

NAMRATA LUND

SUSTAINABLE DEVELOPMENT GOALS IN THE IB PRIMARY YEARS
PROGRAMME

NAMRATA LUND

A THESIS SUBMITTED

FOR

THE DEGREE OF MASTER OF ARTS

IN

CURRICULUM AND INSTRUCTION

İHSAN DOĞRAMACI BILKENT UNIVERSITY

ANKARA

SEPTEMBER 2022



To Mama & Papa

SUSTAINABLE DEVELOPMENT GOALS IN THE IB PRIMARY YEARS
PROGRAMME

The Graduate School of Education
of
İhsan Doğramacı Bilkent University

by

Namrata Lund

In Partial Fulfilment of the Requirements for the Degree of

Master of Arts

in

Curriculum and Instruction

Ankara

September 2022

İHSAN DOĞRAMACI BILKENT UNIVERSITY
GRADUATE SCHOOL OF EDUCATION
Sustainable Development Goals in the IB Primary Years Programme
Namrata Lund
September 2022

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum & Instruction.

Asst. Prof. Dr. Armağan Ateşkan (Advisor)

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum & Instruction.

Assoc. Prof. Dr. Jennie Farber Lane (Examining Committee Member)

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum & Instruction.

Prof. Dr. Gaye Teksöz, Middle East Technical University (Examining Committee Member)

Approval of the Graduate School of Education

Prof. Dr. Orhan Arıkan (Director)

ABSTRACT

SUSTAINABLE DEVELOPMENT GOALS IN THE IB PRIMARY YEARS PROGRAMME

Namrata Lund

MA in Curriculum and Instruction

Advisor: Asst. Prof. Dr. Armağan Ateşkan

September 2022

Planet Earth's natural resources are fast depleting. The pressure of about seven billion people is taking its toll on all ecosystems. Today we have a depleted ozone layer, acid rain, oil spills, nuclear accidents, and health problems that have had an impact on health and education. Education is one of the important and sure ways to help change people's values and behaviors thus encouraging sustainable lifestyles. This study explored the written International Baccalaureate Primary Years Programme (IB PYP) documents and saw if these documents help envelope the United Nations (UN) 17 Sustainable Development Goals (SDGs). The results show that 17 SDGs are represented in the two IB PYP documents analyzed. However, an imbalance was observed and there was more weightage towards some of the SDGs and their targets and very little or none towards some SDGs and their targets. Further research is recommended in the taught International Baccalaureate Primary Years Programme (IB PYP).

Keywords: Sustainable development goals, IB PYP programme, content analysis

ÖZET

IB İLK YILLAR PROGRAMINDA SÜRDÜRÜLEBİLİR KALKINMA HEDEFLERİ

Namrata Lund

Eğitim Programları ve Öğretim Yüksek Lisans Programı

Danışman: Dr. Öğr. Üyesi Armağan Ateşkan

Eylül 2022

Gezegelimiz Dünyanın doğal kaynakları hızla tükeniyor. Yaklaşık yedi milyar insanın baskısı tüm ekosistemlere zarar veriyor. Günümüzde, incelmış bir ozon tabakasının, asit yağmurlarının, petrol sızıntılarının, nükleer kazaların ve sağlık sorularının sağlık ve eğitim üzerinde etkisi ile karşı karşıyayız. Eğitim, insanların değerlerini ve davranışlarını değiştirerek sürdürülebilir yaşam tarzlarını teşvik etmenin önemli ve kesin yollarından biridir. Bu çalışmada, Uluslararası Bakalorya İlk Yıllar Programı (UB İYP) dokümanları araştırılmış ve bu dokümanların Birleşmiş Milletler 'in (BM) 17 Sürdürülebilir Kalkınma Amaçlarını (SKA) kapsamasına/desteklemesine yardımcı olup olmadığı incelenmiştir. Sonuçlar, analiz edilen iki UB İYP dokümanında da 17 SKA' nın kapsandığını göstermektedir. Ancak bu kapsamda bazı SKA hedeflerine daha fazla ağırlık verilirken, bazı SKA hedeflerine çok az ağırlık verildiği veya hiç ağırlık verilmediği ile ilgili bir dengesizlik tespit edilmiştir. UB İYP' nin sınıfta uygulanması ile ilgili araştırma yapılması önerilmiştir.

Anahtar Kelimeler: Sürdürülebilir kalkınma hedefleri, UB İYP, içerik analizi

ACKNOWLEDGEMENTS

First of all, I would like to express my heart felt gratitude and deep appreciation, to Asst. Prof. Dr. Armağan Ateşkan, who guided me throughout this study. Without her kind support, patience, and constant encouragement, I would not have been able to complete my thesis.

Besides my advisor, I would like to thank my Vice Principal and PYP Coordinator at BELS, Mr. Yunus Emre Özden, who always answered my questions and queries, despite his very busy and packed schedule.

I would also like to thank Assoc. Prof. Dr. Jennie Farber Lane and Prof. Dr. Gaye Teksöz for their suggestions and feedback.

I am very grateful to my instructors at the Graduate School of Education, Bilkent University, who contributed their valuable time and input, throughout my MA program in Curriculum and Instruction, and of course my peers for the cheer and comfort they provided.

Last, but not least, I would like to thank my superiors and colleagues at work, as well as my family and close friends, for their constant encouragement and support.

TABLE OF CONTENTS

ABSTRACT.....	iv
ÖZET.....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	x
LIST OF FIGURES	xiii
CHAPTER 1: INTRODUCTION	1
Introduction.....	1
Background.....	2
The Decade of Education for Sustainable Development.....	4
Education for Sustainable Development.....	5
The International Baccalaureate Primary Years Programme.....	7
Problem.....	8
Purpose.....	9
Research Question.....	9
Significance.....	10
Definition of Key Terms..	11
CHAPTER 2: REVIEW OF RELATED LITERATURE	13
Introduction.....	13
Sustainable Development	14
Sustainable Development Goals.....	18
Dimensions of Agenda 30.....	20
Education for Sustainable Development (ESD).....	21
Curricula and ESD.....	23

ESD and Cambridge Primary Curriculum.....	24
ESD and NCERT.....	25
ESD and Ministry of National Education Program in Türkiye.....	25
International Baccalaureate Programmes.....	26
International Baccalaureate Primary Years Program (IB PYP).....	27
International Baccalaureate Programmes and Education for Sustainable Development.....	29
CHAPTER 3: METHOD.....	32
Introduction.....	32
Research Design.....	32
Context.....	34
Method of Data Collection and Data Analysis.....	35
Validity and Reliability.....	37
CHAPTER 4: RESULTS.....	39
Introduction.....	39
Overall Analysis of the Documents.....	39
Sustainable Development Goals.....	41
SDG 1 - No Poverty.....	43
SDG 2 - Zero Hunger.....	44
SDG 3 - Good Health and Well-being.....	45
SDG 4 - Quality Education.....	47
SDG 5 - Gender Equality.....	48
SDG 6 - Clean Water and Sanitation.....	50
SDG 7 - Affordable and Clean Energy.....	51
SDG 8 - Decent Work and Economic Growth.....	52

SDG 9 - Industry, Innovation and Infrastructure...	54
SDG 10 - Reduced Inequalities.....	55
SDG 11 - Sustainable Cities and Communities...	56
SDG 12 - Responsible Consumption and Production...	58
SDG 13 - Climate Action.....	59
SDG 14 - Life Below Water.....	60
SDG 15 - Life on Land...	62
SDG 16 - Peace, Justice and Strong Institutions...	63
SDG 17 - Partnership for the Goals.....	65
Five Dimensions of the SDGs.....	67
SDGs Related to People.....	68
SDGs Related to Planet.....	70
SDGs Related to Prosperity...	73
SDGs Related to Peace and Partnership.....	75
PYP Learning and Teaching and the Impact on ESD.....	76
Developing a Transdisciplinary Programme of Inquiry.....	77
CHAPTER 5: DISCUSSION.....	79
Introduction.....	79
Overview of the Study.....	79
Discussion of Major Findings.....	80
Strengths of PYP Learning and Teaching Guide.....	80
Limitations.....	81
Strengths of PYP Developing a Transdisciplinary Programme of Inquiry....	82
Recommendations for ESD.....	83
Implications for Practice.....	85

Implications for Further Research.....	85
Limitations.....	86
REFERENCES.....	88
APPENDIX A.....	102



LIST OF TABLES

Table		Page
1	The Brundtland Report and the issues covered in the report.....	15
2	Overview of the 17 Sustainable Development Goals.....	19
3	SDGs, Targets and Indicators Related to Education.....	22
4	Example of Coding of Words from the Guides to the SDGs.....	37
5	SDG 4 Quality Education and Targets.....	39
6	SDGs and the Percentage of Coded Segments from the Analyzed Documents.....	42
7	SDG 1 - Frequency of Codes and Sub-codes.....	43
8	SDG 2 - Frequency of Codes and Sub-codes.....	45
9	SDG 3 - Frequency of Codes and Sub-codes.....	46
10	SDG 4 - Frequency of Codes and Sub-codes.....	48
11	SDG 5 - Frequency of Codes and Sub-codes.....	49
12	SDG 6 - Frequency of Codes and Sub-codes.....	50
13	SDG 7 - Frequency of Codes and Sub-codes.....	52
14	SDG 8 - Frequency of Codes and Sub-codes.....	53
15	SDG 9 - Frequency of Codes and Sub-codes.....	54
16	SDG 10 - Frequency of Codes and Sub-codes.....	55
17	SDG 11 - Frequency of Codes and Sub-codes.....	57
18	SDG 12 - Frequency of Codes and Sub-codes.....	58
19	SDG 13 - Frequency of Codes and Sub-codes.....	60
20	SDG 14 - Frequency of Codes and Sub-codes.....	61
21	SDG 15 - Frequency of Codes and Sub-codes.....	62
22	SDG 16 - Frequency of Codes and Sub-codes.....	64

23	SDG 17 - Frequency of Codes and Sub-codes.....	66
24	SDGs, Targets (People) and the Percentage of Coded Segments	69
25	SDGs, Targets (Planet) and the Percentage of Coded Segments	71
26	SDGs, Targets (Prosperity) and the Percentage of Coded Segments.....	73
27	SDGs, Targets (Peace and Partnership)) and the Percentage of Coded Segments.....	75



LIST OF FIGURES

Figure		Page
1	SDGs Linked to the Five Dimensions of the 2030 Agenda for Sustainable Development.....	68
2	Sub-code Data of SDG 2 in the Two Analyzed Documents.....	69
3	Sub-code Data of SDG 3 in the Two Analyzed Documents.....	70
4	Sub-code Data of SDG 15 in the Two Analyzed Documents....	71
5	Sub-code Data of SDG 14 in the Two Analyzed Documents....	72
6	Sub-code Data of SDG 12 in the Two Analyzed Documents....	73
7	Sub-code Data of SDG 11 in the Two Analyzed Documents....	75
8	Sub-code Data of SDG 16 in the Two Analyzed Documents....	76

CHAPTER 1: INTRODUCTION

Introduction

Ecological systems sustain life on Earth. They decompose our waste, regulate the water cycle, purify the air we breathe and enrich the soil. However, the pressure of nearly 7 billion people on the planet is taking its toll on these systems. Our use of nature can be measured by means of an ecological footprint, using the biological surfaces of the earth as currency (Wackernagel & Galli, 2007). The ecological footprint of humans is ever-increasing (Franjic, 2018, p.1) and, looking back through history, we can see the negative impact of this footprint on these ecological systems.

Throughout the 19th century, urban areas have been impacted by different kinds of pollution, such as water, air and noise pollution, and so on. The Industrial Revolution, which began at the start of the 18th century, was the original source of excessive levels of increased pollution. Of course, humans have been contaminating the environment before this time. According to the World Economic Forum (Gabrielli, 2015), wars and colonization and other destructive activities have been exploiting and depleting natural resources throughout human history. For example, before Columbus “discovered” America, native populations were mining the earth for precious minerals such as copper and gold. Spanish conquests took over these mines and accelerated their production. They became rich while the land became poor. At these times, the human population was much smaller and their actions were generally limited to their local environments.

Exponential human population growth and the spread of industrialization have led to pollution becoming a universal problem. We currently have a depleted ozone layer, acid rain, oil spills, air pollution, water pollution and nuclear accidents

which negatively impact both health and education. Our planet Earth has limited resources, and it is vital that every person must have access to clean drinking water, unpolluted air, food, and a home to live in. The UN recommends that our carbon footprint must be reduced to half by 2030 and to net zero by 2050 (United Nations [UN], n.d). A spotlight has been focused on the environmental challenges that we face, and education can assist greatly in altering people's values and behaviours, as well as encouraging them to take up new lifestyles that are sustainable.

Background

There have been a number of global and international efforts to promote sustainability. For example, many countries are being helped by the World Bank to develop their infrastructure in a sustainable manner. Every year, the World Bank publishes a report on the annual progress of the various sustainability activities included under their "Global Program on Sustainability". The current emphasis is on continuing with "Sustainable Development", even during serious setbacks, such as seen in the past couple of years (The World Bank, n.d.).

In September 2000, the United Nations General Assembly adopted the UN Millennium Declaration. The year 2015 was the target year for Millennium Development Goals (MDGs) to be met (United Nations, 2015). These goals ranged from eradicating poverty to controlling the spread of diseases like HIV (Human Immunodeficiency Virus, the virus that causes Acquired Immune Deficiency, [AIDS]) to providing universal primary education. The main aim of the goals was to stop and reverse the rise of adverse conditions that negatively affect human health and well-being. Most of the countries of the world, and leading organizations united to meet the needs of the underprivileged. The MDGs were the first-ever global strategy with quantifiable targets. The UN Secretary-General, Kofi Annan,

established the eight Millennium Development Goals to be measured by twenty-one targets (Lomazzi et al., 2014).

The MDGs brought the world together to work towards achieving these goals. Some countries met most of the MDG targets, whereas others were not even close. The UN's Sustainable Development Goals (SDGs) or the 2030 Agenda are based on the success of the Millennium Development Goals.

The Brundtland Commission defines sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The SDGs are based on Millennium Development Goals’ success. According to Mensah (2019), the SDGs were founded on the success of the MDGs, and they are steered by the principles of sustainability: People (social), Planet (environment), and Profits (economic). The social aspect ensures that all people have equal access to medical care, sanitation, housing, and food. The environmental aspect ensures environmental conservation and care for our planet. The economic aspect of sustainability ensures that people have better access to education, housing, and sanitation, which will improve their standard of living (United Nations, n.d.,).

In September 2015, at the UN Sustainable Development Summit, the 2030 Agenda for sustainable development was adopted. There are 17 Sustainable Development Goals and 167 targets (United Nations, 2015). Sustainable development has three dimensions, namely, economic, social, and environmental. These dimensions are balanced by the goals and targets.

