that is supposed to be inspiring for educational managers, teachers and the people who develop educational material (authors).
- provide an eye-opener so that the educational managers, teachers and authors feel motivated to apply SD in their work.
- create commitment among teachers and the authors of SD in the practice.
- convey a framework for testing the quality and content of ESD. (Remmers 2008).

Remmers (2008) states that the core curriculum is not finished, but that, according to the topic, this curriculum will never be finished or completed. The content keeps changing and is always developing. This is giving the authors and teachers a lot of freedom to interpret ESD in their own way and gives them space for their own adjustments.

With help of the core curriculum SLO will develop instruments and materials for schools and help them to implement this. This is within the context of the LvDO (2004).

5.3 Barriers and challenges of education for sustainable development
The implementation of ESD into an existing educational system is not always easy. In 2006 UNESCO has developed a Toolkit for everyone who is interested in ESD, and in here they described the difficulties that can occur when you want to implement ESD in your educational system. These barriers and difficulties are described summarily, the detailed explanation can be found in appendix V.

Issue 1 – Awareness
To make ESD successful it is important that not only the involved school is having a positive attitude towards ESD, but the whole community (UNESCO, 2006).

Issue 2 – Structuring and placing ESD in the curriculum
ESD has to be real, active, experimental and integrative. In how far a school can achieve SD is depending on how much responsibility they carry for it and in how far they want to reorient their
education (UNESCO, 2006).

**Issue 3 – The link to existing issues: educational reform and economic viability**
To make ESD more attractive, it is important to make the link between sustainability and the economic situation clear, which is difficult because you can not exactly know how the economic situation in the future will be (UNESCO, 2006).

**Issue 4 – The complexity of the concept of sustainable development**
SD is a complex concept which is still evolving, implementing and teaching SD is not easy. Even more complicated is the reforming of the entire educational system in order to achieve sustainability (UNESCO, 2006).

**Issue 5 – The development of and ESD program with the participation of the community**
SD has not a clear program with specific aims, this is among other things because SD has a local and national context. The local contexts differ widely and in here the community can serve a lot with their participation (UNESCO, 2006).

**Issue 6 – The engagement of traditional disciplines in a transdisciplinary framework**
ESD is a concept with a holistic and interdisciplinary view. This makes it difficult to teach in the traditional educational settings where the subjects are divided from each other (UNESCO, 2006).

**Issue 7 – Shared responsibility**
SD is more than only education, it is about the ecologic, economic, cultural and social perspectives. To implement ESD the ministries of environment should work together with formal and non-formal sectors of the community (UNESCO, 2006).

**Issue 8 – Building human capacity**
To implement ESD globally, there is an international need for cooperative training programs for the developers of curricula, teachers, teacher educators and administrators (UNESCO, 2006).

**Issue 9 – The development of financial and material resources**
Providing the appropriate and basic education might be the highest expense of the implementation of ESD and most of this money will be spend on the improvement of the basic education (UNESCO, 2006).

**Issue 10 – Developing the policy**
To make ESD successful, it is important to have the support from the national or regional government. The people who work in the higher functions are in the position to design the policies that will make the reform possible (UNESCO, 2006).

**Issue 11 – The development of a creative, innovative and risk-taking climate**
To implement ESD, it is important that there is a safe climate for the policymakers, the administrators, educators and directors of the schools, because in order to achieve the new educational aims they have to take risks and make decisions that can have a big influence on the education (UNESCO, 2006).

**Issue 12 – The promotion of sustainability in a popular culture**
Even though many countries have agreed on the importance of ESD, sustainability is still in not prevailing in popular cultures and governmental policies (UNESCO, 2006).
6. The International Primary Curriculum
This chapter is about the concept of the Primary Curriculum. It is explaining the philosophy behind the curriculum (the educational vision), the aims of the curriculum (the educational mission) and the teachers competences that are needed to work in a successful way with the curriculum. This information is important in order to understand the way the IPC works.

6.1 What is the International Primary Curriculum
5.1.1 The concept of the International Primary Curriculum
The international Primary Curriculum is an extensive curriculum for children in the age from 5 up to 11. The IPC is working with 130 units, which are in many different and cross-curricular themes. The themes are focused on themes that are globally relevant. Every unit is developed with the same purpose: the improvement of the children’s learning. The themes are developed in such a way that they are exciting for the pupils as well as the teachers. The IPC is aiming to strengthen the personal qualities of the children and to help them developing international mindedness. Brinkel (2011) notes that it is a way to learn children how to learn and that the learning should be seen as an active process. IPC is learning the children how to become responsible for their own learning.

The IPC is working with specific learning aims that are classified per subject but which are often interdisciplinary. Besides the subject aims there are aims for personal and international learning. The IPC has next to their own aims an own way to assess if these aims are reached (called the Assessment for Learning Programme). With an extensive design and rigour that is still flexible enough to let each school adapt the program & planning in a way that let them build on their own strengths, the IPC is supporting teachers as well as pupils.

The IPC is one of the fastest growing curricula in the world, with in 2014 over 90 countries using it (Fieldwork Education, n.d).

The International Primary Curriculum has been designed around three guiding questions. These questions are guidelines of the curriculum (Fieldwork Education, n.d). Fieldwork Education is explaining the three guiding questions as follows;

1. What kind of world will our children live and work in?
With teaching and learning you are both looking forward and back. This makes teaching & learning exciting and difficult at the same time. The reason for looking back is to learn about cultural heritage and to learn about what has influenced us in being what and where we are right now. The reason for looking is forward is because we know that the world will be different in the near future. It is a challenge to make proper judgments about how it exactly will be, but we should try to do the best we can.

2. What kind of children are likely to succeed in the world?
Our task is to make the best prediction possible concerning the future state of the world. This is important because it helps us to think about what kind of people and what capabilities they (and we) will need in the future. For making the best of their learning in the upcoming years, the qualities and dispositions of the children will play an important role.

3. What kinds of learning will our children need and how should they learn it?
Thinking about the future and the competences, skills and personal qualities that will matter by then, are helping to decide what exactly the children will need, what the learning in a school should look like and how it should take place (Fieldwork Education, n.d).
6.2 The science of learning according the international primary curriculum

In the manual instruction book for teachers, the IPC is describing that there are a lot of factors coming up and playing a role when a human is learning. This can often be related to cognitive- or neuroscience. At the moment there is a lot of research going on about this topics, and it is not always easy to say which is the ‘truth’. That methods first work and later need to be adapted, has also to do with our fast changing society. Apart from the discussion the IPC is giving 7 scientific learning approaches, which they use as an inspiration for their curriculum. As I am writing these research, I know that there are many other researches going on about the science of learning. I refer for example to the books ‘How the brain learns’, from Sousa (2017) and ‘Best of the best: progress’, from Wallace & Kirkman (2017). At the moment I do not see it as my task to discuss this other researches, since I am looking for at how far ESD and the IPC are corresponding to each other, but I do see it as my task to notify these other researcher for the reader, so that it is clear that this is not directly ‘the truth’ and that the science about learning is a broadly discussed topic.

Growth mind-sets

Carol Dweck (Standford University) has done research about ‘fixed’ and ‘growth’ mind-sets. In this research Dweck is highlighting the difference between them. The fixed mind-set is oriented at performing. With this mindset you are often not using your full potential and you tend to give up easily. The growth mind-set is oriented at learning and believes that intelligence is something that you can develop. Challenges are embraced. Out of practical research it became clear that pupils try and achieve more when process is praised than by praising the ability (IPC, Fieldwork Education, n,d).

Dweck (2008) explains that the brain can be seen as a muscle, which will get stronger when you train it. There are more scientifically researches who underpin this idea. The neurons (the nerve cells who send and receive nerve impulses) in our brain are connecting to other sells, and the communication that is taking place between that brain cells is making it possible that we can think. When we are learning the connection between our brain cells is getting stronger and can multiply (Dweck, 2008). So, when you are learning your brain is trying to make connections between what you have learned before and what you are learning now. The IPC is making use of a learning process in which knowledge harvest (chapter 5.6) is playing a big role. The knowledge harvest is helping the pupils to make the connections between what they currently learn and already know (IPC, Fieldwork Education, n,d).

Meta-cognition

The term meta-cognition describes what there is to learn about learning, it is standing for what learning is consisting of. A meta-cognition can be seen as a learning strategy. Several academic are referring to meta-cognitive strategies in connection to effective learning and education. One of them is John Hattie (2009), made a list of 150 classroom interventions to improve to effectiveness of the education. He ranked meta-cognitive strategies as number 13. Hattie (2009) states that the more complex the learning tasks become, the more chance that the main outcome of the task will show the quality of the meta-cognitive competences of the pupil instead of his intellectual capabilities.

Ritchhart, Church and Morrison (2011), wrote that is designed to learn, how to learn. In the book you find different routines of thinking that will help the children with learning how to learn.

A last added term is the term of ‘slow thinking’. This term comes from Glay Claxton, 1998. Slow thinking has to do with the reflection on the learning. Especially when the learning is about something complex, the brains need (after a large amount of input) a lot of time to process the new information.
This processing of the new information got the name slow thinking. Children should always get the chance and time for slow thinking, and that is why the earlier named knowledge harvest is so important for the IPC. Besides it is very helpful to show the information/theme on a display, throughout the whole unit (IPC, Fieldwork Education, n.d).

**Memory**

According to Daniel Willingham (2009), our mind is not directly designed for thinking. Moreover, when we can, we relate to our memory instead of using our brain to think. There are two memory types, one is the working (short term) memory, the other the long term memory. The short term brain is easily overloaded, by reason of the limited space we have. Generally we can only hold three to seven new pieces of information per time.

When learning is successful, the information and knowledge has been transferred from the short to the long term memory. The information is consolidated and we are able to retrieve the information again. In contrast to the short term memory, the long term has a lot of space in which we can store thousands of facts. The combination of these facts are called a ‘schema’. New information is connected to the information we already have in our schemas. The more information we already have, the easier we learn. (Christodoulou, 2014).

What the IPC got out of this is the importance of knowing from where the children start. What do they already know? What will be explained in the knowledge harvest? Willingham (2009) states that this is not only accurate for knowledge, but also for skills. Practising and reinforcing our basic skills will make it easier to learn more advanced skills and enhance the transfer from the short term to the long term memory. This is making space for new information (IPC, Fieldwork Education, n,d).

**Positive and negative emotions**

Emotions are having influence on your learning. Positive emotions can help, negative emotions can leave traces in the memory. For this reason the IPC invented ‘great learning, great teaching, great fun’, which is present in every unit.

Positive learning experiences are linked to deep engagement. The more ‘fun’, the deeper the engagement, the more positive the experience. Children get into a certain kind of flow. Therefore it is important that while planning the learning activities, the educator thinks about the essential interventions and learning strategies.

Willingham (2009) states that the memory is the product of what we are thinking. When we want the children to think about learning, we have to make clear where the learning is about and share, reflect and revisit on the learning. It is more important to focus on what the children are learning than on what they are doing.

It is possible that sometimes you experience stress concerning your learning or your ability to learn. Stress can have a big influence on your brain and may even blockade the whole learning. To learn in the most effective way, it is important that you are in a state or ‘relaxed alertness’. Because of this it is critical to have a positive learning environment (IPC, Fieldwork Education, n,d).

**Assessment for learning**

To have the best achievements and to teach into lifelong learning, formative assessment is a very useful way to assess. Formative assessment is a way of assessing in which you are not comparing the achievements of the child with the achievements of other children. The only way of comparing is with the child’s own achievements from before. Formative assessing is focused on the development of the child (Kennisplatform voor het onderwijs, 2018). Three key aspects of formative assessing are that they should provide feedback, an evaluation and that they have to be literate the children. For the children to be successful they need to know what they are learning and for example success criteria, so
that they can do self-assessments as well (IPC, Fieldwork Education, n.d).

Understanding is tricky
Understanding is a very complex concept, but it should be seen as the most important aim of learning. Through the years there have been different explanations of what understanding exactly is. Willingham (2009) explains understanding as a process of relating the things you do not know to the you do know. Making this connections and comparisons will help you think in a different way. In this process the teachers have to be realistic about the difficulty and time that the pupils will need. When you are not aware of this you can be misguided easily (IPC, Fieldwork Education, n.d).

The link between mind and body
Your brains are working more effective when you are in a good health. For a good health it is important to eat balanced & varied and exercise regularly. Exercising is giving the brain more oxygen and can have a positive influence on your memory. Besides sports and food, sleep is very important for the brain, as it is giving the brain time to repair itself and consolidate the learning. In the your sleep brain cells will shrink, which is making more space for the neurons. (IPC, Fieldwork Education, n.d).

6.3 The philosophy and pedagogy behind the International Primary Curriculum
Brinkel (2011) explains that the philosophy behind the IPC is based on three ideas;
- the understanding of independency and interdependency.
- the ideology of philosopher and psychologist Ken Wilber
- the knowledge about how to learn and teach in a ‘brain friendly’ way.

Fieldwork Education is adding an important chapter about what they believe is deeply influencing the learning process.

6.3.1 Independency and interdependence
The independency is standing for the IPC being an independent curriculum. The IPC is having a own vision towards education. On the other hand is there interdependence, because cooperation is necessary for the preservation of the quality of the education. This thought and cooperation is a reason for the international mind-set (Brinkel, 2011).

6.3.2 The ideology of Ken Wilber
There are three main ideas of the ideology of Ken Wilber that have been an inspiration for the IPC. The first idea is based on the idea that internationalization is not a differentiating but an integrating relation. Just recognising the differences among each other and supporting independence and interdependence is not sufficient for making a difference or let people grow. If you want to make a change it is important to realise that we are equal in many ways. For the IPC this idea meant that international education is more than just celebrating some national holidays. International education is accepting and embracing the diversity, so that it can lead to shared knowledge and solidarity (Brinkel, 2011).

The second idea is the concept of holarchy. The IPC is working with aims for knowledge, skills and understanding. Among this three there is no one more important than the others, it is a holarchic and they are seen as equally important. Moreover, they are seen as a part of a whole, they are a strong combination and they need each other to make the learning possible (Brinkel, 2011).
The third idea is about orienting generalizations, which can be seen as the generally accepted
generalisations of different systems of thinking. Brinkel (2011) is giving symphonic music as an
example. Every composer is having an own style, but still all symphonic music shares similarities.
These similarities and generalisations are shown by Wilber in his four quadrant model, also known as the
integral theory. In this quadrant there is made a
difference between the left and the right ‘way’. Left
is interior, and has to do with the awareness and
interpretations. The right is based on perception and
about shape. Besides there is the difference between
the individual and the collective, which can be
adapted at both ‘ways’. The quadrant model is
showing that all quadrants are connected with each
other. If you stay on one side you will miss the big
overview and so the possibilities that are available on
the other side. The IPC wants to develop the
curriculum in such a way that there is made use of all
quadrants, so that all possibilities are available and
that every situation can be seen from different
perspectives (Brinkel, 2011).

6.3.3 Brain friendly learning

For the IPC the main aim of education is offering education in such a way that the children learn as
effective as possible. This learning is not only in the mind, but also in a social, physical and emotional
way. To improve the effective learning it is important that there is more happening than only the
conventional way of planning, learning and teaching. Effective learning is not only taking place at
school, it happens at home and in the direct environment of the children as well. Everything what is
happening in the school should happen to improve the effective learning. The IPC believes that with
brain friendly learning, the children will learn in the most effective way. Brain friendly learning can be
closely related to chapter 5.2, the science of learning according to the international primary curriculum.

Brain friendly learning is a new concept and, as many concept who are still in the middle of their
development, is it a topic of controversy. Not all researchers agree with each other. The part of brain
friendly learning that is used by the IPC is focused on the aspects that are based on successful practical
research (The International Primary Curriculum LTD, 2001). Brain friendly learning is a topic that is
still in research and development. At the moment I do not see it as my task to discuss this other
researches, since I am looking for at how far ESD and the IPC are corresponding to each other, but I
do see it as my task to notify these other researcher for the reader, so that it is clear that this is not
directly ‘the truth’ and that also the brain friendly learning is a topic that can be discussed.

The IPC is using seven preconditions for brain friendly learning. The IPC believes that brain friendly
learning is taking place when all of these preconditions are present in a successful way.

The seven preconditions of the IPC for brain friendly learning are;
1. A good health. The child needs enough sleep, enough body movement, a balanced diet and a
sufficient amount of water.

2. The awareness that learning is about making connections. While a person is learning the brain is
trying to make connections between what the person already knows or has experienced and the new information. The creation of connections will be easiest when the information is offered in a stimulating way and when the child gets space to make use of his own personal and emotional experiences.

3. **There should be no stress, but a state of relaxed alertness.** The part of the brain that we use to think is easily overruled by the part of the brain that is responsible for our emotions. When we feel stressed we are emotionally overloaded and it will be harder to think in a logical way or in the way we would normally do.

4. **Being able to see the ‘big picture’.** Children have to learn to see all quadrants, all perspectives, the whole. They do not only need help to make connections among the information that is offered, they need help to make connections between all aspects of their work and learning.

5. **Accept that every child has a portfolio with intelligences.** Every child learns in a different way. When the teachers makes a connection to the way the child learns, more of the curriculum will become reachable for the child. A useful and important theory about this is the theory of H. Gardner, about multiple intelligences.

6. **The school should make use of the different learning styles of the children.** The IPC is intending the visual, kinaesthetic and auditory ways of learning. Many children are able to learn in all styles, but there is an amount of 20% who clearly has a preference. This makes it important to use these learning styles in a varied way.

7. **There should be time for complex thinking processes.** The children need time to process the offered information and knowledge and as a teacher you should not offer all information at once. (The International Primary Curriculum LTD, 2001).

6.3.4 Visible thinking

In my interview with Anna Vaughan (head of International Primary Curriculum and Education Lead) she pointed out that visible thinking is playing an important role in the pedagogies and didactics of the IPC. The ideas of visible thinking that the IPC is using are based on Project Zero, of the Harvard Graduate School of Education, which was mainly led by Patricia Palmer, David Perkins, Ron Ritchhart, & Shari Tishman. Palmer et all did not invent the concept of visible thinking themselves, these ideas are inspired on the theories of John Hattie. However, in my explanation of visible thinking I am using the theory of Harvard to stay as close as possible to the theory that the IPC is using.

Visible thinking is a framework of learning which is based on training the pupils to think and learn across subject matters. Visible thinking has two aims, the first is cultivating the thinking skills and the thinking dispositions (the curiosity, being eager to learn and to take learning opportunities, developing a concern for truth and understanding and having a creative mind-set) of the pupils, the other to insert more depth in the content learning.

The approach of visible thinking is emphasizing three main practices, which are the thinking routines, the students thinking that will be documented and the professional reflection. (Palmer et all, n,d).

A key feature of visible thinking, is to make thinking visible, to give teachers and pupils insight in their process of learning. There are thinking routines that are helping the learners in processing their thoughts in an active way. These routines are short, easy to learn and help the learner to make this
routine a part of their everyday learning. The simply structured routines are often contenting questions or a step by step plan. The routines are used for a purpose and not just to practice a way of learning. Besides, the routines can be used across the concepts, routines of fairness can also be used for the concept of understanding.

There are the thinking ideals. Different ideals can be a drive for our thinking. Thinking ideals are the ones who are accessible in an easy way and who capture the goals, interest and drives that (often) occur naturally. Four examples of this ideals who can be our drive are understanding, fairness, creativity and truth (Palmer et all, n,d).

Visible learning will lead to an enrichment of the learning content and foster the pupils intellectual development. The key aims of visible thinking can be noted as;
- creating a deep understanding of the (learning) content
- increasing the motivation for the learning
- developing the thinking and learning capabilities of the pupil
- develop an alert attitude of the learners towards thinking and taking learning opportunities
- change the classroom into a community with thinkers & learners who are enthusiastic and engaged. (Palmer et all, n,d).

The creativity, fairness, truth and understanding are coming back in the thinking routines and the thinking ideals. Per category there is a short overview of how to interpret the concept of the ideals and which learning aims they carry with them. The thinking ideals are briefly described in the following paragraph. The more specific aims per thinking ideal can be found in appendix III.

*Creativity*
The ideal of creativity is aiming to help the pupils think in a creative way, while life is challenging you in being creative in problem solving or looking at situations in a different way than you are used to. It is forwarding the learners into being innovative.

*Fairness*
The ideal of Fairness is there to help the learners in their development of understanding and appreciating the complexity of situations that have fairness and justice involved.

*Truth*
The ideal of truth is there to help the pupils in their development of understanding and appreciating the complexity of issues concerning truth. The truth is something in which they come in contact with every day, personally but also with science, politicians and the news.

*Understanding*
The ideal of understanding is there to help the pupils in their development concerning how to learn for understanding.

6.3.5 The learning process of an IPC unit
The IPC is following a clear learning process which is the same in every unit. This structured approach about how the children learn is assuring that the way of learning will be stimulating, strict and having an evident purpose.

The learning process starts from an entry point, goes to knowledge harvest, then to explaining the theme, the research activities, recording activities and as last there is the exit point (Fieldwork Education, n,d). The following explanation is based on the information of Fieldwork Education.
**Entry point**
The IPC unit starts with an exciting event. The aim of these entry point is to excite, activate and engage the children about the theme and with the learning that will follow after the entry point.

**Knowledge harvest**
The knowledge harvest is helping the teachers to find out what knowledge the children already have about the theme and gives them the chance to personalise the unit by discovering what the children want to learn about the theme and letting space for tailoring the classes in that way. This is creating connections between what the children know and what they want to know and helps the children to become the owner of their own learning.

**Explaining the theme**
Before the unit will be launched, the explaining the theme, is providing all who are involved a big picture of the unit. This is giving the possibility of making a connection between the existing and future learning.

**Research activities**
The IPC is making use of many research activities, bonded to each subject area. This research activities are designed in such a way that the children get access to information in a way that suits them personally. There is a wide range of different approaches to learning, for example learning by role play, a library research or digital learning. The research activities are very experiential and explorative. There is a variety between collaborative and individual activities.

**Recording activities**
For the processing and presentation of the gained knowledge there is the ‘recording activities’. Where the children at the research activities already could use different approaches connected to their own different strengths and interests, at the recording activities they get different possibilities to record them. This can be by making maps, graphs, drama, music, art work and so on.

**Exit point**
The exit point is the last part of the unit. It is helping the children to draw on what they learned in the unit and supports the children at seeing the connections that are made between different subjects. It is helping the children to create time and opportunities for building their own understanding of what they have learned. The exit point is a very nice chance to get engaged with the community / surroundings of the children so that they get involved in what the children have learned (Fieldwork Education, n.d).

**6.3.6 (Social-) Constructivism**
In my interview with Anna Vaughan (Head of International Primary Curriculum and Education Lead) it became clear that there is not really a lot documented about the concrete pedagogy behind the IPC. Vaughan stated that this is something where the IPC is working on at the moment. In this interview I have asked Vaughan if she could see connections with the constructivism and social-constructivism, a question she answered approvingly. However, this has not been scientifically proved or been documented in any way.

The documented information that I can find about the pedagogy and philosophy about the IPC, can I relate in several ways to the constructivism and social-constructivism.

The basic principles of constructivism (Alkema et all, 2009) and how I relate them to the IPC;

- *learning is an active process in which the learner takes more and more responsibility*

This can be seen in the importance that is given on the development of the skills, but also in attitude
and knowledge. The skills are active and the knowledge and attitude have an positive affect on the responsibility. It can also be found at the cultivating of thinking skills and learning dispositions of the visible thinking, where children are active and deeply involved in their own learning process (6.3.4). As last you can see it in the importance of the research activities of the IPC learning process (6.3.5 & 6.6.7), which makes clear that to learn the children have to be active.

- the learning is a process of constructing knowledge in which the new knowledge will be built on the already existing knowledge

This can be related to the memory part of the science of learning (6.2) and the time for complex learning processes of the brain friendly learning (6.3.3). Both theories make clear that in the process of learning the new knowledge will be connected to the already existing knowledge.

- the learning is bounded to a context

The IPC is working with 130 different units that are cross curricular and all bounded to a different theme (6.1.1). This shows that in the IPC the learning is bounded to a context.

- the learning is a social process.

In the IPC learning process it becomes clear that the research activities of the IPC can be collaborative or individual (6.3.5 & 6.6.7). This does not say that the learning of the IPC is always a social process, but it does show that there is made use of social processes in the learning.

The basic principles of social-constructivism (attitude, cooperation and independence) (Alkema et all, 2009) and how I relate them to the IPC;

- the learner should be challenged to be active and to learn in cooperation with others

This can be found in the research activities of the IPC learning process (6.3.5 & 6.6.7). In here the pupils have to be active and work frequently together with others. By the development of skills the pupils have to be active as well and can learn & practice the skills in cooperation with other pupils (6.3.3, memory part).

- there should be a variety of realistic learning activities

The IPC is working with 130 different units that are cross curricular and offering different activities. The brain friendly learning is stating the importance of the different intelligences and learning styles of the pupils, which influence the activities. By making use of brain friendly learning the activities should be more varying (6.6.3).

- the teacher is guiding and gives a lot of feedback, directly in the learning process

The importance of the feedback can be found at the assessment part of the science of learning (6.2) and the assessment part of the IPC learning process (6.3.5 & 6.6.7). In there it is stated that assessments are used to improve the learning and are of great importance for the IPC.

- the pupil is steering its own learning process

The pupils develop skills, knowledge and attitude. All three of them can an positive affect on the responsibility, and so on the steering of their own learning process. This responsibility and steering of the pupils own learning process will also be positively influenced by the cultivating of thinking skills and learning dispositions of the visible learning, where children are active and deeply involved in their own learning process (6.4.4). The use of assessments makes the pupils more aware of their own learning and gives them the possibility to start steering their own learning process (6.3.5 & 6.6.9).

- the pupil develops an awareness of competences

The pupils are developing skills, knowledge and attitude. Besides the pupils will develop thinking skills and learning dispositions of the visible thinking (6.3.4). Then there is the use that is made of assessments and feedback (6.6.9). The combination of them will lead to an awareness of their own learning and competences.
6.4 The International Primary Curriculum learning goals

The IPC is working with three different types of learning goals, and these learning goals are seen as the groundwork of the IPC. The learning goals of the IPC are classified per age phase. Milepost 1 (age 5 up to 7), milepost 2 (age 7 up to 9) and milepost 3 (age 9 up to 12). The goals of each milepost are defining what the children should know, what the children should be able to do and what kind of understandings they should develop in their personal, international and academic learning.

The learning goals of the IPC are a guide for the learning and teaching and a help with the assessments. Fieldwork Education is stating that they believe that the learning goals of the IPC are equal to, or even exceeding the goals of any other curriculum in the world (Fieldwork Education, n.d).

The learning goals of the IPC are classified into three different categories. There are subject learning goals, international learning goals and personal learning goals. These goals are sometimes overlapping each other and there is not always a clear ‘boarder’ between the categories, they are often connected to each other.

Subject learning goals
The subject learning goals are orienting on and covering the knowledge, understanding and skills that the children should learn in the subjects history, geography, science, music, art, society, international, ICT and technology. The aims are connected to concrete subjects and very specific. The subjects are intertwined within the different (thematic) units and are often taught interdisciplinary. The children are working independently but in an interdependent way, which is learning them to talk and learn through different perspectives (Fieldwork Education, n.d).

International learning goals
The international learning goals are meant to help the children to get into a perspective that is more and more sophisticated national, international, intercultural and global. In all units of the IPC there are learning-focused activities enlaced who are meant to help the children increase the understanding and the sense of themselves, of their community and of the world that is surrounding them. While this happens the children are meanwhile developing their capability of taking action and initiative, and daring to make a difference (Fieldwork Education, n.d).

Personal learning goals
The personal learning goals of the IPC are referring to the individual qualities and natures that are necessary in the 21th century. The IPC has developed eight personal goals: resilience, enquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability. Because the eight personal goals are intertwined in the learning tasks of every unit of the IPC, there are many possibilities and chances to work, experience and practice the eight specific natures (Fieldwork Education, n.d).

The subject, international and personal learning goals of IPC, are further divided into different kinds of learning. There are knowledge learning, skills learning and understanding learning goals. The combination of these three different types of learning is essential to assure that the learning experience is as effective as possible.

Knowledge learning goals
The knowledge learning goals are referring to factual information. Relatively seen knowledge can be straightforward taught and assessed (even while the recalling is not always that easy). With the knowledge learning goals you can either tell the children the knowledge they are supposed to know, or
You let them research themselves what knowledge they have to learn (Fieldwork Education, n,d).

*Skills learning goals*

The skill learning goals are referring to the things that the children should be able to do. The skills should be learned in a practical way and have to be practised. The assessments of the units of IPC are based on the practical skills of the children (Fieldwork Education, n,d).

*Understanding learning goals*

The understanding learning goals are referring to learning to consider big ideas. It is hard to teach understanding, this is something what is always developing and changing. The units are providing as much different experiences as possible, so that the children are giving the chance to deepen their own understandings (Fieldwork Education, n,d).

6.5 Teachers competences

This chapter is focusing on the competences that are needed for teachers to make the IPC successful. In my interview with Anna Vaughan (head of International Primary Curriculum and Education Lead) it became clear that there is not a detailed overview of specific teachers competences. However, there is a document that is designed to analyse and review the implementation of ESD in the school, the self-review process, which is meant as a way to manage and control the quality of the education. On the other hand is the self-review process making clear what kind of competences are necessary for the learners, the teachers, the leaders and the community that is working with the IPC.

The self-review process is containing nine different key criteria of the IPC. These are designed to improve the learning with the IPC as a tool. With these nine criteria you can do an accreditation concerning your education. The IPC is offering rubrics and self-reviewing questions for every criterion, which are helping to judge on what extent the criterion is cultivated. This can be on a beginning, developing or mastering level. To make the rubrics more specific you can check the level for every different involved group, which are the early years, the learners, the teachers, the leaders and the community (The IPC, Fieldwork Education, n,d).

**Improving learning**

Criterion one is the criterion that is focusing on the improvement of learning. The most successful schools are the ones who do not only state themselves as learning-focused, but the ones who have enclosed the focus on learning deeply into everything they do. This enclosing is asking for an evaluation of the structures that the school has, to analyse if they are really focused on the learning and secondly adapt them when necessary. The IPC has as main aim to improve the learning, and the improvement will get the best chance in a school that is as a whole focusing on this improvement (The IPC, Fieldwork Education, n,d).

**Improving learning as a teachers competence:**

The rubrics is showing that to be in the mastering level, all of the teachers have to make the learning intentions explicit and provide the children with suitable reviews that help them in the improvement of their learning. This can be seen as teacher competences number one (The IPC, Fieldwork Education, n,d).
Shared vision
Criterion two is about the importance that there is a shared vision about what kind of people the children will be developed. The IPC states that they believe that every school should ask themselves what kind of people they are helping the children to develop into, concerning the present and the future. The shared vision should be underpinned by the units of the IPC but even more by the personal (the eight personal aims should be the foundation of this vision) and international aims. These aims may be adapted to the more personalised view of the school and the area. The development of the personal aims can take place in the whole curriculum and are not bound to a specific subject (The IPC, Fieldwork Education, n.d).