These are universal, applying to all countries around the world. Governments, organizations, businesses, schools, and people have to work together to attain these goals. By 2030 these goals and targets should have had a major impact on our planet.

This universal agenda is a plan of action for all people, their prosperity, and the planet; this plan can be attained only if there is a global partnership involving both developed and developing countries. Achieving universal peace will be one of the main ways to achieve these goals.

The key feature that distinguishes the 2030 Sustainable Development Agenda is inclusion. All societal levels from countries and their communities are included to help achieve one global goal (Philippine Statistics Authority, n.d.). It brings all nations to the same table on the same stage and sees all entities as equal stakeholders for a sustainable future.

In 2015, the UN Sustainable Development Summit was held in New York where heads of state and governments were given the opportunity to shift from policy to action. The post-2015 Agenda is a 15-year journey that puts people and the planet first. This new agenda presented strategies at national and regional levels, plus accountability tools to meet the SDGs (Griffiths et al., 2015).

According to Sarabhai (2014), developed countries have huge ecological and carbon footprints that are difficult to sustain. She says that the emphasis is now moving from solely economic development to a larger perspective that keeps the three pillars of sustainability in mind: economic, environmental, and social. In her study, she also states that policies and technological solutions are not enough to make changes. A change in behaviour and mindset needs to be looked at. Therefore, education plays a vital role in communication and creating awareness.

The Decade of Education for Sustainable Development (DESD)

The Decade of Education for Sustainable Development (DESD) was a United Nations initiative from 2005 to 2014, with the aim of integrating into education the practices, principles, and values of “Sustainable Development”. The

UN DESD's main agenda was to develop programs that meet the educational needs to make the SDGs a reality. Despite 10 years of work and 10 key findings, the DESD final report states that in many countries an inclusion of ESD into their education systems still has to take place (UNESCO, n.d.). Continued effort is needed as we still have not achieved sustainability.

Education for Sustainable Development (ESD)

Education for Sustainable Development (ESD) focuses on climate change education which empowers people with the required knowledge, skills, values, and attitudes required to become agents of change (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022). The environmental, social, and economic perspectives of ESD are interdependent (UNESCO, 2016). Respecting Earth's resources with a balance between economic and human well-being, while keeping cultures in mind is vital to meet the goals of ESD through education (Gehlawat, 2017). ESD promotes sustainability education, including for the future, citizenship, peace, gender equality, human rights, health, population, managing the protection of natural resources, and sustainable consumption (Venkataraman, 2009).

Now more than ever, schools need to encourage sustainable living. Education is one of the ways by which we can raise awareness among the youth about the SDGs and targets as well as make these lifelong learning experiences. Sustainable development can be promoted through policy instruments and education can help strengthen these instruments through developing informed engagement, agency, and empowerment. Education encourages sustainable change that lasts because it is owned by the learner and reaches both hearts and minds (Sterling, 2014). To promote ESD, it is important for teachers to have values and beliefs in education that supports understanding and participation in sustainable development goals. There are

many gaps between understanding the sustainable development goals and actually teaching those (Wals & Kieft, 2010).

ESD promotes holistic and transformational education, assisting all students in making informed choices and acting for the present and future generation. This education, of learning by actual practice, innovation, studying content and outcomes, uses an entire-school approach to interact with local communities to attain sustainable lifestyles (Leicht et al., 2018).

Schools are unable to change society on their own. They need the support of the 60,000,000 teachers and these teachers need to be fully engaged to make a difference. All the Ministries of Education, despite the challenges they face, are encouraged to develop plans of action with schools and Teacher Education Institutions (Davis et al., 2008).

It is important to integrate ESD into existing curricula as it helps all stakeholders to develop the skills to protect our environment. This will also help students be better equipped to face social and environmental challenges. In their international research project, (Laurie et al., 2016) concluded that teaching and learning reshape primary and secondary education in all contexts when sustainability is part of the curriculum. They also emphasized that to encourage and maintain sustainable societies, ESD pedagogies play an important role in the curriculum. ESD is based on principles, values and an interdisciplinary approach (Curren, 2009). This involves learning to do, learning to know, learning to be, learning to live together, and being able to connect classroom learning with the outside world. (Rodrigues, 2021). All this will encourage intercultural dialogue, learning, and reflexivity among learners.

The International Baccalaureate Primary Years Programme

The curriculum framework for sustainability is not merely acquiring knowledge and skills. It needs to have a wholeness about it that motivates students to take sustainability beyond the classroom (Australian Government, The Department of the Environment, Water, Heritage and the Arts, 2010). The International Baccalaureate Primary Years Programme (IB PYP) was introduced in 1997 by the International Baccalaureate Organization (IBO). It emphasizes the balance between what the traditional subjects learned in the classroom and the acquisition of knowledge and skills that can be taken out into the real world (International Baccalaureate, 2009). Through a concept-driven inquiry and transdisciplinary programme of inquiry, the learners can make connections with life outside school (International Baccalaureate, 2009).

The IB PYP has changed and evolved through the years, trying to keep up with the ever-changing world. The three pillars of the curriculum are the learner, learning and teaching and the learning community. The curriculum framework is transformational and aims to encourage international-mindedness and an understanding of a shared responsibility of the planet (International Baccalaureate Organization, n.d.).

The IB's mission is to create a better and peaceful world by developing inquiring, knowledgeable, and caring people (The International Baccalaureate, n.d.). The organization, together with schools, governments, and international organizations, encourages students to become active, compassionate, and lifelong learners. It aims to make young learners understand that people with differences can also be right (The International Baccalaureate, n.d.). The IBO, headquartered in Switzerland, is a non-profit organization. It promotes four educational programmes,

namely the Primary Years Programme (PYP) for children aged 3 - 12 years, the Middle Years Programme (MYP) for older children aged 11 - 16, the Diploma Programme (DP) and the Career-related Programme (CP) for students aged 16 - 19 years of age. These programmes foster problem-solving skills and critical thinking based on diversity, international-mindedness, and curiosity. Students are thus encouraged to become active and compassionate lifelong learners.

Problem

A Chichewa proverb says: “M’mera mpoyamba”, which, when translated means, catch them while young (Kainja, 2020, para. 1). It throws light on the fact that the first few years of a child’s life are very important and the early experiences have a long-lasting impact on the child’s later years.

Culture and experiences play an important role in a child’s growth and development. Children of the same age have different cognitive skills due to their culture, experiences, and school experiences (Gauvain et al., 2011). Young learners are like sponges and can easily relate to the real world. In his book, *All I Really Need to Know I Learned in Kindergarten*, (Fulgham, 1986) points out that in kindergarten he learned to share, follow rules, not hit, put things back where they belong, apologize, not take others’ things, wash hands before and after eating, flush the toilet after use, sing, dance, do art, hold each other’s hands and so on.

The architect of Japan’s modernization, Arinori Mori, realized way back in 1885 that the best way for Japan to move from being a third-class nation to a first-class nation, was by laying the foundations of elementary education. Elementary school students are easily able to construct relationships between their lives and what is going on in their immediate environment. Children understand at their own level, and this is very different from the understanding of an adult. This does not mean that

they don't understand at all. Interaction and communication between adults and children have a major impact on the child's perceptions. These perceptions will definitely change when they interact with another adult (Pramling Samuelsson, 2011).

The IB PYP is for children between the ages of 3-12 years, and it was first offered in 1997. The IB PYP is well-known for developing a love for learning and helping children develop the necessary skills to face real-world problems. According to the PYP, sustainability projects are the ideal learning tools that help teachers and students to link knowledge, skills, inquiry, and action (The International Baccalaureate, 2018). Do international curricula frameworks for elementary school support the learning and achievement of the SDGs? Are we setting the stone for lifelong learners who cater to sustainability? The IB PYP has the potential for promoting sustainability. However, it is unclear how thoroughly it does this. This paper focuses on the IB PYP and its alignment with the SDGs.

Purpose

The purpose of this qualitative study is to explore the written International Baccalaureate Primary Years Programme (IB PYP) guides and to see if these guides align with the United Nations (UN) 17 Sustainable Development Goals (SDGs). This exploration was conducted through conceptual content analysis methodology using the MAXQDA Plus 2022 software.

Research Questions

1. How do the written International Baccalaureate Primary Years Programme guides align with the 17 Sustainable Development Goals?

2. What is the potential impact of the alignment of the International Baccalaureate Primary Years Programme guides with the 17 Sustainable Development Goals on ESD?

Significance

The proposed study on the teaching of Sustainable Development Goals in elementary school is an important one, as the best time to impart these goals is to start when children are young. The UN SDGs need to be implemented to ensure the health of our planet (United Nations Environment Programme, n.d.). At the elementary level, like all other levels, a teacher has a major impact on students. This relationship between teacher and student encourages a change in mindset and lifestyle, which in turn will result in a meaningful change in our world. According to UNESCO, sustainability is a long-term target and sustainable development is the different actions that need to be followed to attain sustainability. The interconnected, four dimensions of sustainability are society, environment, culture, and economy (Sustainable Development, n.d.).

ESD should have a whole school approach and not just be separate entities in elementary and high school. It should be embedded in the curriculum and all the learning materials. Curricula should be constantly updated, to ensure that they are based on recent research and studies. Multi-, inter-, and transdisciplinary approaches should be encouraged and developed. (November & Gothenburg, 2008)

Gondwe (2017), a Strategic Policy Advisor at Nuffic in the Netherlands wrote in his blog post that teachers play a vital role in encouraging international-mindedness in their students. They are responsible for enhancing the young and ensuring their students have the right learning experiences to bring in an awareness of the world around them

Since its inception, it has been noted that education will play a vital role in the exertion of the SDGs (McKeown, 2002). As the SDGs are a global agenda, students with an international education may be more willing to help focus on the challenges the world faces today with a new mindset of possibilities (Dobson & Edersheim, 2021). To promote environmental protection and conservation, social equity, and economic stability, we need ESD. Goal 4 related to Quality Education has ED as target 4.7, which establishes the fact that ESD is required to meet the other 16 SDGs (Leicht et al., 2018).

Definition of Key Terms

Sustainable development: According to (United Nations, n.d), "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (para. 1).

Education for Sustainable Development (ESD): "Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future" (UNESCO, 2014. p. 33).

Sustainable Development Goals (SDGs): "The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity" (The United Nations Development Programme (UNDP), n.d., para. 1).

International Baccalaureate Primary Years Programme (IB PYP): The IB PYP programme is for children aged 3-12 years. It helps make children participate actively in their journey of learning. The curriculum framework is inquiry-based and transdisciplinary. The approach is student-centred and helps build conceptual understanding (The International Baccalaureate (IB), n.d.). The IB PYP

has gained recognition worldwide and according to The International Baccalaureate (n.d.):

The PYP has evolved to become a world leader in future-focused education.

The PYP is an example of best educational practice globally, responding to the challenges and opportunities facing young students in our rapidly changing world. (para. 2)

Lines of inquiry: IB PYP is divided into six transdisciplinary themes, with a unit covering the theme. According to (Udon Thani International School, n.d.),

Each unit will contain three or four lines of inquiry. The lines of inquiry clarify the central idea and define the scope of the inquiry. These contributing aspects of the central idea extend the inquiry, give focus to students' research, and deepen students' understanding. Connections are made, as appropriate, between the lines of inquiry as well as with the central idea. (para. 4)

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

Global poverty, gender equality, climate change are some of the challenges that youngsters need to be conscious of. Along with being aware of these challenges, attention needs to be given on “how” they learn about these and what experiences have an impact on their attitude and actions. An analytic mind and approach is needed for teachers and students. “It is essential that learners have access to education, evidenced information and “real” news that enable them to engage with, consider and understand global issues” (OXFAM, 2019, p. 5).

The main aim of this research is to examine two International Baccalaureate Primary Years Programme (IB PYP) guides and to find any indicators of the Sustainable Development Goals (SDGs). Each of the 17 SDGs has a few targets and each target has between 1 and 4 indicators. These indicators help track the progress made towards achieving the goals. The SDGs were established in 2015 (The United Nations Development Programme (UNDP), n.d.) and are a new concept and need of the hour. The primary aim of the SDGs is to help tackle the challenges related to the environment, politics, and economics that we face today.

There are common problems all over the world that need immediate attention. At the UN Decade of Education for Sustainable Development, in 2005, a lot of emphases was given to the link between good quality education and Education for Sustainable Development (ESD). Education for Sustainable Development is one of the key instruments to achieving the SDGs. and quality education is vital to be able to meet these goals. Quality education is education that helps promote being a

responsible citizen by inculcating the necessary values and attitudes and has a holistic approach that helps enhance emotional and creative skills (UNESCO, 2014). Individuals need the knowledge, skills, values, and attitudes to become sustainability change-makers. This chapter includes studies done on Sustainable Development Goals (SDGs) and the PYP framework review.

Sustainable Development

The first world conference on the environment was held in Stockholm in 1972 and it was here that the idea of sustainable development was introduced. A declaration and action plan for environmental conservation under the slogan “Only One Earth” was brought out. As stated by the United Nations website (United Nations, n.d.), the Stockholm Declaration contained 26 principles and marked environmental issues as an international concern. This conference motivated developing countries to discuss the relationship between the well-being of people and pollution of the oceans, water, and air and economic growth. According to Klarin (2018), “many years after the Stockholm conference the terms such as development and environment, development without destruction and development in accordance with the environment were used more frequently” (p.73).

Sustainable development was first important in forest management where measures were taken toward harvesting and afforestation. Klarin (2018) found that the term was mentioned in the Nature Conservation and National Resources Strategy of the International Union for Conservation in Nature published in 1980. Initially, the term sustainable development was used for ecological conservation. Very soon it involved social and economic aspects of conservation too.

The World Commission on Environment and Development (WCED) held in 1987, published the report *Our Common Future*. This report, also known as the

Brundtland Report, was the culmination of a 900-day project that made the term ‘sustainable development’ popular (see Table 1). According to the World Commission on Environment and Development (1987), the Brundtland Commission report defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (p. 16). From the definition, it can be seen that we need to make informed choices so that resources that we have access to now are also available to future generations to come. Some interest groups find this definition to be very ambiguous Cayley (2012).

Table 1

The Brundtland Report and the Issues Covered in the Report (The World Commission on Environment and Development, 1987, pp.. 5-7)

Chapters	The Issues Covered in the Report
Chapter 1	“Threatened future: poverty, growth, economic crisis etc.” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 2	“Towards Sustainable Development: sustainable development concept, quality of growth, meeting essential human needs...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 3	“International Economy: trade, finance, sustainable world economy...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 4	“Population and Human Resources: environment and development...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 5	“Food Security: soil resources, chemicals, forests, deserts...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 6	“Species and Ecosystem: extinction, causes of extinction...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 7	“Energy: energy, economy, environment...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 8	“Industry: industry impact...” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 9	“Urban Challenge: cities, urban challenges etc.” (The World Commission on Environment and Development, 1987, pp. 5-7).
Chapter 10	Managing the Commons: oceans, space, Antarctica, etc (The World Commission on Environment and Development, 1987, pp. 5-7).

Table 1 (cont'd)

The Brundtland Report and the Issues Covered in the Report (The World Commission on Environment and Development, 1987, pp.. 5-7)

Chapters	The Issues Covered in the Report
Chapter 11	“Peace, Security, Development and Environment: environmental stress...” (The World Commission on Environment and Development, 1987, pp.. 5-7).
Chapter 12	“Common Action: international cooperation, rights...” (The World Commission on Environment and Development, 1987, pp. 5-7).

From the report, it can be seen that development has been primarily defined as economic growth. Cayley (2012) brings to our attention the fact that the report is too vast and too vague for any major changes to take place. However, the report must be commended as it laid the foundation and brought a lot of awareness about the need for a sustainable lifestyle.

Other researchers have provided insights into defining sustainable development. Costanza & Patten (1995) bring to our notice that the definition is not very clear about interrelations between time and space, and it does not help us understand if the actual complications are due to prediction or description. Appleton (2006) argues that the needs are mainly centered on human beings, and it should also take biodiversity into consideration. He questions how the needs will be ‘qualified and quantified’ and what needs to be sustained and developed.

Keeping in mind the three pillars of sustainable development, Piontek (2005) defines sustainable development as “a lasting improvement in the quality of life of present and future generations through the formation of appropriate proportions between three types of capital: economic, human and natural” (pp.. 69-100). Bienia et al., 2009 further defines Piontek’s definition by using three 3Ps: planet, people and profit. If we look at the order these words are placed, we can see that the

environment is the most important part of sustainability and profit is at the end. The emphasis is more on the planet than on profit. Bienia also states Piontek's definition emphasizes the fact that the improved quality of life is for the current and future generations. In this definition too, it can be seen that sustainable development is for present and future generations.

Despite these efforts to define and explain what sustainable development is and entails, the United Nations General Assembly (2011) points out there is still a rift between what is on paper and what is actually carried on with regards to sustainable development. The reasons for this are public unawareness, no change in attitudes or lifestyle, restricted access to finances, and not enough scope for technical, human and institutional capacity.

Our understanding of the concept of sustainable development is progressing. Scientific technologies and knowledge have assisted in highlighting effective indicators such as planetary boundaries, ecological footprint, and other measures of human impact on the planet. (Miyazawa, 2012). Therefore, there is a need to ensure the definition of sustainability taking these factors into consideration.

A study by The Board on Sustainable Development of the U.S. National Academy of Sciences sought to clarify the vagueness of the definition. The earlier literature laid emphasis on economic development and now there was the importance given to human development. The board identified three categories under 'what is to be sustained' - nature, life support systems, and community (Kates et al., 2005).

In June 2012 the Rio+20 World Summit was held in Rio de Janeiro. This summit played a significant role in taking sustainable development to a new level. It was at this summit that the declaration "The future we want to have" was adopted

and the process to develop the 17 Sustainable Development Goals (SDGs) started (Bienia et al., 2009).

Sustainable Development Goals (SDGs)

In June 1992 the Earth Summit, also known as The United Nations Conference on Environment and Development (UNCED), was held in Rio de Janeiro. It was here that Agenda 21 was adopted by more than 179 countries (United Nations, n.d.). Agenda 21 is a plan of action to cover every area of human action that has an impact on the environment. Agenda 21 is to be taken up at the global, national and local level by the UN, governments and major groups around the world.

One of the desired outcomes of Agenda 21 was to decide on indicators of the SDGs. These indicators would help decision makers, at different levels, to ensure the SDGs were on track and the goals were being met. In the year 2006, the final set of 96 indicators and subsets of 50 core indicators were completed by developed and developing countries and major international organizations (United Nations, n.d.).

In September 2015, at the UN headquarters, the 2030 Sustainability Agenda Summit was held. The main objectives of this summit were threefold – by 2030 fight inequality, tackle climate change and end poverty (Leite, 2022). It was here that the document “Transforming Our World: The 2030 Agenda for Sustainable Development” was adopted and the 17 Sustainable Development Goals (SDGs), along with the 169 targets, were brought about (United Nations, 2010). The targets helped to shed light on the intended effect of each goal.

Ban Ki-Moon, the eighth secretary-general of the United Nations stressed the fact that the 17 SDGs cover every aspect of our lives (see Table 2). At the GRIPS Forum, he emphasized that there are at least five SDGs related to the environment and four to economic growth. He accentuated the fact that goal 16, which is about

peace and justice, is a political one and this goal needs a lot of serious discussions (United Nations Department of Economic and Social Affairs, n.d.,)

Table 2

Overview of the 17 Sustainable Development Goals (United Nations, n.d., pp. 14-28)

Goal	What the Goal Covers
“1 No Poverty” (United Nations, n.d., pp. 14-28).	“Eliminate poverty in all its forms...” (United Nations, n.d., pp. 14-28).
“2 Zero Hunger” (United Nations, n.d., pp. 14-28).	“Eliminate hunger, achieve food security...” (United Nations, n.d., pp. 14-28).
“3 Good Health...” (United Nations, n.d., pp. 14-28).	“Ensure a healthy life and promote...” (United Nations, n.d., pp. 14-28).
“4 Quality Educ...” (United Nations, n.d., pp. 14-28).	“Ensure inclusive and quality education, as well as promote...” (United Nations, n.d., pp. 14-28).
“5 Gender Equ...” (United Nations, n.d., pp. 14-28).	“Achieve gender equality and empower women and girls” (United Nations, n.d., pp. 14-28).
“6 Clean Water...” (United Nations, n.d., pp. 14-28).	“Ensure water availability for all people...” (United Nations, n.d., pp. 14-28).
“7 Affordable...” (United Nations, n.d., pp. 14-28).	“Provide access for all to stable, sustainable and modern” (United Nations, n.d., pp. 14-28).
“8 Decent Work...” (United Nations, n.d., pp. 14-28).	“Promote durable, inclusive and sustainable economic growth...” (United Nations, n.d., pp. 14-28).
“9 Industry...” (United Nations, n.d., pp. 14-28).	“Build resilient infrastructure, promote inclusive...” (United Nations, n.d., pp. 14-28).
“10 Reduced Ine...” (United Nations, n.d., pp. 14-28).	“Reduce inequalities...” (United Nations, n.d., pp. 14-28).
“11 Sustainable...” (United Nations, n.d., pp. 14-28).	“Make cities and human settlements inclusive, safe, resilient and sustainable” (United Nations, n.d., pp. 14-28).
“12 Responsible...” (United Nations, n.d., pp. 14-28).	“Ensure sustainable consumption and production patterns” (United Nations, n.d., pp. 14-28).
“13 Climate...” (United Nations, n.d., pp. 14-28).	“Take urgent action to combat climate change and its consequences” (United Nations, n.d., pp. 14-28).
“14 Life Below...” (United Nations, n.d., pp. 14-28).	“Protect the seas and oceans and use their resources sustainably” (United Nations, n.d., pp. 14-28).

Table 2 (cont'd)

Overview of the 17 Sustainable Development Goals (United Nations, n.d., pp. 14-28)

Goal	What the Goal Covers
“15 Life on Land” (United Nations, n.d., pp. 14-28).	“Protect, restore and promote sustainable use of terrestrial ecosystems, manage forests sustainably, combat desertification...” (United Nations, n.d., pp. 14-28).
“16 Peace, Justi...” (United Nations, n.d., pp. 14-28).	“Promote peaceful and inclusive societies conducive to sustainable development; ensure access to justice for...” (United Nations, n.d., pp. 14-28).
“17 Partnerships...” (United Nations, n.d., pp. 14-28).	“Strengthen the implementation of Goals and renew the global partnership...” (United Nations, n.d., pp. 14-28).

Dimensions of Agenda 30

Agenda 30 revolves around five key dimensions. These are people, prosperity, planet, partnership, and peace. The five dimensions are logical and stabilize the dimensions of sustainable development namely the economic, social, and environmental (“Transforming Our World: The 2030 Agenda for Sustainable Development,” 2018). According to (United Nations, n.d.,) the priorities of the five dimensions are:

- People: to make certain and end poverty in all its forms and all humans live with dignity and equality in a healthy environment
- Planet: to ensure our planet is protected by sustainable consumption and production, taking action against climate change and using our natural resources sustainably
- Prosperity: to ensure economic and social progress takes place, with sustainability in mind, for all humans.
- Peace: to ensure all communities live in peace and harmony as there is no sustainable development without peace and no peace without sustainable development

- Partnership: to ensure the global partnership between all stakeholders work towards the development of the most vulnerable and poor (paras. 3-7).

The key feature that differentiates the 2030 Sustainable Development Agenda is inclusion. It includes countries, communities, and societies at all levels as part of one global goal. It brings all nations to the same table on the same stage and sees all entities as equal stakeholders for a sustainable future.

Education for Sustainable Development (ESD)

The United Nations Decade of Education for Sustainable Development (UNDESD) (2005-2014) was accepted at the World Summit of Sustainable Development in 2002, in Johannesburg. The United Nations Educational, Scientific and Cultural Organization (UNESCO) was assigned as the lead agency. According to UNESCO (n.d), the universal goal of UNDESD was to:

Integrate the principles, values and practices of sustainable development into all aspects of education and learning. This educational effort encouraged changes in behavior that created a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations. (para. 2)

Education for sustainable development (ESD) is learning that amplifies sustainability. It includes education for citizenship, a culture of peace, gender equality and respect for human rights, health, population, and sustainable consumption and production, combined with cultural traditions and respect for natural resources, it brings parity between human and economic well-being (Wals & Kieft, 2010).

ESD promotes holistic and transformational education, assisting all students in making informed choices and acting for the present generation, and for generations yet to come. This education, of learning by actual practice, innovation, studying content and outcomes, uses an entire-school approach to interact with communities in achieving sustainable change (Leicht et al., 2018).

There are 3 SDGs that are related to education (see Table 3). SDG 4 Quality Education has ten targets and eleven indicators. One of its targets is to achieve universal literacy and numeracy. SDG 12 Responsible Consumption and Production has eleven targets and thirteen indicators. SDG 13 Climate Action has 5 targets and 7 indicators. There are 169 targets, and the actual total number of individual indicators is 230, since 9 of the indicators appear under 2 or 3 targets (United Nations, 2016).

Table 3

SDG, Targets, and Indicators Related to Education (United Nations, n.d., pp. 6-17)

Goal	Target	Indicator
“4: Ensure inclusive and equitable quality education and promote...” (United Nations, n.d., pp. 6-17).	“4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution...” (United Nations, n.d., pp. 6-17).	“4.7.1: The extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in (a) national education policies; (b) curricula;...” (United Nations, n.d., pp. 6-17).
“12: Ensure sustainable consumption and production...” (United Nations, n.d., pp. 6-17).	“12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature” (United Nations, n.d., pp. 6-17).	“12.8.1: The extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education...” (United Nations, n.d., pp. 6-17).

Table 3 (cont'd)

SDG, Targets, and Indicators Related to Education (United Nations, n.d., pp. 6-17)

Goal	Target	Indicator
“13: Take urgent action to combat climate change...” (United Nations, n.d., pp. 6-17).	“13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction...” (United Nations, n.d., pp. 6-17).	“13.3.1: Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary...” (United Nations, n.d., pp. 6-17).

ESD should keep in mind the ever-changing developments and reforms in education. To implement ESD we need the support of governments, academic and scientific communities, NGOs, teachers, the local communities, and the media (Gehlawat, 2017). Curricula should be constantly updated, so teachers are teaching based on recent research and studies. Multi-, inter-, and transdisciplinary approaches need to be encouraged and developed (Davis et al., 2008).

According to (McKeown, 2002) ESD does not take the same form around the world as it implements programs that are locally relevant and appropriate to the cultural beliefs of that region. It also implements programs based on the economic and societal conditions of the local region. ESD was first described in Chapter 36 of Agenda 21. Four areas where ESD needed to strike were to improve basic education, rebuild current education to meet the sustainable development goals, improve awareness and, training.

Curricula and the ESD

Julia Heiss, a social anthropologist, and education planner, has worked with UNESCO for 20 years. She has a rich background in ESD, Education for responsible consumption and climate change. Heiss strongly believes that we need to transform our students with an education system that encourages sustainable life skill

(UNESCO, 2020). Many countries from around the world have started including sustainable development in their curricula.

Education for Sustainable Development and Cambridge Primary Curriculum

Cambridge Primary is part of Cambridge International, the only international exam board that is owned by a university, the University of Cambridge, UK (Cambridge International, n.d.). Cambridge Primary offers 10 subjects to 5-11 year olds. It provides a strong foundation that is broad and balanced. Creativity, expression, and well-being are also developed through this curriculum. The Cambridge Primary can be adapted to suit the context, culture, and school ethos. Many schools offer this along with their national curriculum or their bilingual curriculum (Cambridge International, n.d.).

The Cambridge Primary Review's final report proposed a set of new aims that align with the 21st century. One of the aims 'promoting interdependence and sustainability' focuses on children having a sustainable relationship with the natural world and helping them move from understanding to action (Bourn et al., 2016). Another aim 'empowering local, national and global citizenship' emphasized on children's understanding of human rights, conflict resolution, and social justice. They should understand that human interdependence depends on citizenship at the local, national and global levels (Bourn et al., 2016). (Bourn et al., 2016).

According to Oxfam (2019), all the national curricula in the UK should enable educators to provide learning experiences about local and global issues. SDGs can help develop knowledge and skills related to current situations and challenges the world faces, and equip youngsters to face these in the 21st century.

Education for Sustainable Development and the NCERT

The National Council of Education Research and Training (NCERT) was set up in 1961 by the Government of India. Some of the objectives of this were to conduct research in school education at the state and national level, to provide pre-service and in-service training for teachers, and to be a nodal agency for achieving the goals of the Universalization of Elementary Education. The NCERT also works with foreign organizations to help train people in the education sector, especially from developing countries (NCERT, n.d.).

Founded in 2020, India's new education policy called National Education Policy (NEP) revolves around sustainable development, specifically laying emphasis on Education for Sustainable Development and Target 4.7. The NEP has milestones set out for 2022, 2025, and 2030. The Union Budget 2021 had allocated for 15,000 schools to implement the NEP plans and eventually these schools can mentor other schools (Harit & Thara, 2021).

National Institution for Transforming India (NITI Aayog) is a non-statutory and non-constitutional body that released the second edition of the SDGs India Index. One of the objectives of this index is to monitor the progress made by India's states and Union Territories towards achieving the SDGs (Sustainable Development, 2020).