Shared visions as a teacher competence
The rubrics is showing that to be in the mastering level, all of the teachers have to articulate and demonstrate the aspects of the shred vision about what kind of people they want to help the children to develop into (The IPC, Fieldwork Education, n.d).

Classroom practices
The criterion of the classroom practices is about the implementation of classroom practices that will help the children in their development towards the school’s shared vision. This criterion is connecting criterion one (improvement of learning) and two (the shared vision). Every child should experience many different practices, experiences and approaches concerning the personal aims and the learning dispositions, in order to help the children achieve the shared vision of criterion two. A school can add its own personal qualities and learning dispositions that fit with the personalised view of the school. What is most important is that you link ‘what’ you want to learn the children with ‘why’ you want to learn that and ‘how’ (The IPC, Fieldwork Education, n.d).

Classroom practices as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should be able to articulate why they are using the specific classroom practices and in which way they contribute to the development of the school’s shared vision (The IPC, Fieldwork Education, n.d).

International mindedness
The development of international mindedness is because of its complexities not a straightforward learning process. International mindedness can for the learners turn out into a knowledge and understanding that is more broad than their own nationality, the skills and mind-set that make you an active global citizen, a perspective that is national and international, the understanding of independence and interdependence concerning people, cultures and countries and as last an the awareness of the identity of yourself and others. These list of qualities and understanding can be seen as the characteristics of international mindedness and they should be implemented in the whole curriculum, not only in the international learning aims. In every unit there should be worked with global and local issues (The IPC, Fieldwork Education, n.d).

International mindedness as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should be providing resources, plan learning opportunities and assessments concerning the international learning, so that the children are able to develop their international mindedness and get the chance to go in depth. (The IPC, Fieldwork Education, n.d).
Significance and importance of knowledge, skills and understanding
Criterion five is about the importance of knowledge, skills and understanding. The IPC believes that these three categories (from which understanding is seen as the most difficult one) are indispensable in the development of learning. The knowledge, skills and understanding have to been seen as a whole but are in the meantime all having their own specific characteristics (The IPC, Fieldwork Education, n.d).

Significance and importance of knowledge, skills and understanding as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should be able to articulate, demonstrate, develop and embed, the differences between knowledge, skills and understanding in all the IPC learning and teaching aspects. (The IPC, Fieldwork Education, n,d).

Rigorous learning
The criterion of the rigorous learning has to do with the earlier named (chapter 6.6.6) and powerful expression of ‘Great learning, great teaching, great fun’. The result of being really committed and interested is deep learning. The term rigorous is referring to the sufficient and challenging experiences for children, which will, as a result of overcoming the challenges and frustrations, motivate them into more and deeper learning (The IPC, Fieldwork Education, n,d).

Rigorous learning as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should have high expectations concerning the learning of their children, and plan, teach, intervene & differentiate in such a way that it you can be sure that the learning is rigorous (The IPC, Fieldwork Education, n,d).

Learning Process of the IPC
The criterion of the learning process is showing what neuroscientific results concerning teaching and learning processes are currently used. These results are linked to the different stages of the learning process that IPC is using (chapter 6.3.5). Important to know is that the learners are not only experiencing the learning structure, but that they also know why they learn in the way they learn (The IPC, Fieldwork Education, n,d).

The learning process of the IPC as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should implement the IPC learning process in every unit and make it clear how and why this is helping the children to improve their learning. The teachers are engaged with neuroscientific research they are able to connect this to their learning, reflection and the classroom practices. New insights will be shared with colleagues (The IPC, Fieldwork Education, n,d).

Independent yet interdependent subjects
The criterion of independent yet interdependent subjects notes that it is important that learners are exposed to different subjects (music, science, history, etc.), so that relating to and understanding the world around them will be easier. These different subjects are also a start for learning to look at situations from different perspectives. In the IPC the subjects are seen as individual subjects, but they can only be really successful in combination with the other subjects (The IPC, Fieldwork Education, n,d).
Independent yet interdependent subjects as a Teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should link the learning to the subjects in an independent yet interdependent way, which will help the children in their development of looking at a theme by multiple perspectives (The IPC, Fieldwork Education, n.d).

Assessment
Learning and assessment are working hand in hand; the main aim of assessments is to improve future learning. The assessments are providing feedback and signalling how well the children individually are doing at the levels of knowledge, understanding and skills. The feedback is of great importance to make a loop through the knowledge and information. When children know what of their own learning they can improve, they will become more engaged (The IPC, Fieldwork Education, n.d).

Assessment as a teacher competence:
The rubrics is showing that to be in the mastering level, all of the teachers should make use of assessment to improve the learning of the children, which is for the IPC the IPC Assessment for Learning Programme. With the help of this programme the development of skills, strategies, knowledge and understanding will be assessed, along to the other structures and systems that are used beside the IPC to improve the learning (The IPC, Fieldwork Education, n.d).
7. Results

In this chapter the similarities between ESD and the IPC will be described. In the analysis of possible similarities and connections between the two there has been focused on the educational vision (pedagogics), educational mission (the aims) and teachers competences. In here the results concerning the vision and mission are based on the literature review and analysis. The results concerning the teachers competences are partly based on the literature review and partly on research in the practice.

7.1 The connection between the educational visions of ESD and the IPC

The following table is giving an overview of the ways in which the pedagogies of ESD and the IPC are corresponding. In this table there will be sometimes referred to parts of paragraphs other than the paragraphs of the chapter that is specifically focusing on the pedagogical theories. This is to give a more complete and detailed view. The extended explanation and clarification of how the connections are made can be found in appendix VII.

Table 1 The pedagogical connection between ESD and the IPC

<table>
<thead>
<tr>
<th>Specific pedagogical aspect of ESD</th>
<th>Matching pedagogical aspect(s) of the IPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>The four pedagogical essentials</td>
<td></td>
</tr>
<tr>
<td>Natural learning</td>
<td>The research- and recording activities (IPC learning process), teacher competences of classroom practices, rigorous learning and assessments, the skills that pupils learn, acceptance of children’s portfolio with intelligences and making use of different learning styles (brain friendly learning) &amp; the third of the guiding questions; What kinds of learning will our children need and how should they learn it? (Fieldwork Education, n.d)</td>
</tr>
<tr>
<td>Multidisciplinary learning</td>
<td>Teacher competence of independent yet interdependent subjects.</td>
</tr>
<tr>
<td>Multidimensional learning</td>
<td>Connected to the independent yet interdependent subjects &amp; can be seen in the first two of the three guiding questions; 1. What kind of world will our children live and work in? 2. What kind of children are likely to succeed in the world? (Fieldwork Education, n.d).</td>
</tr>
<tr>
<td>Emotional learning</td>
<td>State of relaxed alertness (brain friendly learning), teacher competence rigorous learning &amp; thinking ideals about truth and fairness (visible thinking).</td>
</tr>
<tr>
<td>The eight pedagogic and didactic guidelines of ESD</td>
<td></td>
</tr>
<tr>
<td>Student oriented</td>
<td>The three guiding questions of the IPC, acceptance that every child has a portfolio with intelligences &amp; the school making use of the different learning styles of the children (brain friendly learning).</td>
</tr>
<tr>
<td>Connected to every-day life and the direct environment</td>
<td>Teacher competences of international mindedness &amp; the shared vision.</td>
</tr>
<tr>
<td>Future-oriented</td>
<td>The first two of the three guiding questions of the IPC (see multidimensional learning).</td>
</tr>
<tr>
<td>Action-oriented</td>
<td>Related to the skills that the pupils are learning in IPC, the research &amp; recording activities of the IPC learning process.</td>
</tr>
</tbody>
</table>
Fostering critical thinking & value-oriented

The four ideals of visible thinking: creativity, fairness, truth and understanding & the personal learning aims of the IPC: enquiry, thoughtfulness, cooperation, respect, morality, resilience, communication, adaptability.

Considering complexity as a challenge

Growth mind-set (science of learning) ESD is considering complexity as a challenge & the personal aims of the IPC (see fostering critical thinking & value oriented)

(Social-) Constructivism

Constructivism & social-constructivism

The basic principles of (social-) constructivism are coming back in the pedagogy of the IPC. (See chapter 6.3.6).

Further pedagogical aspects

Holarchy

The importance of all different learning aims (the aims for knowledge, skills and understanding) & the theory of Ken Wilber (Brinkel, 2011)

The use of divergent perspectives

Being able to see the 'big picture' (brain friendly learning), the importance of the quadrant model of Ken Wilber (6.3.2) & the use of independent yet interdependent subjects.

People, planet, profit

People – visible thinking
Planet & profit are not directly present in the IPC but there are specific units connected to these aspects.

Sub-conclusion

The pedagogies of ESD and the IPC can be named quit similar. Even though they are based on different theories, the purposes behind these theories are the same; both ESD and the IPC make use of a holistic view and active, natural & multidimensional learning. The learning is bound to relevant contexts, focusing on the future and showing different perspectives. The education is inviting the pupils to participate actively and helping them to develop critical thinking. Emotions are playing an important role and there is space for different learning styles. In the learning process, which is seen as a social process, the children are getting more and more responsibility.

7.2 Resemblances between the educational mission of ESD and the IPC

The IPC is working with global and subject specific aims. The subject specific aims are very detailed and bound to the subject. Because of this I decided to look for similarities in the more global aims that can be found in the personal aims and the self-review process of the IPC. These more global aims are directly connected to the teachers competences, which I will use to look for similarities with the teachers competences of the ESD. For this reasons using the aims of the self-review process will create more clarity and clearness. The following table is showing in which ways the aims of ESD can be related to the global aims of the IPC. The extended explanation of the table and the connections that are made can be found in appendix VIII.

Table 2 The resemblances of the educational aims of ESD and the IPC

<table>
<thead>
<tr>
<th>The main educational aims</th>
<th>The resemblances of the educational aims of ESD and the IPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate pupils into critical, responsible, active participators of society who act as environmental friendly as possible, and who are able to create a proper balance between economic, social, cultural</td>
<td>Improve the children’s learning. Strengthen personal qualities (among which resilience, enquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability), and help them to develop international mindedness (Fieldwork Education, n.d).</td>
</tr>
<tr>
<td>Specific educational aim of ESD</td>
<td>How it can be accomplished by the use of the IPC</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td><strong>Specific educational aims</strong> (copied from McClaren, 1989 &amp; McKeown, 2002, P.20):</td>
<td></td>
</tr>
<tr>
<td>The ability to communicate effectively</td>
<td>This can be related to the personal aim of communication &amp; respect.</td>
</tr>
<tr>
<td>The ability to think about systems</td>
<td>Personal aim thoughtfulness, teacher competences of international mindedness &amp; eight independent yet interdependent subjects.</td>
</tr>
<tr>
<td>The ability to think in time - to forecast, to think ahead, and to plan</td>
<td>Teacher competence assessment.</td>
</tr>
<tr>
<td>The ability to think critically about value issues</td>
<td>Personal aims of thoughtfulness, inquiry &amp; morality.</td>
</tr>
<tr>
<td>The ability to separate number, quantity, quality, and value</td>
<td>Personal aims of inquiry, thoughtfulness &amp; morality.</td>
</tr>
<tr>
<td>The capacity to move from awareness to knowledge to action</td>
<td>Personal aims of inquiry, adaptability &amp; resilience.</td>
</tr>
<tr>
<td>The ability to work cooperatively with other people</td>
<td>Personal aims of cooperation, communication &amp; respect.</td>
</tr>
<tr>
<td>The capacity to use these processes: knowing, inquiring, acting, judging, imagining, connecting, valuing, and choosing</td>
<td>All of the personal aims; resilience, inquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability and teacher competences international mindedness &amp; independent yet interdependent subjects.</td>
</tr>
<tr>
<td>The capacity to develop an aesthetic response to the environment</td>
<td>Teacher competences of international mindedness &amp; independent yet interdependent subjects.</td>
</tr>
<tr>
<td><strong>Specific educational aims</strong> (copied from McKeown, 2002, P.21):</td>
<td></td>
</tr>
<tr>
<td>Humans have universal attributes</td>
<td>These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘Feelings’, ‘I live’ &amp; ‘Who am I?’.</td>
</tr>
<tr>
<td>Looking at their community as well as looking beyond the confines of local and national boundaries is necessary to understand local issues in a global context</td>
<td>Teacher competences of international mindedness &amp; independent yet interdependent subjects.</td>
</tr>
<tr>
<td>Considering differing views before reaching a decision or judgment is necessary</td>
<td>All of the personal aims; resilience, inquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability &amp; the teacher competence of independent yet interdependent subjects.</td>
</tr>
<tr>
<td>Economic values, religious values, and societal values compete for importance as people of different interests and backgrounds interact</td>
<td>Teacher competence of independent yet interdependent subjects.</td>
</tr>
<tr>
<td>Technology and science alone cannot solve all of our problems</td>
<td>These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘The price of Progress’.</td>
</tr>
<tr>
<td>Individuals are global citizens in addition to citizens of the local community</td>
<td>Teacher competence of international mindedness.</td>
</tr>
<tr>
<td>Individual consumer decisions and other actions effect resource extraction and manufacturing in distant places.</td>
<td>These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘What do we eat today?’ &amp; ‘Making new materials’.</td>
</tr>
</tbody>
</table>
Social and environmental problems change through time and have a history and a future & contemporary global environmental issues are linked and interrelated between and among themselves. These aims are not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the units ‘Our world’, ‘Save the world’ & ‘The environment’ (Vaughan, 2018).

Sub-conclusion
The main educational aims differ in the want to improve the learning (IPC) and the want to achieve behavioural change (ESD). On the other hand are the IPC as well as ESD aiming to develop the learners into critical, responsible and active participators of society. Both teach into international mindedness and understanding, in which is made use of different perspectives. Almost all of the aims of ESD (concerning the theory of McKeown, 2002) can be related to the IPC. The ones that are not directly connected are reflecting the difference in focus of ESD (learning the pupils to act environmentally friendly and responsible) and the IPC (in which sustainability is certainly playing a role but not the main role). The aims that are not directly connected, can be achieved with some specific units of the IPC. Therefore the teachers should make sure to use these specific units.

7.3 Similarities between the teachers competences of ESD and the IPC
7.3.1 Similarities based on the theory
To compare the teachers competences of ESD with the ones of the IPC, I am using the competences for educators in education for sustainable development (UNECE Expert Group on Competences in Education for Sustainable Development, 2012) (The overview of the competences of ESD can be found in appendix II), and the teachers competences of the self-review process (6.6).

Out of the 40 teachers competences of the ESD, pure theoretically seen 26 can be connected to the IPC. This can be seen as a 65% match. The justification of why and how the competences are corresponding can be found in appendix IX, a summary of the results is shown in table 3 up to table 6, in which becomes clear which ESD competence is connected to which IPC competence. ESD is working with four different categories of competences (learning to know, learning to live together, learning to do & learning to be, appendix II). Per category the results are shown in a table. The results are differing per category, and this differences can be declared by the differences and similarities of the pedagogics (chapter 7.1).

Out of the tables it becomes clear that not all of the ESD teacher competences are related to the IPC, but that on the contrary all of the IPC competences are connected to the ESD competences. This means that every teacher competence of the IPC is connected to at least one of the ESD competences. Striking is that IPC competence criterion 4 (international mindedness), criterion 6 (rigorous learning) and criterion 8 (independent yet interdependent) are related to much more of the ESD competences than the other criteria. Criterion 1 (improving learning) and 7 (learning process of the IPC) are named the least.

From the category learning to know, 7 out of 16 competences are corresponding, which makes it a match of 43.75%. A summary of the results is given in table 3. That the score is not really high, can be declared by the fact that the teachers competences concerning the category learning to know, are mainly based on sustainability and reforming education. In here you can see the difference of the educational focus. For ESD this is behavioural and educational change, for the IPC this is the improvement of learning.
From the category learning to live together, 3 out of 5 competences are corresponding, which makes it a match of 60%. A summary of the results is given in table 4. The two aims that are not directly corresponding are about challenging unsustainable practices and thinking about alternative futures. This are competences that might be connected to specific units of the IPC (for example Save the world & The price of progress), but not in the general teachers competences.

From the category learning to do, 8 out of 12 competences are corresponding, which makes it a match of 66.66%. A summary of the results is given in table 5. The four competences that are not matching with the IPC are the ones who are based on the urgency for a change (environmentally seen) and the processing of this change & the will to transform the educational system.

From the category learning to be, 8 out of 8 competences are corresponding, which makes it a match of 100%. A summary of the results is given in table 6. That this is a 100% match can be declared with the fact that the competences concerning the category learning to be are all based on the person that the teacher is. This is closely connected to the pedagogical theories. In here ESD and the IPC are very closely connected (7.1) and that is reflected in this result.
### 7.3.2 Overview theoretical findings shown in tables

**Table 3 Overview of the ESD teachers competences of learning to know in their theoretical fit to the IPC**

The numbers 1 up to 10 refer to the teachers competences of the IPC self-review process (chapter 6.6).

<table>
<thead>
<tr>
<th>Learning to know.. The educator understands..</th>
<th>Corresponding to IPC competence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holistic approach - integrative thinking and practice</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>The basics of systems thinking ways in which natural, social and economic systems function and how they may be interrelated</td>
<td>N.D.C.</td>
</tr>
<tr>
<td>The interdependent nature of relationships within the present generation and between generations, as well as those between rich and poor and between humans and nature</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>Their personal world view and cultural assumptions and seek to understand those of others</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>The connection between sustainable futures and the way we think, live and work</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Their own thinking and action in relation to sustainable development</td>
<td>N.D.C</td>
</tr>
<tr>
<td><strong>Envisioning change – past, present, future</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>The root causes of unsustainable development</td>
<td>N.D.C</td>
</tr>
<tr>
<td>That sustainable development is an evolving concept</td>
<td>N.D.C</td>
</tr>
<tr>
<td>The urgent need for change from unsustainable practices towards advancing quality of life, equity, solidarity, and environmental sustainability</td>
<td>N.D.C</td>
</tr>
<tr>
<td>The importance of problem setting, critical reflection, visioning and creative thinking in planning the future and effecting change 9 assessment</td>
<td>9</td>
</tr>
<tr>
<td>The importance of preparedness for the unforeseen and a precautionary approach 3 classroom practices</td>
<td>3</td>
</tr>
<tr>
<td>The importance of scientific evidence in supporting sustainable development</td>
<td>N.D.C</td>
</tr>
<tr>
<td><strong>Achieve transformation – people, pedagogy and education system</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Why there is a need to transform the education systems that support learning</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Why there is a need to transform the way we educate/learn</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Why it is important to prepare learners to meet new challenges</td>
<td>6</td>
</tr>
<tr>
<td>The importance of building on the experience of learners as a basis for transformation</td>
<td>3, 5 &amp; 7</td>
</tr>
<tr>
<td>How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice</td>
<td>3, 5, &amp; 7</td>
</tr>
</tbody>
</table>

1 = Improving learning  
2 = Shared vision  
3 = Classroom practices  
4 = International mindedness  
5 = Significance and importance of knowledge, skills and understanding  
6 = Rigorous learning  
7 = Learning process of the IPC  
8 = Independent yet interdependent subjects  
9 = Assessment  
N.D.C = Not directly corresponding
Table 4 Overview of the ESD teachers competences of learning to live together, in their theoretical fit to the IPC
The numbers 1 up to 10 refer to the teachers competences of the IPC self-review process (chapter 6.6).

Learn to live together. The educator works with others in ways that...

<table>
<thead>
<tr>
<th>Holistic approach - integrative thinking and practice</th>
<th>Corresponding to IPC competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Actively engage different groups across generations, cultures, places and disciplines</td>
<td>2</td>
</tr>
</tbody>
</table>

Envisioning change – past, present, future

<table>
<thead>
<tr>
<th>ESD competence</th>
<th>Corresponding to IPC competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitate the emergence of new worldviews that address sustainable development</td>
<td>4</td>
</tr>
<tr>
<td>Encourage negotiation of alternative futures</td>
<td>N.D.C</td>
</tr>
</tbody>
</table>

Achieve transformation – people, pedagogy and education system

<table>
<thead>
<tr>
<th>ESD competence</th>
<th>Corresponding to IPC competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge unsustainable practices across educational systems, including at the institutional level</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Help learners clarify their own and others worldviews through dialogue, and recognize that alternative frameworks exist</td>
<td>5</td>
</tr>
</tbody>
</table>

1 = Improving learning  4 = International mindedness  7 = Learning process of the IPC
2 = Shared vision  5 = Significance and importance of knowledge, skills and understanding  8 = Independent yet interdependent subjects
3 = Classroom practices  6 = Rigorous learning  9 = Assessment
N.D.C = Not directly corresponding
Table 5 Overview of the ESD teachers competences of learning to do, in their theoretical fit to the IPC
The numbers 1 up to 10 refer to the teachers competences of the IPC self-review process (chapter 6.6).

<table>
<thead>
<tr>
<th>Learning to do.. The educator is able to..</th>
<th>Corresponding to IPC competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistic approach - integrative thinking and practice</td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Create opportunities for sharing ideas and experiences from different disciplines/places/cultures/generations without prejudice and preconceptions</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>Work with different perspectives on dilemmas, issues, tensions and conflicts</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>Connect the learner to their local and global spheres of influence</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>Envisioning change – past, present, future</td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td>Corresponding to IPC competence</td>
</tr>
<tr>
<td>Critically assess processes of change in society and envision sustainable futures</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Communicate a sense of urgency for change and inspire hope</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Facilitate the evaluation of potential consequences of different decisions and actions</td>
<td>4 &amp; 9</td>
</tr>
<tr>
<td>Use the natural, social and built environment, including their own institution, as a context and source of learning</td>
<td>2</td>
</tr>
<tr>
<td>Achieve transformation – people, pedagogy and education system</td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td>Corresponding to IPC competence</td>
</tr>
<tr>
<td>Why there is a need to transform the education systems that support learning</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Why there is a need to transform the way we educate/learn</td>
<td>N.D.C</td>
</tr>
<tr>
<td>Why it is important to prepare learners to meet new challenges 6 rigorous learning</td>
<td>6</td>
</tr>
<tr>
<td>The importance of building on the experience of learners as a basis for transformation</td>
<td>6</td>
</tr>
<tr>
<td>How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice 6 rigorous learning</td>
<td>6</td>
</tr>
</tbody>
</table>

1 = Improving learning  
2 = Shared vision  
3 = Classroom practices  
N.D.C = Not directly corresponding
Table 6 Overview of the ESD teachers competences of learning to be, in their theoretical fit to the IPC
The numbers 1 up to 10 refer to the teachers competences of the IPC self-review process (chapter 6.6).

<table>
<thead>
<tr>
<th>Learning to be.. The educator is someone who..</th>
<th>Average score *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holistic approach - integrative thinking and practice</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Is inclusive of different disciplines, cultures and perspectives, including indigenous knowledge and worldviews</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td><strong>Envisioning change – past, present, future</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Is motivated to make a positive contribution to other people and their social and natural environment, locally and globally</td>
<td>4 &amp; 8</td>
</tr>
<tr>
<td>Is willing to take considered action even in situations of uncertainty 3 classroom practices</td>
<td>3</td>
</tr>
<tr>
<td><strong>Achieve transformation – people, pedagogy and education system</strong></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
</tr>
<tr>
<td>Is willing to challenge assumptions underlying unsustainable practice</td>
<td>4, 5, 6 &amp; 8</td>
</tr>
<tr>
<td>Is a facilitator and participant in the learning process</td>
<td>1, 2, 3, 5, 6, 7 &amp; 9</td>
</tr>
<tr>
<td>Is a critically reflective practitioner</td>
<td>2, 3 &amp; 9</td>
</tr>
<tr>
<td>Inspires creativity and innovation</td>
<td>2, 5 &amp; 6</td>
</tr>
<tr>
<td>Engages with learners in ways that build positive relationships</td>
<td>6</td>
</tr>
</tbody>
</table>

1 = Improving learning  
2 = Shared vision  
3 = Classroom practices  
4 = International mindedness  
5 = Significance and importance of knowledge, skills and understanding  
6 = Rigorous learning  
7 = Learning process of the IPC  
8 = Independent yet interdependent subjects  
9 = Assessment  
N.D.C = Not directly corresponding
7.3.3 Similarities experienced in the practice

Table 7 up to 10 are showing a summary of the results of the questionnaire. It is giving an overview of in which extent (from 1 up to 5, in which 1 = Not at all & 5 = To a very high extent) the participating teachers that are working with the IPC experience the use of the competences of ESD. The average score on all of the competences is 3.33.

Per category there is an average score given which is calculated to a percentage, so that it will be easier to compare with the similarities between the teachers competences from the theoretical perspective. In the table the standard deviation is shown per competence and overall.

The category learning to know is scoring a 3.5, which can be calculated as a 70% match. Compared to the theoretical similarities this is quite surprising, while in theory there was only a 43.75% match. The difference can be explained by the variety of themes of the units. Regardless the fact that the general focus of ESD and the IPC is different, the IPC is offering many different themes and in some specific ones sustainability is playing a big role (Vaughan, 2018). This can declare that teachers still have the feeling to make use of the ESD teachers competences, even though theoretically seen they do not seem to be directly connected. The competences that are scoring significantly high are;
- Why it is important to prepare learners to meet new challenges, 3.78
- The importance of building on the experience of learners as a basis for transformation, 3.78
- How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice, 4.33

The category learning to live together is scoring a 2.87, which can be calculated as a 57.4% match. Compared to the theoretical similarities this is not much different, this was 60%.

Remarkable is that three of the four notably lowest scores fell in this category, and that this category is practically seen the one with the lowest match to the IPC competences.

The competence of: - Help learners clarify their own and others worldviews through dialogue, and recognize that alternative frameworks exist had with a 3.22 the highest score.

The category learning to do is scoring a 3.34, which can be calculated as a match of 66.8%. This category has, as the one before, not much difference between the theoretical and practical similarities of teachers competences. Moreover, learning to do is theoretically and practically seen scoring a 66.8% match. The following competences got the highest scores in these category;
- Use the natural, social and built environment, including their own institution, as a context and source of learning, 3.89
- Why it is important to prepare learners to meet new challenges, 3.89
- The importance of building on the experience of learners as a basis for transformation, 3.44

The category learning to be has a score of 3.61, which can be calculated as a match of 72.2%. Compared to the theoretical match of 100% this is a bit low. Still the category of learning to be is the one that the teachers point out as the category with the highest corresponding to the ESD teachers competences (narrowly, next to 70% of learning to know) and two of the three highest scores fell in this category. As in the theoretical similarities, the similarities can be declared by the pedagogical view from which the teachers are teaching. The difference with the theoretical score can partly be explained by the fact that learning to be, is a personal category. Even though there are pedagogical similarities, not every teacher has the same vision on education or life. For example one of the aims with a lower score is based on the will to challenge assumptions. The IPC can be a help to do this, but is not forcing a teacher into that direction.
### 7.3.4 Overview practical findings shown in tables

#### Table 7 Result summary of the used ESD competences of learning to know, by IPC teachers

Results are on a scale of 1 to 5: 1 = Not at all, 2 = Barely, 3 = To a reasonable extent, 4 = To a large extent, 5 = To a very high extent

<table>
<thead>
<tr>
<th>ESD competence</th>
<th>Average score</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holistic approach - integrative thinking and practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The basics of systems thinking ways in which natural, social and economic systems function and how they may be interrelated</td>
<td>3.22</td>
<td>0.44</td>
</tr>
<tr>
<td>The interdependent nature of relationships within the present generation and between generations, as well as those between rich and poor and between humans and nature</td>
<td>3.67</td>
<td>0.50</td>
</tr>
<tr>
<td>Their personal world view and cultural assumptions and seek to understand those of others</td>
<td>3.56</td>
<td>0.88</td>
</tr>
<tr>
<td>The connection between sustainable futures and the way we think, live and work</td>
<td>3.44</td>
<td>0.73</td>
</tr>
<tr>
<td>Their own thinking and action in relation to sustainable development</td>
<td>3.44</td>
<td>0.73</td>
</tr>
<tr>
<td><strong>Envisioning change – past, present, future</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The root causes of unsustainable development</td>
<td>3.33</td>
<td>0.71</td>
</tr>
<tr>
<td>That sustainable development is an evolving concept</td>
<td>3.67</td>
<td>0.71</td>
</tr>
<tr>
<td>The urgent need for change from unsustainable practices towards advancing quality of life, equity, solidarity, and environmental sustainability</td>
<td>3.22</td>
<td>0.67</td>
</tr>
<tr>
<td>The importance of problem setting, critical reflection, visioning and creative thinking in planning the future and effecting change 9 assessment</td>
<td>3.56</td>
<td>0.88</td>
</tr>
<tr>
<td>The importance of preparedness for the unforeseen and a precautionary approach 3 classroom practices</td>
<td>3</td>
<td>0.71</td>
</tr>
<tr>
<td>The importance of scientific evidence in supporting sustainable development</td>
<td>3.22</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>Achieve transformation – people, pedagogy and education systems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why there is a need to transform the education systems that support learning</td>
<td>3.44</td>
<td>0.74</td>
</tr>
<tr>
<td>Why there is a need to transform the way we educate/learn</td>
<td>3.33</td>
<td>1.04</td>
</tr>
<tr>
<td>Why it is important to prepare learners to meet new challenges</td>
<td>3.78</td>
<td>1.28</td>
</tr>
<tr>
<td>The importance of building on the experience of learners as a basis for transformation</td>
<td>3.78</td>
<td>0.83</td>
</tr>
<tr>
<td>How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice</td>
<td>4.33</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>Average overall</strong></td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td><strong>Standard deviation overall</strong></td>
<td>0.31</td>
<td></td>
</tr>
</tbody>
</table>
Table 8 Result summary of the used ESD competences of learning to live together, by IPC teachers
Results are on a scale of 1 to 5
1 = Not at all  2 = Barely  3 = To a reasonable extent  4 = To a large extent  5 = To a very high extent

<table>
<thead>
<tr>
<th>Learn to live together.. The educator works with others in ways that..</th>
<th>Holistic approach - integrative thinking and practice</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD competence</td>
<td></td>
<td>Average score</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Actively engage different groups across generations, cultures, places and disciplines</td>
<td></td>
<td>3</td>
<td>0.50</td>
</tr>
<tr>
<td>Envisioning change – past, present, future</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
<td>Average score</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Facilitate the emergence of new worldviews that address sustainable development</td>
<td></td>
<td>2.89</td>
<td>0.60</td>
</tr>
<tr>
<td>Encourage negotiation of alternative futures</td>
<td></td>
<td>2.44</td>
<td>0.73</td>
</tr>
<tr>
<td>Achieve transformation – people, pedagogy and education system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESD competence</td>
<td></td>
<td>Average score</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Challenge unsustainable practices across educational systems, including at the institutional level</td>
<td></td>
<td>2.78</td>
<td>0.67</td>
</tr>
<tr>
<td>Help learners clarify their own and others worldviews through dialogue, and recognize that alternative frameworks exist</td>
<td></td>
<td>3.22</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>Average overall</strong></td>
<td>2.87</td>
<td><strong>Standard deviation overall</strong></td>
<td>0.29</td>
</tr>
</tbody>
</table>
Table 9 Result summary of the used ESD competences of learning to do, by IPC teachers
Results are on a scale of 1 to 5
1 = Not at all    2 = Barely    3 = To a reasonable extent    4 = To a large extent    5 = To a very high extent