ESD and Ministry of National Education Program in Türkiye

The Ministry of National Education (MoNE) of Türkiye, put together a social studies curriculum taking the constructivist approach, in 2005. This new curriculum gave more importance to sociology, anthropology, political sciences, economics etc. This was a very good move in terms of ESD as it made it possible to teach socio-

cultural, economic and environmental sides of ESD, especially to younger children (Yalçinkaya, 2013)

MoNE is one of the institutions that offers Early Childhood Education (ECE) services to children in the age group of 36-72 months. The socio-economic domain of the ECE curriculum includes dimensions for sustainable development (Haktanır et al., 2016, p.141).

Since 1995 the Eco-Schools programme has been managed by The Environmental Education Foundation of Turkey (TÜRÇEV). The aim of the Eco-School programme is to bring awareness, to pre, elementary and middle school students, about environmental consciousness, environmental management and sustainable development (Lee et al., 2020). Studies conducted on these eco-schools in Turkey show that students are learning about the elements of ESD (Taşar, 2020). According to (Kahriman, 2016) there has been a limited number of studies related to teaching of ESD in the early years. A lot more needs to be done to train teachers to be able to understand and teach ESD to students and to be able to make a difference.

International Baccalaureate Programmes

The International Baccalaureate Organization (IBO) was founded in 1968. Over the years it has changed and evolved and is now known as the International Baccalaureate (IB). One of the salient features of the IB is that it enables immigrant families to continue with a curriculum framework that does not change from country to country. The IB (International Baccalaureate, n.d.) empowers learners to be independent, wherein they charter their own learning path and become confident

individuals. It also encourages teachers to design the learning experiences with colleagues and this benefits not just the local but also the global community.

The IB offers four programmes for children between the ages of 3 to 19 (IB, n.d). According to (International Baccalaureate, 2009), “the aim of all IB programmes is to develop international-minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world” (p. 5). IB learners tend to develop attitudes that encourage them to be inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk takers, balanced and reflective (IB, 2009).

The Diploma Programme (DP) and the Career-related Programme (CP) are offered to learners aged 16-19 years. The DP encourages an inquiring mindset and gets learners ready for a career ahead. The CP is a combination of academics and career interests. The Middle Years Programme (MYP) is offered to learners aged between 11-16 years. The MYP encourages learners to manage their own learning and to be able to make connections between their learning and the outside world. The Primary Years Programme (PYP) is for students aged 3-12 years. One of the key differences between the programmes is that the DP, CP, and MYP are interdisciplinary and multidisciplinary in nature, and the PYP framework is transdisciplinary in nature.

International Baccalaureate Primary Years Program (IB PYP)

The IB PYP was introduced in 1997 and as of 3 September 2019 there are 1782 schools offering the PYP, around the world (IB, n.d). The PYP provides a curriculum framework that encourages international mindedness in its learners. According to (IB, n.d.,) the framework encourages the three pillars of school life namely the learner (what is learning?), learning and teaching (how best to support

learners?), and the learning community (who facilitates learning and teaching?). The curriculum framework is divided into 6 transdisciplinary themes (IB, 2009):

- Who we are
- Where we are in place and time
- How we express ourselves
- How the world works
- “How we organize ourselves”
- How the world works

These transdisciplinary themes encourage students to think beyond the classroom and relate what they learn to the outside world. They are not bound by subjects, and this helps them realize that they can make a significant difference in the wider world. Another distinguishing feature in the PYP is that concepts are taught under ‘units of inquiry’ and each unit is grade specific and organized under one transdisciplinary theme. For example (IB, 2009), the focal point of the transdisciplinary theme “Sharing the planet” is how to share the planet’s finite resources, in a responsible manner with other living things, equal opportunities for all, and live with peace and harmony. Each line of inquiry has a central idea that is grade specific. One of the central ideas of this theme could be “Plants need special conditions to survive and stay healthy”. PYP expects schools and teachers to center other subjects under the umbrella of the central ideas and be interconnected with the lines of inquiry of that particular unit.

Agency, self-efficacy, and actions are the fundamentals of the IB PYP curriculum framework. This means that throughout the programme a learner is an agent for their own and others’ learning. Action is central to student agency, and this encourages international mindedness and the responsibilities that come with it. This

encourages them to appreciate working in groups and have a common purpose and goal (IB, n.d.).

International Baccalaureate Programmes and Education for Sustainable Development

The Intergovernmental Conference on Environment Education was first held at Tbilisi in October 1977. At this conference it was agreed that in order to solve the environmental problems a holistic approach must be taken. The problems that ESD is trying to solve should be familiar to the learners. This means it must be in context, either in their homes, communities or nation. Formal and non-formal education play key roles in imparting ESD (UNESCO, 1978). At this conference it was recommended that since sustainability is a global issue all countries have to work together to face these challenges. This also means that ESD must take on an international approach (UNESCO, 1978).

A PYP school in Jakarta did a review of their curriculum to see how the SDGs are incorporated in their Programme of Inquiry. The class teachers, and single-subject teachers from the primary years were involved in the review. The result was that all the 17 SDGs were part of their written curriculum. They had to ensure that it was also a part of their taught curriculum (Langit-Dursin, 2018).

In their SDG 12 curriculum pilot project (Crawford & Montague, 2017) worked with the IB PYP curriculum model. They observed that with every segment taught their students' understanding, knowledge, and skills, to become better consumers was growing. The project aimed to make their students work towards a just, sustainable, and healthy world. However, on the flip side, using the framework to align the concepts, content, and processes, and to try to carry out the other units of inquiry, they were unable to keep up with their grade level's schedule.

The IB MYP encourages critical thinking based on acquiring knowledge through interdisciplinary concepts. Along with this, traditional subjects are taught which are essential to better understand the concept of sustainability (Wals, 2012). For example, science can help students relate chemicals and contamination of oceans and rivers. History can help students understand the relationship between humans and their environment (Ortega & Taboada, 2018).

Looking from graduates' perspective Taylor & Porath (2006) state that the IB has an upper hand in international education with a proven history of success. They have a favorable chance of bringing ESD into their curriculum. According to (Ortega & Taboada, 2018) the IB education along with other green networks like the eco schools, will have a better perspective for our global environment. The IB gives birth to a community that has an international perspective and are concerned with the issues related to humanity. The IB could turn out to be an important part of ESD.

Conclusion

For ESD to have a lasting impact there needs to be an attitude of lifelong learning and the early years is the best time to begin this process. One of the biggest challenges of education is to ensure that educators have access to the necessary guidance to make progress in the field of sustainability and to be able to change leaning process to encourage this. This will also help change curricula that encourages sustainability. To ensure this all the stakeholders have to come to the same table, and have rich, and meaningful dialogues with each other and take advantage of the experience they all bring with them. Education plays a key role in helping society change attitudes, and shift mindsets towards sustainable living. The PYP curriculum has been chosen for this study as it is an international curriculum, offered in state, private and international schools, in over 109 countries (International

Baccalaureate, n.d.). It is widespread and can have a very positive impact on the worldwide community.



CHAPTER 3: METHOD

Introduction

The purpose of this study was to explore the *PYP Learning and Teaching Guide* and *PYP Developing a Transdisciplinary Programme of Inquiry* and look for the indicators of the 17 Sustainable Development Goals (SDGs). This study also analyzes how the 17 SDGs are incorporated in the International Baccalaureate Primary Years Programme (IB PYP). This study was carried out to address the following research questions:

1. How do the written International Baccalaureate Primary Years Programme guides align with the 17 Sustainable Development Goals?
2. What is the potential impact of the alignment of the International Baccalaureate Primary Years Programme guides with the 17 Sustainable Development Goals on ESD?

Research Design

A qualitative research approach was used to answer the research questions of this study. Hammarberg et al., (2016) describe qualitative research as a method that includes “analysis of texts and documents”, such as government reports, media articles, websites, or diaries, to learn about distributed or private knowledge. Qualitative research occurs in a natural setting and is a holistic approach that involves discovery (Creswell, 2014, p. 234).

Qualitative research typically involves an analysis of words. These words are usually transcribed from an interview, but they can also be already existing words like those found in a document. The focus in this method is not just “what” people think but also “why” they think in a particular way (Busetto et al., 2020). Qualitative

research is inductive. There is no predefined hypothesis in this method. Reasoning begins with an observation and not an assumption. Qualitative research is used in this study as it helps study the curriculum framework in-depth and also helps to steer and revise the research as and when new information surfaces.

In this study, content analysis is used as the method to analyze the data. Allen (2017) defines content analysis as a “qualitative process for analyzing communicative messages that follow a specific process” (p. 243-245). Leedy and Ormrod (2016) define content analysis as “a detailed and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases” (p. 275). This method identifies specific content from human communications, both verbal and visual including books, newspapers, and films.

There are two types of content analysis: conceptual and relational analysis. In this study conceptual analysis was used. According to Wilson (2011), conceptual analysis is looking for concepts in a text and the content is coded for certain words, concepts, or themes where the researcher concludes based on the patterns that transpire. In his paper, Furner (2004) states that:

Conceptual analysis is a technique that treats concepts as classes of objects, events, properties, or relationships. The goal in using conceptual analysis as a method of inquiry into a given field of interest is to improve our understanding of the ways in which particular concepts are (or could be) used for communicating ideas about that field. (p. 233)

It is important to point out that the current study uses content analysis on specified documents (*PYP Learning and Teaching guide and PYP Developing a Transdisciplinary Programme of Inquiry*). According to Bowen (2009), document analysis is an organized method of analyzing documents, both printed and

electronically. From the definitions, it can be seen that there is a very subtle difference between content analysis and document analysis. Document analysis examines only written documents whereas content analysis examines all platforms where words appear. Therefore, for clarity the current study the researcher will use the term document analysis.

Context

The United Nations Sustainable Development Goals (UN SDGs), also known as Global Goals, form the context of this study. The documents *PYP Learning and Teaching Guide* and *PYP Developing a Transdisciplinary Programme of Inquiry* were analyzed for the 17 Sustainable Development Goals (SDGs), the 169 targets, and the indicators.

The *PYP Learning and Teaching* guide helps make the connections between learning and teaching. The PYP inquiry-based learning supports the transdisciplinary learning (International Baccalaureate, 2018). This guide helps understand the transdisciplinary approach, throws light on approaches to teaching, approaches to learning, and helps reflect and take action at local and global levels (International Baccalaureate, 2018). It also throws light on the 4 dimensions of assessment. It was first published in October 2018 and updated in December 2018.

The *PYP Developing a Transdisciplinary Programme of Inquiry* is a guide for schools that want to develop a transdisciplinary programme of inquiry or who want to update and enhance their existing one (International Baccalaureate, 2012). The IB Programme standards and practices (IB, 2010) states that a programme of inquiry helps learners be more aware of the culture and belief systems of different peoples and countries. This guide also helps a schools check if there is a balance between the programme of inquiry and the single-subjects the school offers to

students (International Baccalaureate, 2012). This guide helps understand the six transdisciplinary themes and how learning can be made relevant, engaging, and challenging. It also has a lot of examples that help schools and teachers understand how to develop a programme of inquiry. This was published in February 2012.

Method of Data Collection and Analysis

The method of data analysis used, for the purpose of this study, was document analysis. For the entire analysis the documents were coded using the MAXQDA 2022 software. The two PYP guides were uploaded into the software, in the document system section. The 17 goals and 169 targets, which were the codes, were manually entered into the code system section.

The five steps that were followed were (Srivastava & Thomson, 2009):

1. Familiarization - The first step involved getting familiar with the data collected and looking for themes. This step helped get better knowledge of the content being used. The preliminary codes linked to the data were thought about and notes were made so that it could be used at a later stage. A printed copy of the data to be analyzed (TBA) was taken. Keeping the SDGs in mind the key themes were noted down.
2. Identifying a thematic framework - Identifying a thematic framework happened only after familiarization with the data to be analyzed. I looked for themes related to the SDGs, with an open-mind, and no prior assumptions. According to (Ritchie and Spencer, 1994) at this stage the framework is tentative and there are chances of it changing through the analysis. They state, "It involves making judgments about meaning, about the relevance and importance of issues, and about implicit connections between ideas. In applied social policy research, it also involves making sure that the original

research questions are being fully addressed” (Ritchie and Spencer, 1994, p.180).

3. Indexing - At the third stage of analysis indexing of the data was done, wherein the data was indexed to themes in a process called qualitative coding. Before beginning to code the framework components were linked to the data. The data is divided into manageable sections and code these into themes and sub-themes. A qualitative data analysis tool was used for this stage.
4. Charting - This step involves charting and summarizing the findings from the previous step. The data was arranged in an identifiable order before the data was interpreted. A matrix was used to help summarize the findings. At this stage the data is placed in charts with headings and subheadings. The data is still identifiable as they are placed in an order that can be easily interpreted.
5. Mapping and interpretation - In this step the findings from the previous steps make more sense and the larger picture could be seen. By using the charts concepts could be designed, the range and nature could be mapped, typologies were created and relationships were found.

The phrases and words were implicit in nature and this required some form of interpretation throughout the analysis. A dictionary was referred to on a number of occasions. The researcher started with a predefined set of themes and codes. Through the analysis and coding process there was flexibility to add or delete codes so that new and important information could be analyzed for a better result.

The text was coded as the same when they appeared in various forms. The coding rules were decided in a logical way. For example, careful consideration was given to the word ‘report’ as a verb and ‘report’ as a noun.

Coding was done to look for the existence of a theme and not for the frequency of a theme's existence in the documents. The codes related to the SDGs were prevalent in both the documents analyzed. From the examples provided in both the guides words were coded to the SDGs (as shown in Table 4).

Table 4

Example of Coding of Words from the Guides to the SDGs

SDGs	PYP Guides	
	Developing a Transdisciplinary Programme of Inquiry	PYP Learning and Teaching
“SDG 3 Good...” (United Nations, n.d., pp. 14-28).	health	mental health
“SDG 13 Climate...” (United Nations, n.d., pp. 14-28).	safety	spiritual health
“SDG 14 Life...” (United Nations, n.d., pp. 14-28).	climate-related hazards	human experiences
		impact on environment
	marine ecosystems	share finite resources
	coastal ecosystems	living things
	consequence of imbalances	

Words that suggested the same concept were coded under the same theme.

For example ‘living things’ and ‘marine pollution’ were coded under SDG 14 Life Below Water. ‘Living things’ were coded under SDG 14 Life Below Water and SDG 15 Life on Land.

Careful consideration was taken into account when setting up rules for coding the documents. Irrelevant information and common words in English like ‘and’, ‘but’, ‘that’ were ignored.

Validity and Reliability

According to (Jhangiani & Chiang, 2015) the assessment of reliability and validity is an ongoing process. Reliability refers to the consistency of a measure. There are three kinds of consistency. Consistency over time is called test-retest reliability, consistency across items is called internal consistency, and consistency

across different researchers is called inter-rater reliability. When the scores from a measure represent the variable they are meant to, it is called validity (Jhangiani & Chiang, 2015).