<table>
<thead>
<tr>
<th>Learning to do.. The educator is able to..</th>
<th>Holistic approach - integrative thinking and practice</th>
<th>Average score</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD competence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create opportunities for sharing ideas and experiences from different disciplines/places/cultures/generations without prejudice and preconceptions</td>
<td>3.33</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>Work with different perspectives on dilemmas, issues, tensions and conflicts</td>
<td>3</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>Connect the learner to their local and global spheres of influence</td>
<td>3.56</td>
<td>0.73</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Envisioning change – past, present, future</th>
<th>Average score</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD competence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critically assess processes of change in society and envision sustainable futures</td>
<td>3.11</td>
<td>0.60</td>
</tr>
<tr>
<td>Communicate a sense of urgency for change and inspire hope</td>
<td>3</td>
<td>0.87</td>
</tr>
<tr>
<td>Facilitate the evaluation of potential consequences of different decisions and actions</td>
<td>3.11</td>
<td>0.60</td>
</tr>
<tr>
<td>Use the natural, social and built environment, including their own institution, as a context and source of learning</td>
<td>3.89</td>
<td>0.78</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Achieve transformation – people, pedagogy and education system</th>
<th>Average score</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD competence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why there is a need to transform the education systems that support learning</td>
<td>2.89</td>
<td>0.78</td>
</tr>
<tr>
<td>Why there is a need to transform the way we educate/learn</td>
<td>3.22</td>
<td>0.44</td>
</tr>
<tr>
<td>Why it is important to prepare learners to meet new challenges 6 rigorous learning</td>
<td>3.89</td>
<td>0.78</td>
</tr>
<tr>
<td>The importance of building on the experience of learners as a basis for transformation</td>
<td>3.44</td>
<td>0.53</td>
</tr>
<tr>
<td>How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice 6 rigorous learning</td>
<td>3.67</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Average overall 3.34
Standard deviation overall 0.35
Table 10 Result summary of the used ESD competences of learning to be, by IPC teachers
Results are on a scale of 1 to 5
1 = Not at all    2 = Barely    3 = To a reasonable extent    4 = To a large extent    5 = To a very high extent

<table>
<thead>
<tr>
<th>Learning to be.. The educator is someone who..</th>
<th>Average score</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holistic approach - integrative thinking and practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is inclusive of different disciplines, cultures and perspectives, including indigenous knowledge and worldviews</td>
<td>3.33</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>Envisioning change – past, present, future</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is motivated to make a positive contribution to other people and their social and natural environment, locally and globally</td>
<td>3.56</td>
<td>1.01</td>
</tr>
<tr>
<td>Is willing to take considered action even in situations of uncertainty 3 classroom practices</td>
<td>3.33</td>
<td>1</td>
</tr>
<tr>
<td><strong>Achieve transformation – people, pedagogy and education system</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is willing to challenge assumptions underlying unsustainable practice</td>
<td>3.11</td>
<td>0.78</td>
</tr>
<tr>
<td>Is a facilitator and participant in the learning process</td>
<td>4</td>
<td>0.87</td>
</tr>
<tr>
<td>Is a critically reflective practitioner</td>
<td>3.78</td>
<td>0.67</td>
</tr>
<tr>
<td>Inspires creativity and innovation</td>
<td>3.67</td>
<td>0.71</td>
</tr>
<tr>
<td>Engages with learners in ways that build positive relationships</td>
<td>4.11</td>
<td>0.93</td>
</tr>
<tr>
<td>Average overall</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td>Standard deviation overall</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>
7.3.5 Sub-conclusion

According to the outcomes of the theoretical research, I can state that there is a 65% match between the teachers competences of ESD and the IPC. The IPC competences that are mostly corresponding to the ESD competences are criterion 4 (international mindedness), criterion 6 (rigorous learning) and criterion 8 (independent yet interdependent).

The outcomes of the practical research are showing that the teachers are experiencing a 66.6% match between the competences. There are no average numbers between 1 and 2.44, which shows that the competences (generally seen) are experienced as at least barely used up to being used in a reasonable extent. The highest average is a 4.33, which is showing that there is a competence experienced from a large extent up to a very high extent.

The combination of the theoretical and practical research are showing that the total average in terms of percentage is almost not different. In the average per category there are striking differences concerning learning to know & learning to be. The difference between theory and practice of learning to know, can be seen positive, because in the practice the teachers seem to use more of the ESD teachers competences then theoretically. The gap between theory and practice of learning to be is a negative one, concerning the literature the teachers should experience a 100% use of the aims but in practice it is ‘only’ 72.2%. This 72.2% is still higher than the average percentage of the used competences of ESD in the IPC, but it could be an important point of improvement. This outcomes are in line with the expectations that were written in the hypothesis.
8. Discussion & conclusion

The main question of my research was in how far can the International Primary Curriculum in the Netherlands be used as an approach to provide the children of primary education from Education to sustainable development, concerning the educational vision, mission and teachers competences. The date is found through analysing the two different framework by a literature review, and an investigation into the teachers competences of both ESD and the IPC. The main purposes were to connect the two frameworks and to find out how the IPC teachers are experiencing the use of the ESD competences and so in how far teachers are already teaching ESD. The findings of my results are useful in order to answer the research question. Therefore there is no need to restate my research question.

Scientifically seen there is an enormous urgency for sustainable change. The problem is that there are no clear approaches for teachers to carry out ESD. With this research I show that the IPC can be used up to a high extent as an approach for ESD. The IPC has a lot of potentials, and a very important detail is that the IPC is used in more than 98 countries. IPC is something that teachers are already using and therefore teachers do not need to learn new things. This makes it possible that all schools who are working with IPC with some small changes can provide their pupils from ESD as well.

In the research there is focused on similarities and differences concerning the educational vision, educational mission and the teachers competences of ESD and the IPC. The results of the research are based on a theoretical review and a questionnaire. The results per compared category;

*The educational vision*
ESD and the IPC are finding each other in their active, natural & emotional way of learning. The cases that are offered are bound to a relevant context and connected to the knowledge, skills and understanding the pupil might need in the future. To educate the children into critical, active participators of society, there is made use of multiple perspectives and children are given much responsibility. According to my research, both ESD and the IPC are closely connected to the (social-) constructivism.

*The educational mission*
Up to a certain extent the educational mission of ESD and the IPC are corresponding. Both are aiming to develop the learners into critical, responsible and active participators of society and teach into international mindedness and understanding. Nonetheless, the ESD is focusing on behavioural change concerning sustainability and the cultural, ecologic, economic and social perspectives of development, and the IPC wants to improve the learning. However, in the IPC there are chances to pick up this aim for sustainable change and the four perspectives, while all of them are coming forward in different units of the IPC.

*The teachers competences*
At the comparison between the teachers competences, I went from theory to practice. The most important outcomes were that in terms of percentages the theoretical and practical research both showed a 65% match between the teachers competences of ESD and the IPC. In here the biggest differences were found in the competences concerning specific sustainable development issues or the teachers personal involvement in sustainability. As stated before, this problem can be solved by a more intensive use of the specific unites.
Limitations of this study are low number of respondents of the questionnaire. The low amount of responses to the questionnaire, are affecting the range of my research. Statements I am making are based on the opinion of nine teachers of five different schools. This makes it impossible to let the results speak for the whole Netherlands, because most probably the IPC is carried out differently in every school. On the other hand, there is no big gap between the outcomes of the theoretical and practical research, which makes the results more plausible.

As a second limitation I want to name that I have not given the teachers information about ESD before they answered the questionnaire. Giving information about ESD in advance could have absolutely influenced my results. It would have been more clear in what kind of direction I was asking. Giving information in advance could also have been a push into the direction of giving socially desirable answers, even though there was no judgement concerning the teachers way of using the IPC included.

The last limitation is that there is missing information about how teachers who are actually working with ESD or the IPC, are experiencing this (apart from the part with the questionnaire). Especially concerning the IPC I could have gotten useful information about what teachers aware or unaware are already doing related to ESD. This would have made my results more valid and could have added more specific and in depth information.

*Back to the main question:*
To what extent can the International Primary Curriculum be used in the Netherlands as an approach to provide primary school pupils with Education to sustainable development, concerning the educational vision, mission and teachers competences? This question can be answered as follows;

The IPC can be used as an approach to provide Dutch primary school pupils with ESD from a reasonable up to a pretty large extent, under condition (that) focus is given to the behavioural change towards being environmentally as friendly as possible, and the assurance (that) enough time is spent on the units that are specifically focusing on the cultural, ecologic, economic & social perspectives of SD. Last is just a matter of making more in depth use of these specific units.
11. Recommendation

The IPC can not (yet) be seen as an approach that is 100% covering the aims of ESD. Therefore teachers who want to teach ESD by using the IPC, should make sure to adapt the IPC in such a way that the behavioural change and the cultural, ecologic, economic & social perspectives of SD are getting enough time and attention.

For further research I would recommend to make use of a much bigger scale of participants, more experienced based theory and I would make it a qualitative research instead of a quantitative one. This is because with a qualitative research you get more specific and in depth information which in this case will be very useful.
12. Figure list

**Figure 1:** Quadrant model (Brinkel, 2011, P.31).  

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13. List of tables

1 - The pedagogical connection between ESD and the IPC  
2 - The resemblances of the educational aims of ESD and the IPC  

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3 - Overview of the ESD teachers competences of learning to know in their theoretical fit to the IPC.  

P.48

4 - Overview of the ESD teachers competences of learning to live together, in their theoretical fit to the IPC.  

P.49

5 - Overview of the ESD teachers competences of learning to do, in their theoretical fit to the IPC.  

P.50

6 - Overview of the ESD teachers competences of learning to be, in their theoretical fit to the IPC.  

P.51

7 - Result summary of the used ESD competences of learning to know, by IPC teachers.  

P.53

8 - Result summary of the used ESD competences of learning to live together, by IPC teachers.  

P.54

9 - Result summary of the used ESD competences of learning to do, by IPC teachers.  

P.55

10 - Result summary of the used ESD competences of learning to be, by IPC teachers.  

P.56
13. Bibliography

**Literature**


IPC. International Primary Curriculum (n,d). Kerndoelen Zaakvakken, Kunstzinnige Vorming.
Bewegingsonderwijs. Fieldwork Education.


**Theses**


**Documents & publications through websites**


through: https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

Websites


Project Zero
http://www.pz.harvard.edu/projects/visible-thinking
http://www.visiblethinkingpz.org/VisibleThinking_html_files/VisibleThinking1.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/Acknowledge.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/01_VisibleThinkingInAction/01a_VTInAction.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/04_ThinkingIdeals/04f_CreativityIdeal.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/04_ThinkingIdeals/04e_TruthIdeal.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/04_ThinkingIdeals/04d_FairnessIdeal.html
http://www.visiblethinkingpz.org/VisibleThinking_html_files/04_ThinkingIdeals/04c_UnderstandingIdeal.html


Oral communication
14. Appendices

I. The chair of sustainable development

Jutvik & Liepina (n.d) explain Macer’s Chair of sustainable development (2004) as follows. The chair has four legs, and for keeping the balance and equality between the four legs, all of them need to be equal. They are all of the same importance for the comfort of the chair. The four legs of the chair are representing the cultural, ecological, economic and social needs. The deeper explanation of the legs is based on the information of Jutvik & Liepina (n.d) and reinforced by the elaboration of the Erasmus+ KA2 Strategic Partnerships for school education project „Sustainable Development - our Way of Life“ (n.d).

Cultural sustainability

Means that the variety of all different cultural groups has to be maintained and fostered. Values of different cultures and the way of carrying out their traditions should be acknowledged. Cultural values have to be fully recognised and accepted. To build human development, it is important to work on common commitments. Therefore it is important to recognise each other’s identities, values and practices. Hofstede, Hofstede & Pedersen (2010) explain this further by using the term national culture, as that what causes the differences between the humans from one to another country. This national culture is deeply heartfelt, the acquiring is starting directly after the birth of a child and it is characterising for what the child will experience as the ‘normal’ social rules. They submit that every country has a own ‘social game’ and that the differences between these games can be big. Who can understand the differences between cultures – the social game - better, will get more apprehension for the behaviour of the other social group and will understand the reactions in the own group. (Nieboer, 2016, p. 8). This understanding is from great importance when you want to work on the common commitments, because we express ourselves through our culture. In the national culture there is also an attitude towards the environment and cultural heritage. To create culture sustainability we have to explore, preserve and develop the cultural heritage and traditions.

Ecological sustainability

Means that the society has to recognise and accept that natural processes and well-being of other species are fundamental. We have the responsibility to take care of living organisms. To understand ecological sustainability you have to understand that there is a common ecosystem model, in which all systems on earth are interrelated and all elements are precious. This makes that we should preserve and continue all systems. Elaborating this attitude of ecological sustainability into practice involves the promotion, encourage- and development of the environmental awareness of our society. Public participation is indispensable and environmentally-friendly lifestyles are needed.

Economic sustainability

Means that all development that is done has to be from the greatest extent possible and that the profit will be distributed between the (future) generations; economic efficiency implicates well-being at the moment and possibilities for the forthcoming. There has to be benefit for the upcoming generations. Economic sustainable development includes the determination of the quality of the achievements, the resources & the participation in the development itself and the goods & services that are consumed. In here is the option to choose for renewable resources and different technologies, so that we do not harm the future generations or development. The national income will increase but in a way that the degradation of natural resources is prevented. This implies a change in the national development, our behaviour and values, to improve the quality of life. In economic sustainability cultural heritage and
environment should be taken into account. This is reflected in the use of resources and technology, the
investment in subsidies for products that are ecologically clean and a eco-friendly policy & taxes.

Social sustainability
Means that the development should give people more control over their lives. Everyone should get the
chance to participate in making decisions no matter what social group you belong to. It is important
that all groups and individuals are involved and participating. Society has to be seen as a whole. Social
sustainability is having a good life quality and well-being, but meanwhile taking care for other cultures
and future generations. Ecological and moral ethics are involved by getting an answer of what part the
existence of human beings can play in the universe. The main aim is to create compatibility between
the ecosystem and our societies.

Resemblances between the four legs
An important part of sustainable development is the holistic view. This becomes clear with the Chair
of sustainable development. The chair is dividing sustainable development in four categories of needs,
cultural, ecological, economic and social. The chair is referring to the importance of the balance
between these four categories to be able to make the development sustainable. Within the explanation
per leg it becomes clear that the categories are inextricably connected, in each category there is
referred to one of the other categories. This clarifies the theory of Macer (2004) and stresses the need
of a holistic approach.

In short: my definition of sustainable development
The definition of sustainable development that I am using in my research is the way in which you
create a balance between social, ecological, economic and cultural development. In this way of
development you stay in harmony with nature and take the needs of future generations in account.
II The competences for educators of education for sustainable development


**Learning to know.. The educator understands..**

*Holistic approach – integrative thinking and practice*
- The basics of systems thinking ways in which natural, social and economic systems function and how they may be interrelated
- The interdependent nature of relationships within the present generation and between generations, as well as those between rich and poor and between humans and nature
- Their personal world view and cultural assumptions and seek to understand those of others
- The connection between sustainable futures and the way we think, live and work
- Their own thinking and action in relation to sustainable development

*Envisioning change – past, present, future*
- The root causes of unsustainable development
- That sustainable development is an evolving concept
- The urgent need for change from unsustainable practices towards advancing quality of life, equity, solidarity, and environmental sustainability
- The importance of problem setting, critical reflection, visioning and creative thinking in planning the future and effecting change
- The importance of preparedness for the unforeseen and a precautionary approach
- The importance of scientific evidence in supporting sustainable development

*Achieve transformation – people, pedagogy and education system*
- Why there is a need to transform the education systems that support learning
- Why there is a need to transform the way we educate/learn
- Why it is important to prepare learners to meet new challenges
- The importance of building on the experience of learners as a basis for transformation
- How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice

**Learning to live together.. The educator works with others in ways that..**

*Holistic approach – integrative thinking and practice*
- Actively engage different groups across generations, cultures, places and disciplines

*Envisioning change – past, present, future*
- Facilitate the emergence of new worldviews that address sustainable development
- Encourage negotiation of alternative futures

*Achieve transformation – people, pedagogy and education system*
- Challenge unsustainable practices across educational systems, including at the institutional level
- Help learners clarify their own and others worldviews through dialogue, and recognize that alternative frameworks exist
Learning to do.. The educator is able to..

**Holistic approach – integrative thinking and practice**
- Create opportunities for sharing ideas and experiences from different disciplines/places/cultures/generations without prejudice and preconceptions
- Work with different perspectives on dilemmas, issues, tensions and conflicts
- Connect the learner to their local and global spheres of influence

**Envisioning change – past, present, future**
- Critically assess processes of change in society and envision sustainable futures
- Communicate a sense of urgency for change and inspire hope
- Facilitate the evaluation of potential consequences of different decisions and actions
- Use the natural, social and built environment, including their own institution, as a context and source of learning

**Achieve transformation – people, pedagogy and education system**
- Why there is a need to transform the education systems that support learning
- Why there is a need to transform the way we educate/learn
- Why it is important to prepare learners to meet new challenges
- The importance of building on the experience of learners as a basis for transformation
- How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice

Learning to be.. The educator is someone who..

**Holistic approach – integrative thinking and practice**
- Is inclusive of different disciplines, cultures and perspectives, including indigenous knowledge and worldviews

**Envisioning change – past, present, future**
- Is motivated to make a positive contribution to other people and their social and natural environment, locally and globally
- Is willing to take considered action even in situations of uncertainty

**Achieve transformation – people, pedagogy and education systeem**
- Is willing to challenge assumptions underlying unsustainable practice
- Is a facilitator and participant in the learning process
- Is a critically reflective practitioner
- Inspires creativity and innovation
The creativity is aiming to let the pupils:
- increase their awareness of the opportunities for creative thinking and seeing the creativity around them.
- recognize situations/tasks that are taken for granted and reframe them into a problem that is inviting to get solved.
- notice how ideas can be/are put together and how you can put them together in a different way.
- be sensitive for thinking outside the box and to look at situations from different perspectives or in different ways.
- feel encouraged to see themselves as operator who can decide to change the world that is surrounding them (Palmer et al., n.d).

The fairness is aiming to let the pupils:
- awareness of moral and daily issues they are facing grow
- create the habit of being thoughtful and considerate about these issues
- navigate through situations that are confusing, conflicting or doubtful concerning fairness and justice
- engage to reflect and communicate about different thinking skills that are involved when you work with moral and ethical issues.
- develop a sensitivity to issues that involve fairness or justice so that they are able to recognize them (even in situations where they do not feel directly responsible). (Palmer et al., n.d).

The truth is aiming to let the pupils:
- increase their awareness of the issues that are coming up in their learning and everyday life that involve truth and evidence.
- to make a habit of considering and being thoughtful towards these kind of issues
- navigate through situations that are confusing, conflicting or doubtful concerning the truth
- engage to reflect and communicate about different thinking skills that are involved when you work with issues that involve truth and evidence
- develop a sensitivity to issues that involve truth, so that they are able to recognize them (even in situations where they do not feel directly responsible). (Palmer et al., n.d).

The understanding is aiming to let the pupils:
- increase their appreciation for everything which is involved in the development of understanding, which is often remembering knowledge and learning skills
- develop awareness that if you want to understand something, you need to invest time and energy
- get provided with strategies that can be useful in the development of their own understanding
- engage to reflect and communicate about different thinking skills that are involved in the development of understanding.
IV The Dutch objectives of ESD – Knowledge, skills and understanding

Hamer, de, et all (2008) have done research about the Dutch objectives of ESD. Both explain the funded aims as the aims that are necessary to reach SD and relate them to the three p’s. In their explanation they have they classified the aims in head (knowledge and insight), heart (attitude) and hands (skills and behaviour). This classification is based on (Schilperoord en Jansen 2003 and the Ministry OCW 2006). Remmers (2007) is describing these aims and classification in the Dutch core curriculum of ESD, but in a less elaborate way than Bron, Haandrikman & Langeberg (2009) do. This is why I use the aims of Bron, Haandrikman & Langeberg (2009). Their explanation of this classification more detailed and describe what kind of aims belong in which class. These aims are described in the chapter about the Netherlands, because the aims are based on the conclusions of Dutch researchers about the Dutch interpretation of ESD.

Knowledge and insight
This is about knowing which consideration are involved and about gaining knowledge and insight about backgrounds, motivations and alternatives for actions with connection to the dimensions of sustainability (cultural, ecological, economic & social).

The pupil:
- understands that our actions have consequences and that it is necessary to take rights and needs of others in account.
- understands that what we do know has consequences for the future.
- understand that there are connections between all living beings and societies and that there is a mutual dependence.
- understands the importance of ecological and social-cultural diversity.
- knows the most important documents about the human rights.
- knows that there is a limited use of natural sources and knows that there are alternatives.
- understands that we are not always able to predict the consequences of our actions and that the capabilities of humans are restricted.
- understands that there is an unequal distribution in the world, knows the reasons for this unequal distribution and knows that SD has to lead to a more balanced distribution.
- knows the content of acting ethnical responsible.

Skills
This is about being able to make a conscious consideration, with the insight in alternatives and consequences even if it is unclear what a ‘sustainable society’ looks like.

The pupil:
- is researching the consequences that his behaviour have on the future.
- is able to ask meaningful questions.
- is researching sources, information and possibilities and is able to judge and use them critically.
- is recognizing dilemmas and is thinking about solutions for problems.
- is able to listen active, to work together and to participate in decision-making in diverse groups.
- is able to submit ideas and opinions and is able to substantiate them.
- thinks about different alternatives and considers them.

Attitude
This is about being determined after making a certain choice, even when it turns out that the result of this choice will take more effort, is more expensive or is not yet a community good.

The pupil:
- is effectively using materials and resources.
- is making choices whereby consequences for human and earth are considered.
- is critical and responsible concerning the behaviour of himself and others.
- is showing a balance with making considerations between conflicting interests.
- is searching for creative solutions and wants to solve conflicts in a peaceful way.
- is respecting differences between humans and dealing with this differences in a positive way.
- is open towards new information.
- is taking a multiple perspective.
- is respecting himself, his own society and respecting other cultures.
- is able to make collective choices but not afraid to make its own choices.
- is concerned with the welfare of people, other living beings and the planet.
- is showing about injustice and the balanced distribution of wealth.
- is showing a realistic sense of their own and human capacity to influence the living environment and to change it permanently.
- is reflecting on his own convictions, choices and actions.

(Bron, Haandrikman & Langeberg (2009, p.12)).
V Barriers and challenges of education for sustainable development

The implementation of ESD into an existing educational system is not always easy. In 2006 UNESCO has developed a Toolkit for everyone who is interested in ESD, and in here they described the difficulties that can occur when you want to implement ESD in your educational system.

Issue 1 – Awareness
For ESD the awareness is essential. When you are introducing ESD in the education, you reorient the curriculum. Therefore it is important that not only the involved school is having a positive attitude towards ESD, but the whole community. Maybe most important is the government in the district of the school, when they do not see the link between SD and ESD the implementation of ESD will be very difficult. Education can lead to change and improvement of national policies, management and local programs, but therefore there has to be awareness of the importance of the reorientation of education. The good news is that the realisation of the importance of ESD is globally growing - in 2005 the decade of ESD was launched and at the sixth meeting of the United Nations Commission of Sustainable Development ESD and the importance of achieving the sustainability goals were mentioned frequently -, which hopefully makes it possible to reach a broad public. When a broader public has developed an awareness about the importance of SD, the change will be made easier; often the realisation of the emergence of a need is carrying out a change into an educational system. At the moment we can unfortunately not speak of having enough public awareness or response to create an educational change (UNESCO, 2006).

Issue 2 – Structuring and placing ESD in the curriculum
ESD is not the only way to reach sustainable development. There are other educational concepts (chapter 3.5), who can lead to SD. Fundamental is that each country has to make a decision in how to teach to SD. Then there is the difference between countries who ask their educators to teach about SD and countries who change their national aims to achieve SD. The differences between the countries who are teaching in or about ESD are extremely broad. In some countries ESD will be implemented, in others barely addressed or even ignored. Just teaching about SD is not enough to achieve SD. ESD has to be real, active, experimental and integrative. In how far a school can achieve SD is depending on how much responsibility they carry for it and in how far they want to reorient their education (UNESCO, 2006).

Issue 3 – The link to existing issues: educational reform and economic viability
The society is changing and with this changing society the effectiveness of the educational systems are often debated. There is a shared feeling for the need of educational change. A problem is that this feeling is sometimes based on the drive to create economic security and that this is sometimes seen as the main or only reason for educational reform. The positive part of this drive is that educating females is of great value for creating economic security. Besides it is hard to develop your education around an economic situation in the future, because you can not exactly know how the economic situation in the future will be.
To make ESD more attractive, it is important to make the link between sustainability and the economic situation clear. Right now with the shared feeling for educational change, SD should be linked to the reformation (UNESCO, 2006).

Issue 4 – The complexity of the concept of Sustainable development
SD is a complex concept which is still evolving. There is not one clear definition of SD and no step by step plan to achieve it on local and national levels. SD is not only hard to implement in an educational...
system, it is also hard to teach. Even more complicated is the reforming of the entire educational system in order to achieve sustainability. Most times educational campaigns who are successful, are bringing short and simple messages. For example the message not to drive while we are drunk, it is a simple concept and easy to understand. The message of SD and so from environmental, economic and social issues is complex and not always so easy to take in. This is why the campaigning of ESD will take much more time. The educators of ESD are challenged to bring this messages without overwhelming and confusing the pupil (UNESCO, 2006).

**Issue 5 – The development of and ESD program with the participation of the community**

The biggest issue according reorienting the educational systems might be the lack of clarity regarding the educational goals. What exactly should be changed? There is not a clear working model of ESD. This is also because of the local and national context of SD. Governments and schools should work together and carefully examine what the children should learn and value. Within this examination the future is playing an important role, but it is difficult to predict the distant future. Community consultation can be a great help, but it is also a pitfall. Not everyone will feel capable to contribute to the process. The outcomes of the community consultation should be used carefully. Programs that have relevance locally and are culturally appropriate should be introduced. In here the local economic, environmental and social situation should be considered. There are many differences between all local situations, and this makes that each region should create an own program. This would save more time than searching for fitting curricula that could be adapted and makes the curriculum more personal. This personal touch can be a motivation for the local public and community to participate, and in the other way around a good motivation for the pupils to participate in the community (UNESCO, 2006).

**Issue 6 – The engagement of traditional disciplines in a transdisciplinary framework**

ESD is a concept with a holistic and interdisciplinary view. This makes it difficult to teach in the traditional educational settings where the subjects are divided from each other. For countries who have very subject specific educational aims it will be more difficult to implement ESD. For the countries where the educational aims are more generally described the implementation of ESD will be less challenging, but still ask creativity and flexibility from the teachers to learn how to teach across the different disciplines (UNESCO, 2006).

**Issue 7 – Shared responsibility**

It is a common thought that informing the society about SD is only a task of the ministry of education. In reality ministries of the environment, health, state and commerce can play a big part in the process of implementing SD as well as ESD. With combining the knowledge and funding, the chance for a successful education program is expanding. SD is more than only education, it is about the ecologic, economic, cultural and social perspectives. To implement ESD the ministries of environment should work together with formal and non-formal sectors of the community. To create a more general consensus about ESD it is very important that teachers are involved in that process (UNESCO, 2006).

**Issue 8 – Building human capacity**

It is hard to retrain all the teachers and administrators to learn them how to teach ESD or to create an educational change, this is why it is clever to make use of the strengths and skills that are already there. Besides there is the possibility of in-service training (professionals get an additional training to reshape) or pre-service training (skills and knowledge will be taught at an initial training). Both types of training are effective and necessary for creating an educational change. There are also teachers who
are already working with (parts of) ESD. Every teacher has his own (subject specific) strengths and can use them to pull the lose pieces of ESD together and to create the ‘big picture’, but therefore they sometimes have to reorient their focus. For sustainability the holistic understanding is very important and therefore in-service of pre-service training is a must.

In the reorientation process of the teachers and the educational system the institutes of teacher education are having a central role. They are training the new teachers and can easily consult the local schools, the regional and the national ministries of education. In this way the institutes for teacher education can influence the curriculum and the policy setting. But who is working with the teacher educators in order to increase their expertise and professionalism? To implement ESD globally, there is an international need for cooperative programs for the developers of curricula, teachers, teacher educators and administrators. With this cooperation the knowledge and strengths that are already existing will be shared and cause a leverage.

**Issue 9 – The development of financial and material resources**

Providing the appropriate and basic education might be the highest expense of the implementation of ESD. One of the grounding aims of ESD is that all children can go to school for at least six years, which is bringing the costs of material, location and teacher training. After the UNESCO World Education Report in 2000 it became clear that many countries are spending more money on education. Most of this money is spend on the improvement of the basic education. To implement ESD there has to be funding at national and local levels both. Nationally in case of the resources for the teacher education, administration and the curriculum. Locally to finance the development of the curriculum and the corresponding teacher training and materials. An advantage is the use of technology and internet, which is offering many free sources with data about lesson plans and teaching resources and is a great access to ESD material.

Another problem next to the financing is that the education hast to continue while the reoriented education is still in development. The help and advice of educators is necessary but they have a lot of tasks already and not much time to do research in order to design a new curriculum. They can not do two jobs at the same time. In the development of the curriculum there has to be taken in account that in a country there can be a lot internal and great geographic diversity, and what for one community can be very relevant information can make much smaller sense for another. In that case it can be appropriate to have not only a national curriculum, but also a regional one, based on the national curriculum.

**Issue 10 – Developing the policy**

To make ESD successful, it is important to have the support from the national or regional government. This support will be a drive for the policy development. The success of an educational reform is depending on the effort that is coming from ‘top down’ and ‘bottom up’. The people who work in the higher functions are in the position to design the policies that will make the reform possible. At the same time the local teachers and leaders of the community should work together in the development of the local policies (UNESCO, 2006).

**Issue 11 – The development of a creative, innovative and risk-taking climate**

To implement ESD, it is important that there is a safe climate for the people who take the risks. In this case that will be the policymakers, the administrators, educators and directors of the schools. In order to achieve the new educational aims they have to change their education beforehand they can not exactly know which strategy will work out best. It might not succeed at the first time. This is why they should be given authority and support, so that the involved persons feel safe to take the risks and that they feel trusted in their professionalism. It will give them the space to introduce new topics and
methods. Within this support there should be a system that is checking if the professional guidelines are in place with the cultural context (UNESCO, 2006).