According to Mohamad et al., (2015) validity in qualitative research is the appropriateness of a tool or technique which includes data collection and validation. When the researcher must prove that the process and results have the similar results, it is called reliability in qualitative research (Thakur & Chetty, 2020).

Intercoder reliability is the magnitude to which independent coders evaluate a characteristic of a message or artefact and arrive at the same conclusion (Lombard et al., 2002). Although intercoder reliability is very crucial for a content analysis it does not ensure validity. To measure the validity and reliability, a section of the analyzed documents and the SDGs under the dimension of People was given to a colleague. The same codes and software were used. Their results were used to compare with the results of the researcher. The percentage agreement was 70%. After discussions, a similar agreement and conclusion were reached.

CHAPTER 4: RESULTS

Introduction

The purpose of this study was to explore the PYP programme guides and to analyze how the 17 SDGs are aligned with the PYP written guides. Another purpose of this study was to analyze impact of the alignment of the International Baccalaureate Primary Years Programme guides with the 17 Sustainable Development Goals on ESD. The SDGs are significant as they provide guidance to solve global problems and protect our planet at an international level (Sengupta & Rodriguez, 2021).

Overall Analysis of the Documents

Document analysis was carried out on the two PYP documents looking for phrases and words related to each of the SDGs and their targets. For example, Goal 4, which is Quality Education, has ten targets (as seen in Table 5). With “Who we are” as a theme it can be seen that the targets of SDG 4 can be facilitated to the learners.

Table 5

SDG 4 Quality Education and Targets (Rosa, 2017, pp.. 529-540)

Goal 4	Targets
“Quality Education” (Rosa, 2017, pp.. 529-540)	“4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and...” (Rosa, 2017, pp. 529-540).
	“4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so...” (Rosa, 2017, pp. 529-540).
	“4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university” (Rosa, 2017, pp. 529-540).

Table 5 (cont'd)*SDG 4 Quality Education and Targets (Rosa, 2017, pp.. 529-540)*

Goal 4	Targets
	“4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs...” (Rosa, 2017, pp. 529-540). “4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children ...” (Rosa, 2017, pp. 529-540). “4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy...” (Rosa, 2017, pp. 529-540). “4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to...” (Rosa, 2017, pp. 529-540). “4.A Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments...” (Rosa, 2017, pp. 529-540). “4.B By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed...” (Rosa, 2017, pp.. 529-540). “4.C By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states” (Rosa, 2017, pp.. 529-540).

In both the documents, the International Baccalaureate (2018) describes the transdisciplinary theme “Who we are” as:

An inquiry into the nature of the self; beliefs and values; personal, physical, mental, social and spiritual health; human relationships, including families, friends, communities and cultures; rights and responsibilities; what it means to be human. (p. 11).

All the SDGs related to People can be covered with different Lines of Inquiries, depending on the age of the students, under the same theme. From the Sample programme of inquiry (2008) for ages 11-12, the Central idea is “Personal well-being is dependent on a complex balance of interconnected factors.” The key concepts are change, responsibility and the related concepts are growth, relationships. The Lines of inquiry are:

- The concept of well-being
- Factors that contribute to well-being (physical, mental, social and spiritual)
- Personal issues affecting our well-being (International Baccalaureate, 2012, p. 26).

Sustainable Development Goals

The 17 SDGs and the percentage of coded segments for each goal, in both the documents, can be seen in Table 6. The SDGs with the highest coded segments, in the two analyzed documents, were SDG 12 Responsible Consumption and Production (9.59% and 12.43%), SDG 11 Sustainable Cities and Communities (10.96% and 10.73%), and followed by SDG 15 Life on Land (6.85% and 14.12%).

The SDGs with the least coded segments, in the two analyzed documents, were SDG 17 Partnership for the Goals (1.69% and 2.74%), SDG 7 Affordable and Clean Energy (3.95% and 2.74%), followed by SDG 10 Reduced Inequalities (3.95% and 2.74%).

Table 6*SDGs and the Percentage of Coded Segments from the Analyzed Documents*

Goal	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
“1. No Poverty” (United Nations, n.d., pp. 14-28).	8.22 %	5.08 %
“2. Zero...” (United Nations, n.d., pp. 14-28).	4.11 %	3.39 %
“3. Good Health and Well-Being” (United Nations, n.d., pp. 14-28).	5.48 %	3.95 %
“4. Quality...” (United Nations, n.d., pp. 14-28).	4.11 %	3.95 %
“5. Gender...” (United Nations, n.d., pp. 14-28).	4.11 %	4.52 %
“6. Clean...” (United Nations, n.d., pp. 14-28).	6.85 %	5.08 %
“7. Affordable and Clean Energy” (United Nations, n.d., pp. 14-28).	2.74 %	3.95 %
“8. Decent Work...” (United Nations, n.d., pp. 14-28).	4.11 %	3.95 %
“9. Industry, Innovation and...” (United Nations, n.d., pp. 14-28).	5.48 %	2.82 %
“10. Reduced Inequalities” (United Nations, n.d., pp. 14-28).	2.74 %	3.95 %
“11. Sustainable Cities and...” (United Nations, n.d., pp. 14-28).	10.96 %	10.73 %
“12. Responsible Consumption...” (United Nations, n.d., pp. 14-28).	9.59 %	12.43 %
“13. Climate Action” (United Nations, n.d., pp. 14-28).	8.22 %	5.65 %
“14. Life Below Water” (United Nations, n.d., pp. 14-28).	5.48 %	7.91 %
“15. Life on Land” (United Nations, n.d., pp. 14-28).	6.85 %	14.12 %
“16. Peace, Justice and Strong...” (United Nations, n.d., pp. 14-28).	8.22 %	6.78 %
“17. Partnership for the Goals” (United Nations, n.d., pp. 14-28).	2.74 %	1.69 %

SDG 1 - No Poverty

SDG 1 calls to end poverty in all its forms everywhere. This goal falls under the People dimension of the 2030 Agenda. This goal has seven targets. Two of the seven targets did not show up on either of the analyzed documents.

As seen in Table 7, the code and two sub-codes reflect in both the analyzed documents. The sub-codes represent the SDG 1 Targets 1.3 and 1.4 reflect in both the documents. Two sub-codes do not reflect in either of the documents and the rest were seen in one of the analyzed documents.

For example, the SDG 1 target 1.3 is represented in the Sample programme of inquiry (2012), under the transdisciplinary theme ““How we organize ourselves”” (International Baccalaureate, 2012, p. 22).

In the unit the Central Idea is “Government systems influence the lives of citizens” and the Line of Inquiry that caters to the teaching of this target is “How decision-making practices reflect human rights”.

The chapter on Developing a Transdisciplinary Programme, (International Baccalaureate, 2018, p. 59), explains the different transdisciplinary themes. The theme “Who we” are gives ample opportunities to bring awareness to the learners on the target 1.3 of SDG 1 No poverty.

Table 7

SDG 1 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“1.No poverty” (United Nations, n.d., pp. 19-32).	Yes	Yes	8
“1.1 By 2030, eradicate extreme...” (United Nations, n.d., pp. 19-32).	No	No	0

Table 7 (cont'd)*SDG 1 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“1.2 Reduce at least by half the ...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“1.3 Implement...” (United Nations, n.d., pp. 19-32).	Yes	Yes	2
“1.4 By 2030, ensure that...” (United Nations, n.d., pp. 19-32).	Yes	Yes	2
“1.5 By 2030, build the re...” (United Nations, n.d., pp. 19-32).	No	Yes	1
“1 a Ensure significant...” (United Nations, n.d., pp. 19-32).	No	No	0
“1 b Create sound policy...” (United Nations, n.d., pp. 19-32).	No	Yes	1

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry;

SDG 2 - Zero Hunger

The second SDG aims to end all forms of hunger by 2030. This goal falls under the People dimension of the 2030 Agenda. Of the seven sub-codes, related to this goal, three reflected in the analyzed documents. Table 8 shows that that the code “Zero hunger” and the sub-code related to target 2.4 can be seen in both the documents. Five of the sub-codes do not reflect in either of the analyzed documents.

SDG 2 target 2.4 is also represented in the Sample programme of inquiry (2012), under the transdisciplinary theme “How we organize ourselves”. This is in the document *Developing a Transdisciplinary Programme of Inquiry* (p.22). In the unit the Central Idea is “Government systems influence the lives of citizens” and the Line of Inquiry that caters to the teaching of this target is “How decision-making practices reflect human rights”.

The chapter on Developing a transdisciplinary programme, in the document *PYP Learning and Teaching* (International Baccalaureate, 2012, p. 59), explains the different transdisciplinary themes. The theme “Who we are” gives ample opportunities to bring awareness to the learners on the target 2.4 of SDG 2 Zero Hunger.

Table 8

SDG 2 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“2. Zero hunger” (United Nations, n.d., pp. 19-32).	Yes	Yes	5
“2.1 By 2030, end hunger and...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“2.2 By 2030, end all forms of...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“2.3 By 2030, double the...” (United Nations, n.d., pp. 19-32).	No	No	0
“2.4...sustainable food production...” (United Nations, n.d., pp. 19-32).	Yes	Yes	2
“2.5...maintain the genetic...” (United Nations, n.d., pp. 19-32).	No	No	0
“2 a Increased investment.....” (United Nations, n.d., pp. 19-32).	No	No	0
“2 c Correct & prevent trade.....” (United Nations, n.d., pp. 19-32).	No	No	0
“2 c...proper functioning of food.....” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry;

SDG 3 - Good Health and Well-being

The SDG on good health and well-being ensures healthy lives and promotes well-being for all at all ages. This goal falls under the People dimension of the 2030 Agenda. This goal has 13 sub-codes of which four reflect in the *PYP Developing a*

Transdisciplinary Programme of Inquiry and none of the sub-codes reflect in the document, *PYP Learning and Teaching*, as seen in Table 9. There are no common sub-codes in the analyzed documents though the primary code reflects in both.

Target 3.2 is represented under the transdisciplinary theme “Sharing the planet”, with the central idea ‘Children worldwide encounter a range of challenges, risks and opportunities (International Baccalaureate, 2012, p. 22). The Line of inquiry that helps understand this target is ‘Challenges, risks and opportunities that children encounter (local and global).

Table 9

SDG 3 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“3. Good health & well-being...” (United Nations, n.d., pp. 19-32).	Yes	Yes	7
“3.1...reduce global maternal...” (United Nations, n.d., pp. 19-32).	No	No	0
“3.2...reduce neonatal...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“3.3...end epidemics.....” (United Nations, n.d., pp. 19-32).	No	No	0
“3.4...reduce by one third.....” (United Nations, n.d., pp. 19-32).	No	No	0
“3.5 Strengthen the prevention...” (United Nations, n.d., pp. 19-32).	No	No	0
“3.6...halve the number of global deaths...” (United Nations, n.d., pp. 19- 32).	Yes	No	1
“3.7...ensure universal access to sexual.....” (United Nations, n.d., pp. 19-32).	No	No	0

Table 9 (cont'd)*SDG 3 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“3.8 Achieve universal...” (United Nations, n.d., pp. 19-32).	No	No	0
“3.9...reduce the number...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“3 a...tobacco control.....” (United Nations, n.d., pp. 19-32).	No	No	0
“3 b Support the...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“3 c Substantially increase...” (United Nations, n.d., pp. 19-32).	No	No	0
“3 d Strengthen the.....” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 4 - Quality Education

SDG 4 focuses on quality education for all. This goal falls under the People dimension of the 2030 Agenda. There are ten sub-codes and only the primary goal reflected in both the analyzed documents (see Table 10). Three of the sub-goals reflected in the document *PYP Developing a Transdisciplinary Programme of Inquiry*. These goals are related to the Target 4.1, Target 4.2 and Target 4.7. Seven sub-codes did not reflect in either of the analyzed documents.

Target 4.7 is represented under the transdisciplinary theme “Sharing the planet”, with the central idea ‘People can make choices to support the sustainability of the Earth’s resources (International Baccalaureate, 2012, p. 21). The Lines of inquiry that helps understand this target are:

- Earth’s finite and infinite resources
- The impact of people’s choices on the environment

- The balance between meeting human needs and the use of limited resources

Table 10*SDG 4 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“4. Quality education...” (United Nations, n.d., pp. 19-32).	Yes	Yes	7
“4.1...all girls and boys complete free, equitable...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“4.2...ensure that all girls and boys have access to ...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“4.3...ensure equal access for all women and men...” (United Nations, n.d., pp. 19-32).	No	No	0
“4.4...substantially increase...” (United Nations, n.d., pp. 19-32).	No	No	0
“4.5...eliminate gender disparities in education...” (United Nations, n.d., pp. 19-32).	No	No	0
“4.6...all youth and...” (United Nations, n.d., pp. 19-32).	No	No	0
“4.7...ensure all learners...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“4 a...build and upgrade education facilities...” (United Nations, n.d., pp. 19-32).	No	No	0
“4 b...expand globally...” (United Nations, n.d., pp. 19-32).	No	No	0
“4 c...increase the supply...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 5 - Gender Equality

The SDG on Gender Equality focuses on achieving gender equality and empowering all women and girls. This goal falls under the People dimension of the

2030 Agenda and has six sub-codes. The primary code reflected in both the analyzed documents. Four sub-codes reflected in one of the analyzed documents as seen in Table 11. These sub-codes relate to the Target 5.1, Target 5.2, Target 5.6 and Target 5A. Five of the sub-codes did not reflect in either of the analyzed documents.

Target 5A is represented under the transdisciplinary theme “Sharing the planet”, with the central idea ‘Distribution of wealth affects communities and individuals’ access to equal opportunities ((International Baccalaureate, 2012, p. 21). The Line of inquiry that helps understand this target is ‘Equitable access to resources and opportunities’.

Table 11

SDG 5 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“5. Gender equality...” (United Nations, n.d., pp. 19-32).	Yes	Yes	7
“5.1 End all forms...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“5.2 Eliminate all forms of viole...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“5.3 Eliminate all harmful...” (United Nations, n.d., pp. 19-32).	No	No	0
“5.4 Recognize and value...” (United Nations, n.d., pp. 19-32).	No	No	0
“5.5 Ensure women’s full and effective ...” (United Nations, n.d., pp. 19-32).	No	No	0
“5.6 Ensure universal access...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“5 a Undertake reforms to give women...” (United Nations, n.d., pp. 19-32).	Yes	No	1

Table 11 (cont'd)*SDG 5 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“5 b Enhance the use of enabling...” (United Nations, n.d., pp. 19-32).	No	No	0
“5 c Adopt and strengthen...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 6 - Clean Water and Sanitation

The SDG ‘Clean Water and Sanitation’ ensures access to water and sanitation for all. This goal comes under the dimension ‘Planet’ of the 2030 Agenda. There were eight sub-codes related to the targets. The primary goal and two of the sub-goals reflected in both the analyzed documents. The targets related to the two sub-goals are 6.5 and 6.2. Six of the sub-goals did not reflect on either of the documents as can be seen in Table 12. The transdisciplinary theme “How the world works” gives ample opportunities to impart the importance of SDG 6 which ensures access to water and sanitation for all.