**Issue 12 – The promotion of sustainability in a popular culture**

Even though many countries have agreed on the importance of ESD, sustainability is still in not prevailing in popular cultures and governmental policies. An example of this is the use and production of material that we directly throw away after we used it once. In SD one of the most important principles is that we do not exceed the amount of renewable resources for the next generation. At the moment we are using much more resources than we can replace. Moreover, if we continue having the life style that people in the Baltic Sea area have, we would need two extra planets (Jutvik & Liepina, n.d). ESD can shape, change and encourage behaviour, and can even develop the (political) will to a sustainable future.
VI Justification of the connection between the teachers competences of ESD and the IPC

In this appendix there will be given a justification about which IPC teachers aims can be connected to the specific ESD aims.

2 Shared vision (5.6.2)
Learn to live together
- Actively engage different groups across generations, cultures, places and disciplines

Learning to do
- Use the natural, social and built environment, including their own institution, as a context and source of learning

Both of these two aims can be connected to the teacher competence of the shared vision, in which the involvement of the environment is seen as important. The vision of the school is not only a vision in the school, the vision can be shared with all who come in the school and are related to the children. To broaden and share the vision, all different generations and cultures should be involved. This is a big part of the social environment. Within the shared vision the school becomes a part of its own context and source of learning.

3 Classroom practices (5.6.3)
Learning to know
- The importance of preparedness for the unforeseen and a precautionary approach

Learning to be
- Is willing to take considered action even in situations of uncertainty

Within the classroom practices it is important that the pupils can experience as much as possible, in many different ways. While working with new experiences, unexpected things can happen, and educators should be always ready to react.

4 International mindedness (5.6.4)
Learning to live together
- Facilitate the emergence of new worldviews that address sustainable development

In the international mindedness it is among other, about a knowledge and understanding that is more broad than your own nationality and the skills and mind-set that make you an active global citizen. A worldview, wherefore it is necessary to have a broader view than your own nationality, is connected to being a global citizen. Facilitating the emergence makes you active.

5 The significance of knowledge, skills and understanding (5.6.5)
Learning to live together
- Help learners clarify their own and others worldviews through dialogue, and recognize that alternative frameworks exist maybe

For being able to clarify your own and other worldviews, you need to have skills, you need to understand yourself and others and you need knowledge, because you have to know about what you are talking. In this competence all knowledge, skills and understanding are coming together.

6 Rigorous learning (5.6.6)
Learning to know
- Why it is important to prepare learners to meet new challenges
Learning to do
- Why it is important to prepare learners to meet new challenges
- The importance of building on the experience of learners as a basis for transformation
- How engagement in real-world issues enhances learning outcomes and helps learners to make a difference

Learning to be
- Engages with learners in ways that build positive relationships

Rigorous learning is about challenges, being really committed, interested and deep learning. With the knowledge about the experiences that have been before, you can build a next. When there is a read thread in the experiences, it will make the pupils more committed and interested, because they know what it is about. This experiences will open a new way to developing positive relationships, because every pupil is learning in its own way (5.4.4) and can show this in the variety of experiences. When the pupil has the feeling he can be himself, the relationships with teachers as well as pupils will become more positive (Alkema et all, 2009). Working with real life issues will show the pupil that he can actually make a change, which makes the learning much more fun, effective and rigorous.

9 Assessments (5.6.9)
Learning to know
- The importance of problem setting, critical reflection, visioning and creative thinking in planning the future and effecting change

In the assessments teachers are giving feedback, but in the form of a dialogue. That means that the pupil has to critically reflect upon himself. After the assessment a new plan will be made.

4 International mindedness (5.6.4) & 8 (5.6.8) independent yet interdependent subjects
Learning to know.. The educator understands..
- The interdependent nature of relationships within the present generation and between generations, as well as those between rich and poor and between humans and nature
- Their personal world view and cultural assumptions and seek to understand those of others

Learning to do.. The educator is able to..
- Create opportunities for sharing ideas and experiences from different disciplines/places/cultures/generations without prejudice and preconceptions
- Work with different perspectives on dilemmas, issues, tensions and conflicts
- Connect the learner to their local and global spheres of influence

Learning to be.. The educator is someone who..
- Is inclusive of different disciplines, cultures and perspectives, including indigenous knowledge and worldviews
- Is motivated to make a positive contribution to other people and their social and natural environment, locally and globally

The independent yet interdependent subjects help the pupil to develop different perspectives and getting rid of preconceptions. The international mindedness is focusing on a knowledge and understanding that is more broad than their own nationality, the skills and mind-set that make you an active global citizen, a perspective that is national and international, the understanding of independence and interdependence concerning people, cultures and countries and as last an the awareness of the identity of yourself and others. All of these qualities are coming forward in the competences. The pupils learn to understand one another, even if they are many differences and is this understanding going across borders.

4 International (5.6.4) mindedness & 9 (5.6.9) assessments
Learning to do
- Facilitate the evaluation of potential consequences of different decisions and actions
Depending on the decisions and actions, the situation can become local, national or global. International mindedness can show up, which means that it can have to do with national and international perspectives. Evaluation is coming back in the competence about assessments. In here the feedback and evaluation is not only at the end of the process, it is there at any time in the learning process.

4 International mindedness (5.6.4), 5 Significance of knowledge, skills and understanding (5.6.5), & 8 (5.6.8) independent yet interdependent subjects

Learning to be
- Is willing to challenge assumptions underlying unsustainable practice

This competence can be connected to different teachers competences of the IPC. Challenging unsustainable practices is asking for international mindedness, but also for knowledge and skills. Understanding of the involved people and situation is necessary. To challenge the practice, you have to understand all perspectives, wherefore the independent yet interdependent competence is involved.

2 Shared vision (5.6.2), 3 Classroom practices (5.6.3) & 9 (5.6.9) assessments

Learning to be
- Is a critically reflective practitioner

Critically in the way of understanding your own shared vision, but also analysing and updating this vision. In the classroom practices you are not only supervising, you are participating, and as said before is there a lot of reflection concerning the assessments.

2 Shared vision (5.6.2), 5 The significance of knowledge, skills and understanding (5.6.5) & 6 Rigorous learning (5.6.6)

Learning to be
- Inspires creativity and innovation

To be innovative you need knowledge, skills and understanding. Being creative and innovative leads to rigorous learning and it also works the other way around. The shared vision has to be innovative and asks for creativity in the way you are carrying the vision out.

3 Classroom practices (5.6.3), 5 The significance of knowledge, skills and understanding (5.6.5) & 7 The learning process of the IPC (5.6.7)

Learning to know
- The importance of building on the experience of learners as a basis for transformation
- How engagement in real-world issues enhances learning outcomes and helps learners to make a difference in practice

The transformation is taking place within the classroom experiences. This broad way of learning, in many different ways, will help to pupils to make- and understand that they can make an difference. To build on the experiences of the pupils the IPC learning process can be used. The knowledge, skills and understanding are involved in the different experiences and the ways to make a difference. With the practical skills the engagement will grow knowledge and understanding are going hand in hand with the enhancement of the learning outcomes.

1. Improving learning (5.6.1), 2 Shared vision (5.6.2), 3 Classroom practices (5.6.3), 5 The significance of knowledge, skills and understanding (5.6.5) 6 Rigorous learning (5.6.6), 7 The learning process of the IPC (5.6.7) & 9 (5.6.9) assessments

Learning to be
- Is a facilitator and participant in the learning process
The last named aim is connected to many of the IPC competences. Being a facilitator and participant will help you to improve the learning. Concerning the shared vision of the school, you as an educator are facilitating for the pupils, but with you and your colleagues participate in the staff. The participating and facilitating are taking place in the classroom practices and they make the learning rigorous. In the IPC learning process are you facilitating, but in the same time are you a participator of the process itself. As last there are the assessments, in which not only the pupils are learning but which is, like the IPC learning process, also very docile for the educators.
VII Extended explanation of the connection between the vision of ESD and the IPC

In the following text it is explained in which way the pedagogical aspects of ESD are connected to the pedagogical aspects of the IPC.

Natural, multidisciplinary, multidimensional, and emotional learning
In ESD, natural, multidisciplinary, multidimensional and emotional learning are the four pedagogical essentials of ESD (Eilam & Trop, 2011) (3.4.2). The natural learning, in which direct experience and dialogue are playing an important part, can you find in the IPC in the research- and recording activities from the IPC learning process (6.4.5). In the research activities there is a wide range of different approaches to learning that will help the pupils to collect different experiences. In the paragraph about classroom practices (6.6.3) the IPC is explaining the importance of different and direct experiences further. The dialogue is an important part of the assessments (6.3.5 & 6.6.9) that the IPC is using. Within the assessment and the learning process the teacher is giving a lot of feedback but in such a way that the child can take lead over its own learning, which can be achieved through making use of dialogue. The direct experiences are connected to the skills that pupils learn in IPC (6.5.2 & 6.6.5). In natural learning the learning is constructive and personal, which is fitting with point 5 (Accept that every child has a portfolio with intelligences) and 6 (The school should make use of the different learning styles of the children) of brain friendly learning (6.4.3).

A last and important point of natural learning is that the learning takes place in the space where the knowledge will be cultivated best (Eilam & Trop, 2011). This point is not directly related to a pedagogical view of the IPC, but it can be connected very easily. It is fitting with the rigorous learning (6.6.6) and also with earlier named point 5 & 6 of the brain friendly learning, not every learning style is fitting in a classroom. Besides, it fits with the third of the guiding questions (6.1.2); What kinds of learning will our children need and how should they learn it? (Fieldwork Education, n.d)

Which is making clear that the teachers should think about what to learn and how. Sitting in a classroom or going to a place where the knowledge is cultivated even better? Multidisciplinary learning is an important part of ESD, but so is it from the IPC, which can be found at the teachers competences of independent yet interdependent subjects (6.7.8). In multidimensional learning there is made use of contextual an combined thinking among time (history, present, future) and space (natural, economic and social environment). This is like in the multidimensional learning connected to the independent yet interdependent subjects (6.6.8) & can be seen in the first two of the three guiding questions (6.1.2); 1. What kind of world will our children live and work in?

Which reflects the natural, economic and social environment of present and future.
2. What kind of children are likely to succeed in the world?

Which reflects the natural, economic and social environment in the future.

In Emotional learning children learn to negotiate between their emotions and their surroundings. In the IPC emotions are seen as very important and taken seriously. In the science of learning there is spoken about positive and negative emotions and how they influence your learning (6.3.4), which can be combined with the state of relaxed alertness of the brain friendly learning (6.4.3, point three) & in the explanation of rigorous learning (6.6.6) it becomes clear that the more positive emotions are involved, the better the learning will be. Wilber is describing the quadrant model (6.4.2) how awareness, perceptions, interpretations and shape are all interconnected and influencing your view on situations. From visible thinking (6.4.4) the thinking ideals about truth and fairness are closely connected to emotions.

The eight pedagogic and didactic guidelines of ESD in relation to the IPC
The eight pedagogic and didactic guidelines of ESD concerning the research of Bron, Haandrikman & Langeberg (2009).
**ESD is student oriented**
This can be related to the three guiding questions of the IPC (6.1.2) and point 5 (Accept that every child has a portfolio with intelligences) & 6 (The school should make use of the different learning styles of the children) of brain friendly learning (6.4.3).

**ESD is connected to the every-day life and the direct environment of the learner**
Brinkel (2011) explains that the themes where the IPC is working with are globally relevant and that they are developed in such a way that they are exciting for the pupils as well as the teachers (6.1.1). In the international mindedness (6.6.4) it is stated that in every unit beside global issues, there has to be worked with local issues (Fieldwork Education, n.d). The criterion of the shared vision (6.6.2) is showing that the school are having space to adapt the IPC to their own vision and environment.

**ESD is future-oriented**
You can see this (as well as in the multidimensional learning) in the first two of the three guiding questions (6.1.2) of the IPC.

**ESD is action-oriented & ESD is asking for participation**
Related to the skills that the pupils are learning in IPC (6.5.2 & 6.6.5) and the research & recording activities of the IPC learning process.

**ESD is fostering critical thinking & ESD is value-oriented**
This is connected to the four ideals of visible thinking (6.4.4); creativity, fairness, truth and understanding. The main aims of visible thinking describe that the pupils have to learn to develop critical thinking, an alert attitude towards thinking and that the classroom should change into a community with thinkers who are enthusiastic and engaged. (Palmer et al., n.d). Next to the visible thinking there are the personal learning aims of the IPC (6.5.1); enquiry, thoughtfulness, cooperation, respect, morality, resilience, communication, adaptability which all have a lot to do with personal values. The critical thinking is also coming back in the will to making the pupils able to see different perspectives, which is further explained in chapter 6.6.8.

**ESD is considering complexity as a challenge**
In the science of learning there is explained that growth mind-set is embracing challenges (6.3.1). Besides the growth mind-set the personal aims of the IPC (6.5.1) are connected to challenges; enquiry, thoughtfulness, cooperation, respect, morality, resilience, communication, adaptability. All of these personal qualities are needed when you are challenged.

**People, planet, profit**
**People** - The pupil respects himself, his own community and other cultures, strives for justice and a balanced distribution of well-being (Remmers, 2007, p.11). This has, as the earlier named critical thinking and being value oriented, a lot to do with the four ideals of visible thinking (6.4.4) & the personal learning aims.

**Planet** - The student appreciates and respects nature, is committed to the well-being of other living beings and the planet and is dealing with them in a respectful and responsible way (Remmers, 2007, p.11). This is globally connected to the personal aims of the IPC and implemented in several specific IPC units (Vaughan, 2018).

**Profit** – the pupil recognises that there are different economic interests (Remmers, 2007, p.11). This is not directly coming back in the global pedagogy of the IPC, but it is discussed in some specific units (Vaughan, 2018).

**Different perspectives**
The IPC and ESD share their opinion about the fact that issues/situations should be analysed from different perspectives. The importance of using several perspectives and being able to see the ‘big picture’ of a situation is coming back in both pedagogies. For the IPC this is made clear in point 5 of
the brain friendly learning ‘Being able to see the ‘big picture’ (6.4.3) and the importance of the quadrant model of Ken Wilber (6.4.2), which is showing the connection between what we learn and do and states that, to be able to get the whole picture, we should keep changing perspectives (Brinkel, 2011). The IPC wants to achieve that pupils start looking from different perspectives by teaching independent yet interdependent subjects (5.6.8). Concerning ESD you can find this fact in one of the main aims of SD;

‘Sustainable Development is to create a proper balance between economic, social, cultural and ecological development and needs’

(Jutvik & Liepina, n.d, p.12).

To create this balance it is important to make use of different perspectives, which you can find back in the chair of sustainable development (Macer, 2004) (3.3) and which is also stated by Strange & Bayley (2008) (2.1). Both the IPC and ESD are working from a holistic perspective (4.1 & 6.6.8).

Holarchy

These different perspectives are all equally important, which is in the IPC coming back in the importance of all different learning aims (the aims for knowledge, skills and understanding), which is coming from the theory of Ken Wilber (Brinkel, 2011) (6.4.2). In ESD this is coming back at the concept of the chair of sustainability (Macer, 2004) (3.3) but also in the explanation of SD;

’an ethic of solidarity, equality and mutual respect among people, countries, cultures and generations; it is development in harmony with nature, meeting the needs of the present generation without compromising the ability of future generations to meet their own needs’

The UNECE Expert Group on Competences in Education for Sustainable Development (2012, p.6.) This is showing that there is a very important equality that turns out into a holarchy, concerning the subjects, educational aims and the way you interact with each other.

(Social-) Constructivism

As mentioned in chapter 6.4.6, there is no documented scientific proof of the connection between the IPC and the (Social-) constructivism. However, Anna Vaughan (Head of International Primary Curriculum and Education Lead) has mentioned to see this connection, but also noted that this might just be based on assumptions. After having done my theoretical review, I can state that I can see that the basic principles of constructivism as well as social-constructivism, are coming back in the pedagogy of the IPC, which is broadly explained in chapter 6.4.6.
VIII Extended explanation of the connection between the mission of ESD and the IPC

Main educational aims
The main educational aim of the IPC is to improve the children’s learning. To strengthen their personal qualities (among which resilience, enquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability), and help them to develop international mindedness (Brinkel, 2011) (6.1.1 & 6.6.1). The main educational aim of ESD is to educate in such a way that the pupils become critical, responsible, active participators of society who act as environmental friendly as possible, and who are able to create a proper balance between economic, social, cultural and ecological development and needs (UNESCO 2014, Jutvik & Liepina, n.d) (3.2 & 4.1).

Similarities can be found in the personal qualities of the IPC and the will of ESD to help the children become critical, responsible and active participators of the society. The personal qualities will indirect lead to become critical (inquiry, thoughtfulness), responsible (respect, morality, adaptability) and active (cooperation, communication, resilience) participators. Differences are that the IPC is aiming the improve the learning and ESD to achieve behavioural change, namely acting environmentally as friendly as possible. Besides are the economic, social, cultural and ecological development playing a very important role in ESD, where in the IPC the international mindedness is more important.

The aims of ESD connected to the aims of the IPC

The IPC is working with aims whose Fieldwork Education believes that are equal to, or even exceeding the goals of any other curriculum in the world. The subject specific aims are very detailed and bounded to the specific subjects. Because of this I decided to look for similarities in the more global aims that can be found in the self-review process of the IPC. Another reason to choose this more global aims is that these aims are directly connected to the teachers competences, which I will use to look for similarities with the teachers competences of the ESD. For this reasons using the aims of the self-review process will create more clarity and clearness. To make the connection to the Dutch education the Dutch national aims are (when possible) involved as well (they can be found in appendix VI). Because I am looking in how far the IPC would be able to represent ESD, am I looking if the aims of ESD can be found in the aims of the IPC. First the ESD aim will be named, followed by the ways it can be related to the IPC.

ESD skills (all the skills are copied from McClaren, 1989 & McKeown, 2002, P.20):

*The ability to communicate effectively (both orally and in writing).*
This can be related to the personal aim of communication & respect.

*The ability to think about systems (both natural and social sciences)*.
This can be related to personal aim thoughtfulness and self-review criterion four – international mindedness - & eight – independent yet interdependent subjects (concerning social science). Both criterion four and eight focus on understanding the world around you, by getting to know your own and others cultures and looking from several perspectives.

*The ability to think in time - to forecast, to think ahead, and to plan.*
This can be related to the self-review criterion nine, about assessments. In here children develop a new/further plan for their own learning.

*The ability to think critically about value issues.* This can be related to the personal aim of thoughtfulness, inquiry & morality.
The ability to separate number, quantity, quality, and value.
This can be related to the personal values aims of inquiry, thoughtfulness and morality, which help the child to develop critical thinking and reflecting. This is an important tool in analysing situations related to numbers, quantity, quality and/or values.

The capacity to move from awareness to knowledge to action.
This can be related to the personal aim of inquiry, adaptability & resilience.

The ability to work cooperatively with other people.
This can be related to the personal aim of cooperation, communication & respect.

The capacity to use these processes: knowing, inquiring, acting, judging, imagining, connecting, valuing, and choosing.
This can be related to all of the personal aims; resilience, inquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability. Self-review criterion four – international mindedness - & eight – independent yet interdependent subjects educate to this capacity as well.

The capacity to develop an aesthetic response to the environment. This can be related to self-review criterion four – international mindedness - & eight – independent yet interdependent subjects, by learning how to understand yourself, others and your environment you will be able to respond to your environment in an aesthetic way.

ESD aims of understanding (all the aims are copied from McKeown, 2002, P.21):
Humans have universal attributes (e.g., they love their children).
These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘Feelings’, ‘I live’ & ‘Who am I?’.

Looking at their community as well as looking beyond the confines of local and national boundaries is necessary to understand local issues in a global context.
This can be related to self-review criterion four – international mindedness - & eight – independent yet interdependent subjects, in which the pupils learn to understand the world around them and to make use of different perspectives.

Considering differing views before reaching a decision or judgment is necessary.
This can be related to all of the personal aims; resilience, inquiry, respect, communication, morality, thoughtfulness, cooperation and adaptability. The differing views are coming back in self-review criterion eight (independent yet interdependent subjects), in which the pupils learn to make use of and understand different perspectives.

Economic values, religious values, and societal values compete for importance as people of different interests and backgrounds interact.
In here you can see the different perspectives again, which makes that it can be related to self-review criterion eight (independent yet interdependent subjects).

Technology and science alone cannot solve all of our problems.
These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘The price of Progress’.
Individuals are global citizens in addition to citizens of the local community. This can be related to self-review criterion four (international mindedness) in which is described that the children should become active global citizens and that they should work with global as well as local issues. Working with global and local issues in combination with understanding your own nationality and the nationalities from others, will raise the awareness of being a global citizen in addition to being a citizen of the local community.

Individual consumer decisions and other actions effect resource extraction and manufacturing in distant places. These aims is not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the unit ‘What do we eat today?’ & ‘Making new materials’.

Social and environmental problems change through time and have a history and a future & contemporary global environmental issues are linked and interrelated between and among themselves. These aims are not directly connected to the global aims of the IPC, but can be achieved by the units of the IPC that are specific about the environment, for example the units ‘Our world’, ‘Save the world’ & ‘The environment’ (Vaughan, 2018).
Geachte deelnemer,

U bent uitgenodigd om deel te nemen aan deze enquête over hoe leerkrachten de overeenkomsten tussen Onderwijs voor Duurzame Ontwikkeling (OvDO) en het National Primary Curriculum (IPC) ervaren. De enquête is verspreid over 12 verschillende scholen door heel Nederland.

Mijn naam is Tine Nieboer, ik ben een Nederlandse leerkracht basisonderwijs en op het moment volg ik de master opleiding 'Outdoor Environmental Education & Outdoor Life' in Linköping, Zweden. Mijn eindonderzoek gaat over hoe de Nederlandse leerkrachten de overeenkomsten tussen de competenties van Onderwijs voor Duurzame Ontwikkeling en het International Primary Curriculum ervaren. Hiervoor is het niet nodig om verdere kennis te hebben van het OvDO (Bij interesse geef ik deze informatie graag).

De vragen gaan over specifieke competenties van het OvDO en in hoeverre u het gevoel heeft dat u door het gebruiken van IPC deze competenties heeft ontwikkeld en gebruikt. Het invullen van de vragen zal ongeveer 20 minuten duren en is anoniem.

Voor verdere vragen, meer informatie over het onderzoek of de resultaten kunt u gerust contact met mij opnemen.

Hartelijk bedankt voor uw tijd!

Vriendelijke groet,
Tine Nieboer
tine_nieboer@hotmail.com

Introducing questions
Ik werk in de groep(en) / I am teaching the grades..

1 / 2
3 / 4
5 / 6
7 / 8

Aantal jaar ervaring als leerkracht in het basisonderwijs / Years of experience in primary education

0 – 2
3 – 5
6 jaar of langer
10 jaar of langer

Aantal jaar ervaring met het IPC / Years of experience with teaching the IPC

1
2
3
4
5 of langer
10 of langer
The questionnaire has been written in Dutch. In here first the category is named, followed by all competences belonging to the category. Per competence the teacher could answer in which extent he/she was experiencing to use of the specific competence of ESD, in the IPC. The competences are described in English in appendix II.

From left to right:
Helemaal niet = not at all
Nauwelijks = barely
In een redelijke mate = in a reasonable extent
In hoge mate = in a large extent
In hele hoge mate = in very high extent

**First category**
Learning to live together
By using the IPC I am working together with others in such a way that ..

<table>
<thead>
<tr>
<th>Leren om samen te leven.</th>
<th>Door middel van het IPC werk ik samen met anderen op zo'n manier dat.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Left Anchor</strong></td>
</tr>
<tr>
<td>Ik actief verschillende groepen, generaties, culturen, plaatsen en disciplines betrek.</td>
<td>Helemaal niet</td>
</tr>
<tr>
<td>Ik de groei van nieuwe wereldbeelden gericht op duurzame ontwikkeling vergemakkelijk.</td>
<td>Helemaal niet</td>
</tr>
<tr>
<td>Ik dialogen over een alternatieve toekomst aanmoedig.</td>
<td>Helemaal niet</td>
</tr>
<tr>
<td>Ik het uitdrijven van niet duurzame praktijken in het onderwijs tegengaan, ook op institutioneel niveau.</td>
<td>Helemaal niet</td>
</tr>
<tr>
<td>Ik de leerlingen help via hun eigen en andere wereldwissels te verduidelijken door middel van dialoog en door te erkennen dat er andere kaders/visies bestaan.</td>
<td>Helemaal niet</td>
</tr>
</tbody>
</table>
### Second category

**Learning to do**

By using the IPC I am able to...

<table>
<thead>
<tr>
<th>Leren om te doen.</th>
<th>Left Anchor</th>
<th></th>
<th></th>
<th></th>
<th>Right Anchor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal niet</td>
<td>Nauwelijks</td>
<td>In redelijke mate</td>
<td>In hoge mate</td>
<td>In zeer hoge mate</td>
</tr>
<tr>
<td>Kansen te creëren voor het delen van ideeën en ervaringen vanuit verschillende disciplines/plaatsen/culturen/generaties waarbij geen vooroordelen zijn.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanuit verschillende perspectieven naar dilemmata, problemen, spanningen en conflicten te kijken.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mijn leerlingen verbinden met de lokale en mondiale invloedssferen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>De veranderingsprocessen in de samenleving en de visie en een duurzame toekomst kritisch beoordelen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Het gevoel van de urgentie voor verandering over te brengen en inspireren tot een hoopvolle houding.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Het evalueren van mogelijke gevolgen van verschillende beslissingen en acties te vergemakkelijken.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>De natuurlijke, sociale, gebouwde en schoolomgeving te gebruiken als context en/of bron van leren.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te begrijpen waarom er behoefte is om de onderwijsprocessen die leren ondersteunen te veranderen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te begrijpen waarom er behoefte is om de manier waarop we opvoeden / leren te veranderen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te begrijpen waarom het belangrijk is om leerlingen voor te bereiden op nieuwe uitdagingen.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Om het belang van het voortbouwen op de ervaringen van leerlingen als basis van de verandering te zien.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te zien dat de betrokkenheid bij het gebruik van echte/relevante leeromstandigheden belangrijk is om leerresultaten te verbeteren en ik begrijp dat dit helpt om leerlingen in de praktijk echter verschijnselen laten maken.</td>
<td></td>
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</tr>
</tbody>
</table>
### Third category

**Learning to be**

By using the IPC am I a teacher who...

<table>
<thead>
<tr>
<th><strong>Leren om te zijn.</strong></th>
<th><strong>Door middel van het IPC ben ik een leerkracht die..</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Left Anchor</strong></td>
<td><strong>Helemaal niet</strong></td>
</tr>
<tr>
<td><strong>Gebruik maakt van verschillende disciplines, culturen en perspectieven, inclusief binnenlandse kennis en wereldbeelden.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Gemotiveerd is om een positieve bijdrage te leveren aan andere mensen en hun sociale &amp; natuurlijke omgeving, lokaal en wereldwijd.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Bereid is om wélverwachte acties te ondernemen, zelfs in situaties van onzekerheid.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Bereid is om aannames die ten grondslag liggen aan praktijken die niet duurzaam zijn aan te vechten.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Zowel begeleider als deelnemer is in het leerproces.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Kritisch reflecteert.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Inspirerend tot creativiteit en innovatie.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Positieve relaties met de leerlingen opbouwt.</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Fourth category**

**Learning to know**

By using the IPC I understand that..

<table>
<thead>
<tr>
<th>Leren om te weten. Door middel van de IPC begrijp ik.</th>
<th>Left Anchor</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Right Anchor</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal</td>
<td>Nauweli</td>
<td>In redeli</td>
<td>In hoge</td>
<td>In zeer ho</td>
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<tr>
<td></td>
<td>niet</td>
<td>k</td>
<td>mate</td>
<td>mate</td>
<td>mate</td>
<td></td>
</tr>
<tr>
<td>De basis van de systemen waarop natuurlijke, sociale en economische structuren functioneren en hoe zij onderling kunnen zijn verbanden.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>De relaties waarbij men onderling afhankelijk van elkaar is binnen verschillende generaties, rijk &amp; arm en mens &amp; natuur.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mijn eigen culturele aannames en persoonlijke kijk op de wereld en ik probeer die van anderen te begrijpen.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>De verbinding tussen een duurzame toekomst en de manier waarop we denken, leven en werken.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mijn eigen denken en handelen in relatie tot een duurzame ontwikkeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>De hoofdorsaken van een niet-duurzame ontwikkeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td>Dat duurzame ontwikkeling een concept in ontwikkeling is.</td>
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</tr>
<tr>
<td>De dringende noodzaak van verandering van niet-duurzame praktijken voor het bevorderen van de kwaliteit van het leven, rechtvaardigheid, solidariteit en ecologische duurzaamheid.</td>
<td></td>
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</tr>
<tr>
<td>Het belang van het gebruik van een probleemstelling, kritische reflectie, visie en creatief denken bij het plannen van de toekomst en het teweegbrengen van verandering.</td>
<td></td>
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</tr>
<tr>
<td>Dat ik voorbereid moet zijn op onverwachte situaties en ik neem hier voorzorgsmaatregelen voor.</td>
<td></td>
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</tr>
<tr>
<td>Het belang van wetenschappelijk bewijs bij het ondersteunen van een duurzame ontwikkeling.</td>
<td></td>
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</tr>
<tr>
<td>Waarom er behoefte is in onderwijsystemen die het leren ondersteunen te veranderen.</td>
<td></td>
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</tr>
<tr>
<td>Waarom er behoefte is om de manier waarop we opvoeden &amp; leren te veranderen.</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Waarom het belangrijk is om leerlingen voor te bereiden op nieuwe uitdagingen.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Dat het voortbouwen op de ervaring van de leerlingen een belangrijke basis is voor de verandering.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Dat de betrokkenheid van de leerlingen bij problemen uit het echte leven de leerresultaten verbetert en dat dit de leerlingen helpt om een verschil te maken in de praktijk.</td>
<td></td>
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</table>
How the International Primary Curriculum can be used as an approach to achieve Education for Sustainable Development
– Concerning the educational vision, educational mission and teachers competences

Authors    Tine Nieboer

Abstract

There is a huge emergence for sustainable change, but there are not many clear approaches for teachers to teach into sustainability. With the proof that the International Primary Curriculum (IPC) can be used up to large extent to provide primary schools from Education to sustainable development (ESD), the aims of ESD can be achieved in great extent, while the IPC is used in over 98 countries. Therefore teacher do not have to be introduced to a new approach; they can continue using the IPC.

There is done a literature research about the similarities between the educational vision & mission and practical investigation into the teachers experiences, by the use of a questionnaire, about similarities in the teachers competences between ESD and the IPC. Concerning the research the educational vision of ESD and the IPC are very similar, but in the education mission is a difference in focus. Where ESD wants a behavioural change, is the IPC focusing on improving the learning. However, this different focus is not eliminating the similarities that are shown.

Practically seen are teachers who work with the IPC are experiencing a 66.6% match with the teacher competences of ESD. The differences that are found are based on the different educational focuses of ESD and the IPC, but in here the IPC can easily adjust.

All together I can state that the IPC can be used as an approach to provide Dutch primary school pupils with ESD from a reasonable up to a pretty large extent, under the condition that the IPC is adapting to the educational mission of the ESD, without letting go of their own educational mission.

Keywords
Education for Sustainable Development, International Primary Curriculum, Approaching ESD