Table 12*SDG 6 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“6. Clean water...” (United Nations, n.d., pp. 19-32).	Yes	Yes	8
“6.1...achieve universal...” (United Nations, n.d., pp. 19-32).	No	No	0
“6.2...access to adequate ...” (United Nations, n.d., pp. 19-32).	No	No	0
“6.3...improve water...” (United Nations, n.d., pp. 19-32).	No	No	0

Table 12 (cont'd)*SDG 6 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“6.4...Increase water-use...” (United Nations, n.d., pp. 19-32).	No	No	0
“6.5...implement...” (United Nations, n.d., pp. 19-32).	Yes	Yes	3
“6.6...protect & restore...” (United Nations, n.d., pp. 19-32).	Yes	Yes	3
“6 a...water and sanitation.....” (United Nations, n.d., pp. 19-32).	No	No	0
“6 b Support and strengthen...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 7 - Affordable and Clean Energy

The SDG on affordable and clean energy ensures access to affordable, reliable, sustainable and modern energy. There are five sub-codes related to the targets. The primary code reflected on both the analyzed documents. Of the five sub-codes only two reflected in the document *PYP Developing a Transdisciplinary Programme of Inquiry*. These are related to the targets 7.3 and 7B. Three of the sub-codes did not reflect on either of the analyzed documents, as shown in Table 13. The transdisciplinary theme “Sharing the planet” gives ample opportunities to ensure learners understand the SDG that ensures access to affordable, reliable, sustainable and modern energy.

Table 13*SDG 7 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“7. Affordable and clean energy...” (United Nations, n.d., pp. 19-32).	Yes	Yes	7
“7.1...universal access to affordable...” (United Nations, n.d., pp. 19-32).	No	No	0
“7.2...increase share of renewable...” (United Nations, n.d., pp. 19-32).	No	No	0
“7.3...double the global...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“7 A...access to clean energy research...” (United Nations, n.d., pp. 19-32).	No	No	0
“7 b...supplying modern & sustainable energy...” (United Nations, n.d., pp. 19-32).	Yes	No	1

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 8 - Decent Work and Economic Growth

The focus of this goal is to promote inclusive and sustainable economic growth, employment and decent work for all. This goal has 12 sub-codes. Only the primary code reflected in both the documents analyzed. The sub-code related to the targets 8.8 reflected in the document *PYP Developing a Transdisciplinary Programme of Inquiry*. As shown in Table 14, none of the other sub-codes reflected in either of the documents.

The transdisciplinary theme ‘How we organise ourselves’ gives ample opportunities to bring awareness of SDG 8. This theme mainly involves interconnectedness of human-made systems and communities (International Baccalaureate, 2012, p. 20).

Table 14*SDG 8 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“8. Decent work and economic...” (United Nations, n.d., pp. 19-32).	Yes	Yes	9
“8.1 Sustain per capita economic growth...” (United Nations, n.d., pp. 19- 32).	No	No	0
“8.2 Achieve higher levels...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.3 Promote development-oriented...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.4 Improve progressively...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.5...full & productive employment...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.6...reduce the proportion...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.7 Take immediate and effective...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.8 Protect labour rights...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“8.9...devise and implement...” (United Nations, n.d., pp. 19-32).	No	No	0
“8.10 Strengthen capacity of...” (United Nations, n.d., pp. 19-32).	No	No	0
“8 a Increase aid for trade support...” (United Nations, n.d., pp. 19-32).	No	No	0
“8 b...global strategy for youth employment...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 9 - Industry, Innovation and Infrastructure

The focus of this goal is to build resilient infrastructure, promote sustainable industrialization and foster innovation. Only the primary code reflects in both of the analyzed documents. None of the sub-codes are seen in either of the documents, as seen in Table 15.

The primary code represents the SDG on industry innovation and infrastructure and learners are made aware of this through the transdisciplinary theme “How we organize ourselves”. This is seen as an example with the central idea ‘People create organisations to solve problems and support human endeavor and enterprise (International Baccalaureate, 2012, p. 15)

Table 15

SDG 9 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“9. Industry, innovation & infrastructure” (United Nations, n.d., pp. 19-32).	Yes	Yes	9
“9.1...trans-border infrastructure...” (United Nations, n.d., pp. 19-32).	No	No	0
“9.2 Promote inclusive & sustainable...” (United Nations, n.d., pp. 19-32).	No	No	0
“9.3 Increase the access of...” (United Nations, n.d., pp. 19-32).	No	No	0
“9.4...upgrade infrastructure & retrofit industries...” (United Nations, n.d., pp. 19- 32).	No	No	0
“9.5 Enhance scientific research...” (United Nations, n.d., pp. 19-32).	No	No	0
“9 a...sustainable & resilient infrastructure...” (United Nations, n.d., pp. 19-32).	No	No	0
“9 b Support domestic...” (United Nations, n.d., pp. 19-32).	No	No	0

Table 15 (cont'd)*SDG 9 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“9 c...access to information...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 10 - Reduced Inequalities

The goal Reduced Inequalities focuses on reducing inequalities within and among countries. This comes under the ‘Prosperity’ dimension of Agenda 2030. This goal has one primary code and ten sub-codes. As shown in Table 16, the primary code reflects in both the analyzed documents and two sub-codes each reflect once in the PYP *Developing a Transdisciplinary Programme of Inquiry*. The two sub-codes that reflect are linked to target 10.2 and 10.7. Eight of the sub-codes do not reflect in either of the documents.

Learners are made aware of the SDG on Reduced Inequalities by virtue of the transdisciplinary theme ‘How we organise ourselves’. This is seen in the example with the central idea ‘Government systems influence the lives of citizens’. The lines of inquiry ‘impact of government on citizens’ and ‘the rights and responsibilities of citizenship’ aid in raising awareness about this goal (International Baccalaureate, 2012, p. 16).

Table 16*SDG 10 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“10. Reduced inequalities (United Nations, n.d., pp. 19-32).	Yes	Yes	7

Table 16 (cont'd)*SDG 10 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“10.1...progressively achieve and sustain...” (United Nations, n.d., pp. 19-32).	No	No	0
“10.2...promote the social, economic and political...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“10.3 Ensure equal opportunity...” (United Nations, n.d., pp. 19-32).	No	No	0
“10.4 Adopt policies to...” (United Nations, n.d., pp. 19-32).	No	No	0
“10.5 Improve the regulations...” (United Nations, n.d., pp. 19-32).	No	No	0
“10.6...enhanced representation...” (United Nations, n.d., pp. 19-32).	No	No	0
“10.7 Facilitate orderly and...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“10 a... special & differential treatment...” (United Nations, n.d., pp. 19-32).	No	No	0
“10 b Encourage official development assistance...” (United Nations, n.d., pp. 19-32).	No	No	0
“10 c Reduce to less than...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 11 - Sustainable Cities and Communities

The focal point of the goal on Sustainable Cities and Communities is to make cities inclusive, safe, resilient and sustainable. As shown in Table 17, this goal has one primary code and nine sub-codes. Only the primary code reflected in both the analyzed documents. Five of the sub-codes reflected in the analyzed documents and

four did not reflect in either. The four sub-codes that did not reflect at all are associated with targets 11.3, 11.4, 11 A and 11 C.

Target 11.1 is represented under the transdisciplinary theme “How we organize ourselves”, with the central idea ‘Communities make efforts to create transportation systems that meet their needs (International Baccalaureate, 2012, p. 20). The Line of inquiry that helps understand this target is ‘Decisions involved in using transportation’.

Table 17

SDG 11 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“11. Sustainable cities...” (United Nations, n.d., pp. 19-32)	Yes	Yes	19
“11.1...sustainable housing...” (United Nations, n.d., pp. 19-32).	Yes	No	3
“11.2...enhance sustainable...” (United Nations, n.d., pp. 19-32).	Yes	No	2
“11.3....world's cultural and ...” (United Nations, n.d., pp. 19-32).	No	No	0
“11.4...reduce the number of deaths...” (United Nations, n.d., pp. 19-32).	No	No	0
“11.5...adverse per capita...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“11.6 Provide universal access...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“11 a Support positive...” (United Nations, n.d., pp. 19-32).	No	No	0
“11 b...increase the number of cities...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“11 c Support least developed...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 12 - Responsible Consumption and Production

Responsible Consumption and Productions is the SDG that ensures sustainable consumption and production patterns. This goal has 12 sub-codes as seen in Table 18. This goal had one of the highest numbers of codes reflecting in the analyzed documents. Of the 12 sub-codes, only four did not reflect in either of the documents. The other eight were seen in the *PYP Developing a Transdisciplinary Programme of Inquiry*.

Target 12.2 is represented under the transdisciplinary theme “Sharing the planet”, with the central idea “People can make choices to support the sustainability of the Earth’s resources” (International Baccalaureate, 2012, p. 21). The Lines of inquiry that helps understand this target are “The impact of people’s choices on the environment” and “The balance between meeting human needs and the use of limited resources”.

Table 18

SDG 12 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“12. Responsible consumption and...” (United Nations, n.d., pp. 19-32).	Yes	Yes	17
“12.1 Implement the 10-Year fram...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“12.2...sustainable management...” (United Nations, n.d., pp. 19-32).	Yes	No	3
“12.3...global food waste...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“12.4...environmentally sound management...” (United Nations, n.d., pp. 19-32).	No	No	0
“12.5...reduce waste generation...” (United Nations, n.d., pp. 19-32).	Yes	No	1

Table 18 (cont'd)*SDG 12 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“12.6 Encourage companies...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“12.7 Promote public procurement practices...” (United Nations, n.d., pp. 19-32).	No	No	0
“12.8...lifestyles in harmony with nature...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“12 a...move towards more sustainable...” (United Nations, n.d., pp. 19-32).	Yes	No	4
“12 b...sustainable tourism...” (United Nations, n.d., pp. 19-32).	No	No	0
“12 c...fossil-fuel subsidies...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry;

SDG 13 - Climate Action

The SDG on Climate Action focuses on taking urgent action to combat climate change and its impacts. This goal has a primary code and five sub-codes, as shown in Table 19. The primary code reflects in both the analyzed documents. Three sub-codes reflect in the document *PYP Developing a Transdisciplinary Programme of Inquiry*. These sub-codes relate to the targets 13.1, 13.3 and 13 B. None of the sub-codes reflect in the analyzed document *PYP Learning & Teaching*.

The primary code represents the SDG on climate action and learners are made aware of this through the transdisciplinary theme “Sharing the planet”. This is seen as an example with the central idea ‘Biodiversity relies on maintaining the interdependent balance of organisms within systems ((International Baccalaureate, 2012, p. 22). The Lines of inquiry that help learners understand the SDG are:

- Ways in which ecosystems, biomes and environments are interdependent
- How human interaction with the environment can affect the balance of systems
- The consequences of imbalance within ecosystems

Table 19*SDG 13 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“13. Climate Action” (United Nations, n.d., pp. 19-32).	Yes	Yes	13
“13.1 Strengthen resilience...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“13.2 Integrate climate change...” (United Nations, n.d., pp. 19-32).	No	No	0
“13.3...education, awareness...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“13 a...developed-country parties...” (United Nations, n.d., pp. 19-32).	No	No	0
“13 b...effective climate change...” (United Nations, n.d., pp. 19-32).	Yes	No	1

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 14 - Life Below Water

Life Below Water is an SDG that has one primary code and 10 sub-codes.

The primary code reflects in both the analyzed documents, as seen in Table 20.

Seven of the sub-codes reflect in the document *PYP Developing a Transdisciplinary Programme of Inquiry*. The three sub-codes that do not reflect in either of the analyzed documents represent the targets 14.7, 14 B and 14 C. The main focus of this goal is to conserve and sustainably use the oceans, seas and marine resources.

Life below water is the fourteenth SDG. Learners are made aware of this goal through the transdisciplinary theme “Sharing the planet”. This is seen as an example

with the central idea “Biodiversity relies on maintaining the interdependent balance of organisms within systems” (International Baccalaureate, 2012, p. 22). The Lines of inquiry that help learners understand the SDG are “Ways in which ecosystems, biomes and environments are interdependent” and “Consequences of imbalance within ecosystems”.

Table 20

SDG 14 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“14. Life Below Water” (United Nations, n.d., pp. 19-32).	Yes	Yes	11
“14.1...reduce marine pollution...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.2...and protect marine...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.3...impacts of oceans...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.4...regulate harvesting...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.5...coastal & marine areas...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.6...certain form of fisheries...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14.7...small island developing States...” (United Nations, n.d., pp. 19-32).	No	No	0
“14 a...scientific knowledge...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“14 B...small-scale artisinal...” (United Nations, n.d., pp. 19-32).	No	No	0
“14 c...conservation & sustainable...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 15 - Life on Land

The SDG Life on Land ensures the sustainable management of forests, combats desertification, halts and reverses land degradation and halts biodiversity loss. This goal has one primary code and 12 sub-codes (see Table 21). The primary codes reflected on both the analyzed documents. The three sub-codes that did not reflect in either of the analyzed documents represent the targets 15.6, 15.8 and 15 A. Seven sub-codes are reflected in the document *PYP Developing a Transdisciplinary Programme of Inquiry*.

The SDG and its targets “Life on Land” is represented in the transdisciplinary theme “Sharing the planet” and the central idea “When interacting with natural habitats, humans make choices that have an impact on other living things” (International Baccalaureate, 2012, p. 21). The Lines of inquiry that support this theme and idea are:

- Balance between rights and responsibilities when interacting with natural habitats
- Human impact on natural habitats
- How living things respond to changing environmental conditions

(International Baccalaureate, 2012, p. 21). This theme and the lines of inquiry help learners understand most of the targets linked to this goal.

Table 21

SDG 15 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
15. Life on land” (United Nations, n.d., pp. 19-32).	Yes	Yes	12

Table 21 (cont'd)*SDG 15 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“15.1...conservation, restoration ...” (United Nations, n.d., pp. 19-32).	Yes	No	4
“15.2...sustainable management...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“15.3...restore degraded land and...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“15.4...conservation of mountain...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“15.5...halt the loss of biodiversity...” (United Nations, n.d., pp. 19-32).	Yes	No	5
“15.6...genetic resources...” (United Nations, n.d., pp. 19-32).	No	No	0
“15.7...poaching & trafficking...” (United Nations, n.d., pp. 19-32).	Yes	No	2
“15.8...reduce the impact of invasive...” (United Nations, n.d., pp. 19-32).	No	No	0
“15.9...integrate ecosystem...” (United Nations, n.d., pp. 19-32).	Yes	No	2
“15 a...mobilize & increase financial resources...” (United Nations, n.d., pp. 19-32).	No	No	0
“15 b...finance sustainable forest...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“15 c...efforts to combat poaching and trafficking...” (United Nations, n.d., pp. 19-32).	Yes	No	1

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 16 - Peace, Justice and Strong Institutions

The SDG on Peace, Justice, and Strong Institutions had one primary code and 12 sub-codes. As shown in Table 22, the primary code is reflected in both the analyzed documents. Four of the sub-codes are reflected in the document *PYP*

Developing a Transdisciplinary Programme of Inquiry. These codes represent the targets 16.2, 16.3, 16.10 and 16 A. Eight sub-codes do not reflect in either of the analyzed documents.

Learners are made aware of SDG 16 through the transdisciplinary theme “Sharing the planet” and the central idea “Reaching a resolution during periods or moments of conflict is influenced by the actions and reactions of all involved (International Baccalaureate, 2012, p. 22). The Line of inquiry to further enhance the understanding of this goal is ‘Strategies used to resolve conflict’.

Table 22

SDG 16 - Frequency of Codes and Sub-codes

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“16. Peace, justice & strong institutions” (United Nations, n.d., pp. 19-32).	Yes	Yes	14
“16.1...reduce all forms of violence and related...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.2 End abuse, exploitation...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“16.3...equal access to justice...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“16.4...reduce illicit financial...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.5...reduce corruption and bribery...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.6...effective, accountable and transparent...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.7...responsive, inclusive, participatory & representative...” (United Nations, n.d., pp. 19-32).	No	No	0

Table 22 (cont'd)*SDG 16 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“16.8...participation of developing countries...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.9 Legal identity for all including...” (United Nations, n.d., pp. 19-32).	No	No	0
“16.10...public access to information and protect...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“16 a...prevent violence and combat...” (United Nations, n.d., pp. 19-32).	Yes	No	1
“16 b Promote & enforce non-discriminatory laws...” (United Nations, n.d., pp. 19-32).	No	No	0

Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

SDG 17 - Partnership for the Goals

The SDG on Partnership for the Goals has 19 sub-codes and none of the sub-codes reflect in either of the analyzed documents. Partnership for the Goals reflects under the transdisciplinary theme “Where we are in place and time”. This theme ensures an inquiry into orientation in place and time; personal histories; homes and journeys; the discoveries, explorations and migrations of humankind; the relationships between and the interconnectedness of individuals and civilizations, from local and global perspectives (International Baccalaureate, 2012, p. 20). This SDG is also taught under the theme “Sharing the planet” which is an inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution (International Baccalaureate, 2012, p. 20)

Table 23*SDG 17 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“17.1 Strengthen domestic resource...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.2 Developed countries...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.3 Mobilize additional...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.4...long-term debt sustainability...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.5...investment promotion regimes...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.6...science, technology...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.7...environmentally sound technologies...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.8...technology bank and science, technology...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.9...capacity-building in developing countries...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.10 Promote a universal, rules-based, open...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.11...increase the exports of...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.12...duty-free & quota-free market access...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.13 Enhance global macroeconomic stability, including through...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.14 Enhance policy coherence for sustainable development...” (United Nations, n.d., pp. 19-32).	No	No	0

Table 23 (cont'd)*SDG 17 - Frequency of Codes and Sub-codes*

Codes & Sub-codes	In PYP DTPoI	In PYP Learning & Teaching	No. of Combined Mentions
“17.15 Respect each country's policy...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.16 Enhance the Global partnership for...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.17 Encourage and promote...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.18...enhance capacity-building...” (United Nations, n.d., pp. 19-32).	No	No	0
“17.19...develop measurements of progress on sustainable development...” (United Nations, n.d., pp. 19-32).	No	No	0

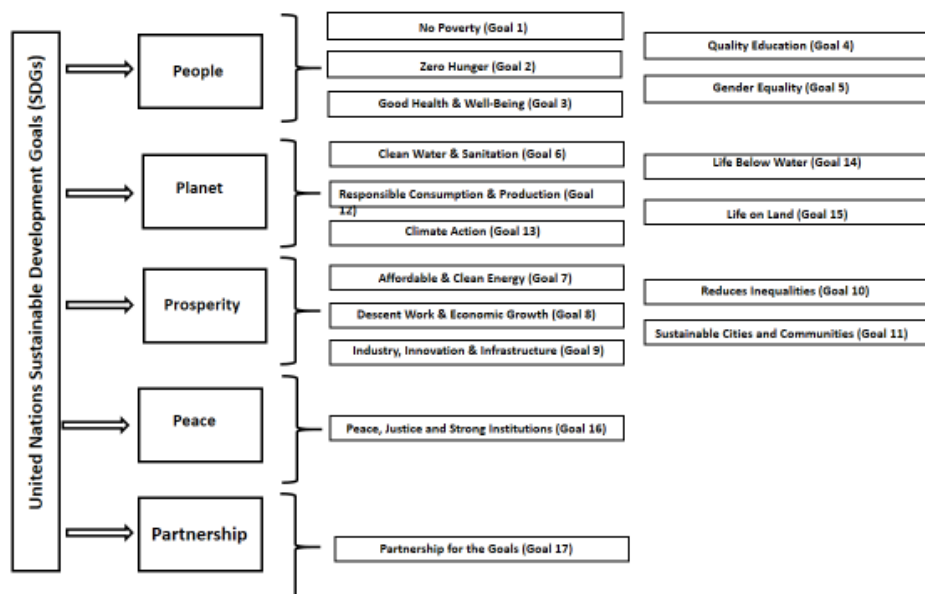
Note. PYP DTPoI = PYP Developing a Transdisciplinary Programme of Inquiry

Five Dimensions of the SDGs

Ban Ki-Moon, the eighth secretary-general of the United Nations, in his course, *Sustainable Development in the 21st Century*⁹, linked the 17 SDGs to the five dimensions (Moon, n.d.). At the core of the 2030 Agenda for Sustainable Development are the five vital dimensions of People, Planet, Prosperity, Peace and Partnership (United Nations Economic and Social Commission for Western Asia, n.d.). For ease of reference, in this study, each of the 17 SDGs was linked to one of the 5Ps, as shown in Figure 1.

Figure 1

SDGs Linked to the Five Dimensions of the 2030 Agenda for Sustainable Development



There are 5 SDGs associated with People, Planet, and Prosperity each and 1 SDG with Peace and Partnership each. Some goals are a whole complete goal and some goals are a means to meet a particular goal. For example SDG 6: Clean Water and Sanitization and SDG 7: Affordable and Clean Energy help meet SDG 3: Good Health and Well-being.

SDGs Related to People

The first of the five dimensions of the 2030 Agenda, People, has five SDGs related to it. The five goals under the dimension of People appear in both the analyzed documents (as shown in Table 24). The percentage of the coded segments from the two analyzed documents was done using the software Max QDA. The transdisciplinary theme “Who we are” envelopes all the SDGs related to the dimension of Planet.

Table 24*SDGs, Targets (People) and the Percentage of Coded Segments*

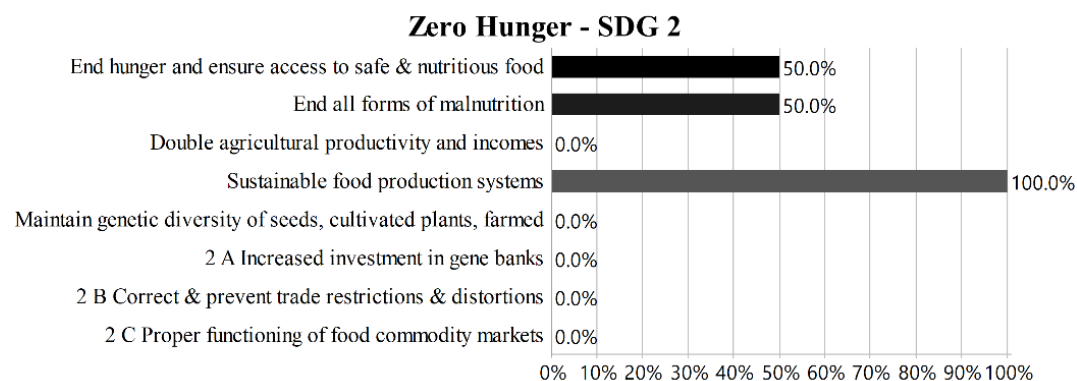
SDG	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
1. “No Poverty” (United Nations, n.d., pp. 19-32).	8.22 %	5.08 %
2. “Zero Hunger” (United Nations, n.d., pp. 19-32).	4.11 %	3.39 %
3. “Good Health and Well-Being” (United Nations, n.d., pp. 19-32).	5.48 %	3.95 %
4. “Quality Education” (United Nations, n.d., pp. 19-32).	4.11 %	3.95 %
5. “Gender Equality” (United Nations, n.d., pp. 19-32).	4.11 %	4.52 %

As an example, two goals and their targets are presented below to show which of the targets are portrayed in the analyzed documents. Figure 2 shows that target 2.4 is represented in both the documents analyzed. Target 2.2, and target 2.1 are represented in the Sample programme of inquiry (2012) in the document *Developing a Transdisciplinary Programme of Inquiry*.

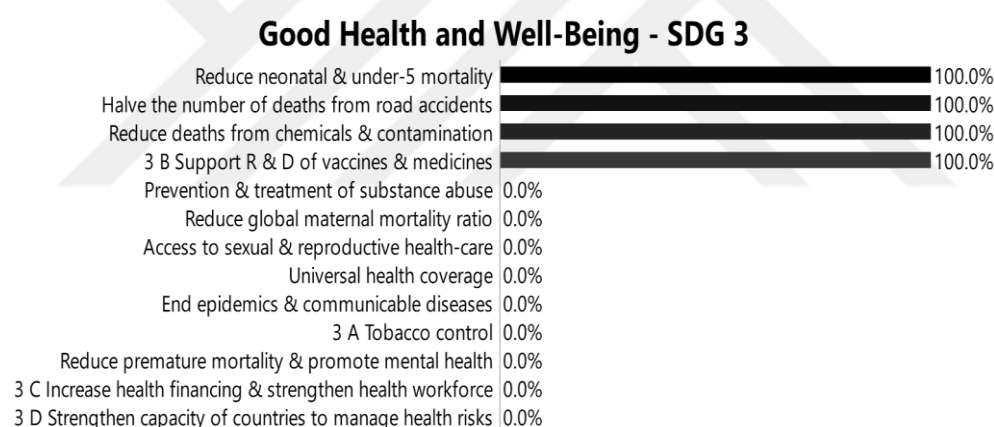
Figure 3 shows us the targets related to SDG 3 which is Good Health and Well-being. Of the 13 targets, four are represented in the analyzed document *Developing a Transdisciplinary Programme of Inquiry*. They are targets 3.2, 3.6, 3.9 and 3B.

Figure 2

Sub-code Data of SDG 2 in the Two Analyzed Documents

**Figure 3**

Sub-code Data of SDG 3 in the Two Analyzed Documents



SDGs Related to Planet

The second dimension of the 2030 Agenda, Planet, has five Sustainable Goals related to it. The percentage of coded segments of the SDGs and their targets can be seen in Table 25. The transdisciplinary theme “Sharing the planet” envelopes all the SDGs related to the dimension of Planet. This theme is present in both the documents that were analyzed. The percentage of the coded segments from the two analyzed documents was done using the software Max QDA.

Table 25

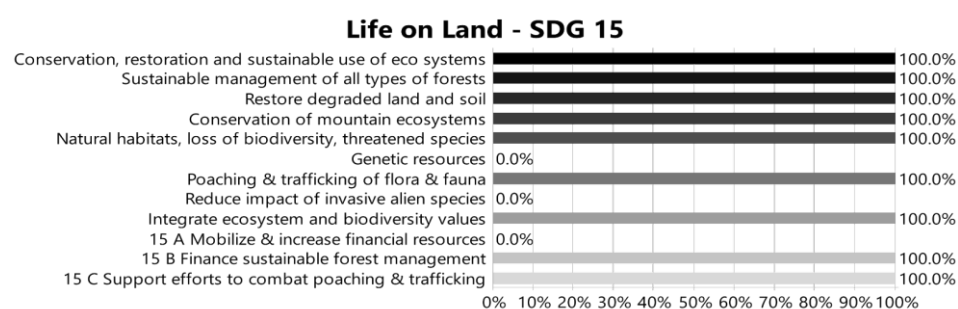
SDGs, Targets (Planet) and the Percentage of Coded Segments

SDG	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
6. “Clean Water and Sanitation” (United Nations, n.d., pp. 19-32).	6.85 %	5.08 %
12. “Responsible Consumption and Production” (United Nations, n.d., pp. 19-32).	9.59 %	12.43 %
13. “Climate Action” (United Nations, n.d., pp. 19-32).	8.22 %	5.65 %
14. “Life Below Water” (United Nations, n.d., pp. 19-32).	5.48 %	7.91 %
15. “Life on Land” (United Nations, n.d., pp. 19-32).	6.85 %	14.12 %

It was found that the sub-code occurrences for the SDGs under the dimension of Planet was very high as can be seen in Figures 4, 5 and 6.

Figure 4

Sub-code Data of SDG 15 in the Two Analyzed Documents



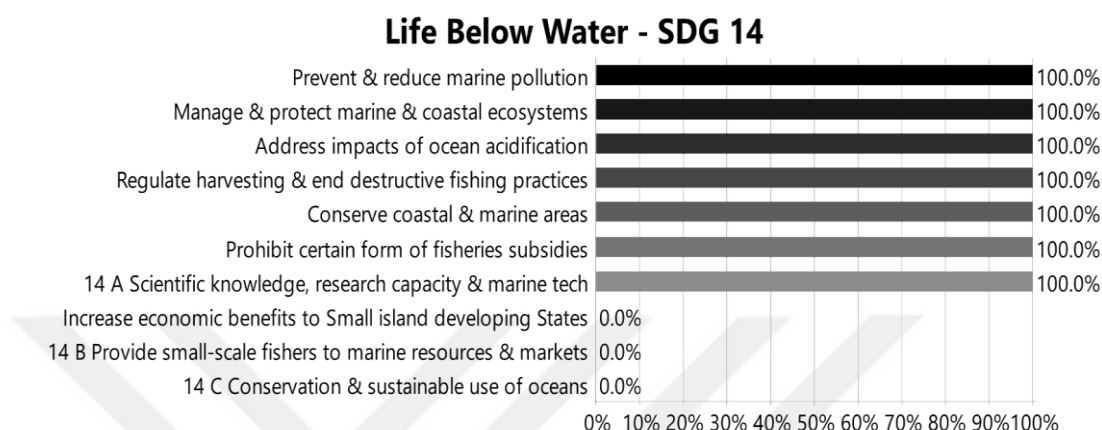
The three SDGs Life on Land, Life Below Water and Responsible Consumption and Production occurred more times than the SDGs Clean Water and Climate Action.

Three targets under SDG 15 Life on Land did not occur in either of the documents. It can be seen from Figure 4 that the targets occurred in either both the analyzed documents or in none of them. Similarly, in Figure 5 it can be seen that the

targets akin to the SDG 14 Life Below Water occurred either in both the analyzed documents or in none of them.

Figure 5

Sub-code Data of SDG 14 in the Two Analyzed Documents

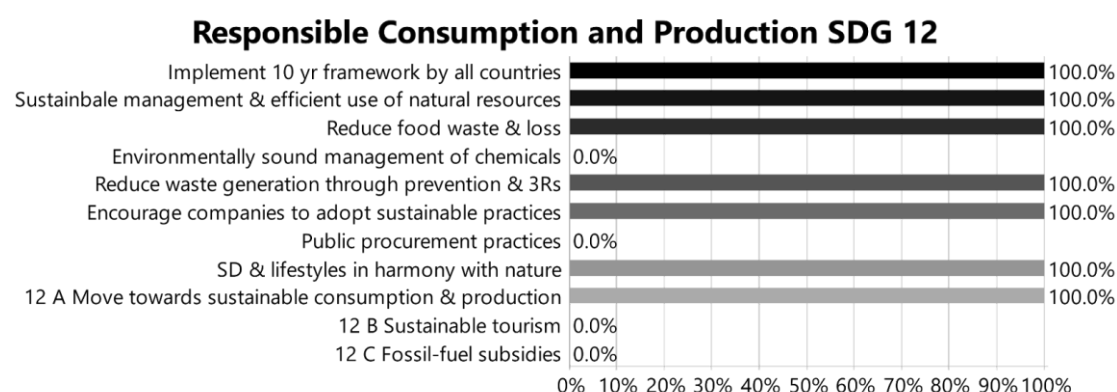


Four of the targets associated with the SDG 12 Responsible Consumption and Production did not occur in either of the documents, as shown in Figure 6. They are:

- Environmentally sound management of chemicals
- Public procurement practices
- Sustainable tourism
- Fossil-fuel subsidies

Figure 6

Sub-code Data of SDG 12 in the Two Analyzed Documents



SDGs Related to Prosperity

The third dimension of the 2030 Agenda, Prosperity, has five Sustainable Goals related to it as seen in Table 26. The percentage of the coded segments from the two analyzed documents was done using the software Max QDA. These five SDGs are covered in the transdisciplinary themes “How the world works” and “How we organize ourselves”.

Table 26

SDGs, Targets (Prosperity) and the Percentage of Coded Segments

Goal	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
7. “Affordable and Clean Energy” (United Nations, n.d., pp. 19-32).	2.74 %	3.95 %
8. “Decent Work and Economic Growth” (United Nations, n.d., pp. 19-32).	4.11 %	3.95 %
9. “Industry, Innovation and Infrastructure” (United Nations, n.d., pp. 19-32).	5.48 %	2.82 %
10. “Reduced Inequalities” (United Nations, n.d., pp. 19-32).	2.74 %	3.95 %

Table 26 (cont'd)*SDGs, Targets (Prosperity) and the Percentage of Coded Segments*

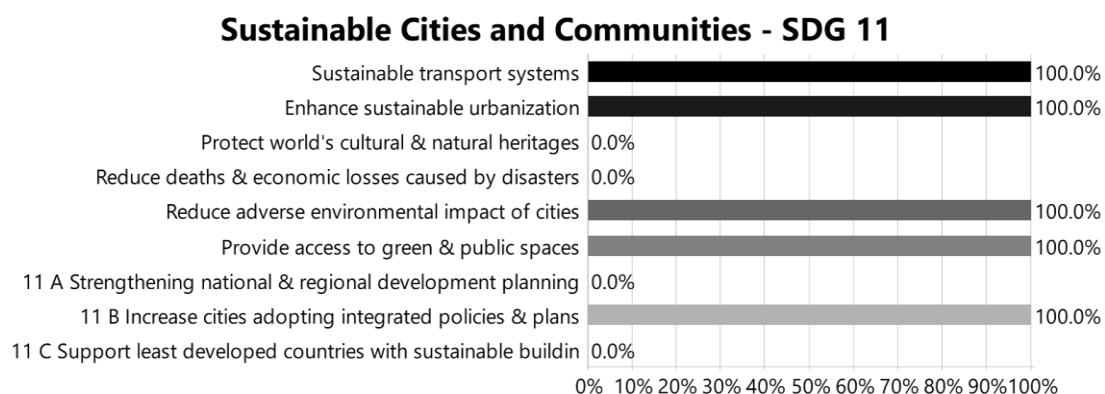
Goal	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
11. “Sustainable Cities and Communities” (United Nations, n.d., pp. 19-32).	10.96 %	10.73 %

The Sample programme of inquiry (2012), in the document, *PYP Developing a Transdisciplinary Programme of Inquiry*, has the central idea “Energy may be converted, transformed and used to support human progress” for 9-10 year olds. This comes under the transdisciplinary theme “How the world works” and has three lines of inquiry, one of which is “Different forms of energy sources (renewable and non-renewable)”. SDG 7 is covered and the target “By 2020, increase substantially the share of renewable energy in the global energy mix”, is given emphasis (International Baccalaureate, 2012, p. 22).

Among the SDGs related to Prosperity, the sub-code occurrence was highest for SDG 11 Sustainable Cities and Communities as seen in Figure 7. Four of the nine targets did not occur in any of the analyzed documents. The occurrence of the targets linked to SDG 7 Affordable and Clean Energy, SDG 8 Decent Work and Economic Growth, SDG 9 Industry, Innovation, and Infrastructure, and SDG 10 Reduced Inequalities, is limited.

Figure 7

Sub-code Data of SDG 11 in the Two Analyzed Documents



SDGs Related to Peace and Partnership

The last two of the five dimensions of the 2030 Agenda, Peace and Partnership, have two Sustainable Goals related to them as seen in Table 27. The percentage of the coded segments from the two analyzed documents was done using the software Max QDA. Each dimension has one SDG related to it. Peace, Justice and Strong Institutions, the 17th UN SDG, is covered under the transdisciplinary theme “How we organize ourselves”.

Table 27

SDGs, Targets (Peace and Partnership) and the Percentage of Coded Segments

Goal	Learning and Teaching Guide	Developing a Transdisciplinary Programme of Inquiry
16. “Peace, Justice and Strong Institutions” (United Nations, n.d., pp. 19-32).	8.22 %	6.78 %
17. “Partnership for the Goals” (United Nations, n.d., pp. 19-32).	2.74 %	1.69 %

Looking at the example in the document *Developing a Transdisciplinary Programme of Inquiry*, this theme has the central idea “Government systems

influence the lives of citizens” and the line of inquiry apt for this SDG, as mentioned in the example, is “How government systems function.” This SDG can also be covered under the transdisciplinary theme “Sharing the planet”.

The transdisciplinary theme “Where we are in place and time” covers the SDG Partnership for the Goals. The sub-code occurrence of targets linked to SDG 16 is seen in Figure 8. It shows that only four targets, out of the 12, were found in the documents analyzed.

Figure 8

Sub-code Data of SDG 16 in the Two Analyzed Documents



PYP Learning and Teaching and the Impact on ESD

The guide *PYP Learning and Teaching* emphasizes on the different elements of the PYP framework. The guide helps educators understand the importance of integrating subjects into the curriculum as students need to have the necessary skills to acquire knowledge. In this guide the emphasis on critical-thinking and transfer of knowledge, which the concepts help develop, is important. The key concepts and related concepts that the PYP harbors, is relevant across all boundaries; both geographical and cultural. These concepts also help the learners acquire the language and the thinking skills across all subject areas. Furthermore, the *PYP Learning and Teaching* aids educators to identify the characteristics to encourage a

transdisciplinary attitude. The guide encourages activities and experiences that help the learners make connections with real-life contexts.

All these elements help educators transfer knowledge of the SDGs to the learners. The relevance of the SDGs to help solve the challenges across boundaries, is relevant. The skills help acquire knowledge, values and understanding for a sustainable future, thus ensuring ESD takes place in the learning environment.

Developing a Transdisciplinary Programme of Inquiry and the Impact on ESD

One of the standards in the guide, *Developing a Transdisciplinary Programme of Inquiry*, emphasizes on the students getting the opportunities that are relevant and challenging (International Baccalaureate, 2012). Another standard emphasizes on educators making learners aware of issues that take place at the local and global level (International Baccalaureate, 2012). This guide helps schools and educators develop a programme of inquiry and also guides them on how to refine it as the programme is implemented. This programme of inquiry has 6 transdisciplinary themes which run vertically, and the age groups run horizontally.

The transdisciplinary themes relate to environmental, social and economic matters. All these impacts affect ESD outcomes and help educators encourage sustainable practices and values.

Conclusion

Each of the 17 SDGs and their 169 targets are presented in this chapter and how they reflect in the two analyzed documents. Among the five dimensions of the 2030 Agenda the dimension of Planet had the most coded segments, in the two analyzed documents and the dimension of Peace and Partnership had the least coded segments. These two dimensions have one SDG each linked to them. The two analysed guides have an impact on encouraging a sustainable attitude and ESD. The

following chapter a discussion of the major findings, implications for practice and implications for further research will be presented.



CHAPTER 5: DISCUSSION

Introduction

Education can and must lay the foundation for a sustainable future. Policy makers have realized that to overcome the critical challenges of poverty, well-being and protecting Earth's depleting resources it is important to educate, train and bring awareness to the current and future generation (Bokova, 2015). Implications for practice and further research regarding the UN SDGs are discussed, concluded with the limitations of this study.

Overview of the Study

The purpose of this study was to explore the *PYP Learning and Teaching Guide* and *PYP Developing a Transdisciplinary Programme of Inquiry* document and to identify the indicators of the Sustainable Development Goals (SDGs). Another purpose of this study was to analyze how the 17 SDGs are aligned with the PYP curriculum. Keeping the purpose in mind the study aimed to answer the research questions:

1. How do the written International Baccalaureate Primary Years Programme guides align with the 17 Sustainable Development Goals?
2. What is the potential impact of the alignment of the International Baccalaureate Primary Years Programme guides with the 17 Sustainable Development Goals on ESD?

To answer the questions, a form of document analysis called framework analysis was used to explore the two PYP programme documents. This analysis involved reading the documents thoroughly, while keeping an open mind and avoiding prior suppositions. The data for this study were words based on the 17 UN

SDGs. Using the qualitative data analysis tool, MaxQDA Plus 2022, data were divided into manageable sections and coded. The coded data were organized into tables and related to themes to present the findings with reference to the SDGs.

Discussion of Major Findings

The major findings that were gathered from this research are presented in this section, keeping in mind the two research questions. The IB PYP has a value-based approach and gives students a global perspective. This makes it easy for teachers to make students more aware of the SDGs and their targets and the importance of meeting these goals and targets. Throughout the IB PYP programme a student is an agent for their own and others' learning. Action is central to student agency, and this encourages international mindedness and the responsibilities that come with it (IB, n.d.,).

SDG 17 Partnership for the Goals, which is a very important goal, is the SDG that reflects the least number of times in the documents analyzed. Most of the targets focus on developed or wealthy nations extending support to developing countries. According to (Business Development Bank of Canada, n.d.,) a developed country has a strong economy, advanced technological infrastructure and diverse industrial sectors where the citizens have access to good health care and education. Whereas a developing country has lower gross domestic product (GDP) and a weak economy. The citizens do not have access to good health care and quality education. SDG 17 is very broad and covers a wide range of themes namely finance, technology, capacity building, trade and systemic issues.

Strengths of PYP Learning and Teaching Guide

The transdisciplinary programme of inquiry ensures that the students experience a balanced curriculum. At one level it is planned and at another level it

can be very dynamic as there is room for new ideas, directions and connections that students might experience (International Baccalaureate, 2018). The highest quality of learning can be achieved by students if they are active in their own learning.

The PYP Learning and Teaching Guide states that the transdisciplinary theme gives a lot of room to students to discuss and interpret. It encourages students to look at perspectives from both a local and global standpoint, within the school environment. This will have a personal and social significance on the learners.

One of the characteristics of the PYP framework is connecting learning and teaching. As mentioned in the *PYP Learning and Teaching* document, “The PYP framework and the transdisciplinary approach encourage and support connections across learning and teaching as a means to raise student awareness of the relevance of their learning to their reality” (International Baccalaureate, 2018).

The study presents findings that imply that practitioners of the IB PYP curriculum can impart awareness of the 17 SDGs through the Programme of Inquiry. Transdisciplinary learning further helps integrate prior knowledge to new knowledge and makes learning more meaningful. It helps broaden their understanding of the challenges the world faces. According to Beane (2011), the fountainhead of curriculum integration is a curriculum that is developed keeping in mind the current problems and issues in life. The focus of this is personal and social where social concerns are what the world faces. This helps instigate the learner’s curiosity. The *PYP Learning and Teaching* guide indicates that learning is not limited to traditional subjects alone but goes beyond them.

Limitations

The SDGs that did not reflect too many times are the ones related to concepts like economics, energy, innovation, inequalities. According to Schug (1987) children

understand the economic system better as they grow older, when their reasoning skills are more matured and better developed. There may be pedagogical reasons why these advanced topics are limited during the primary years.

Strengths of the PYP Developing a Transdisciplinary Programme of Inquiry

The document, *Developing a Transdisciplinary Programme of Inquiry* states that the programme of inquiry is a work in progress. Teachers are encouraged to have discussions with their peers on concept-based, transdisciplinary inquiry and to have collaborative planning sessions. This will improve the units of inquiry and in turn help develop the whole programme of inquiry. The example provided shows that the central ideas for the transdisciplinary theme, “Who we are”, was “Friendships enrich our lives and require nurturing in order to develop” for 4-5 year olds. With ongoing discussions and feedback the central idea was broadened four years later to “People’s relationships with each other can have an impact on well-being.” The new central idea is more open to student inquiry and encourages a wider range of responses. Teachers are essential in these learning experiences, as they are able to deliver this learning in their classrooms and the students are the most important individuals in this.

Joy de Leo’s presentation called ‘Beyond the four pillars’ mentions that the best approach to education for sustainable development is a transdisciplinary one and this approach is encouraged by UNESCO. One of the strengths of the written guide *Developing a Transdisciplinary Programme of Inquiry* is its transdisciplinary approach to learning. If schools see the importance of the SDGs they can work around the programme of inquiry and ensure that, if not all, at least some of the goals and targets are raised where suitable and age appropriate.

The study presents findings that imply that practitioners of the IB PYP curriculum can impart awareness of the 17 SDGs through the Programme of Inquiry. Transdisciplinary learning further helps integrate prior knowledge to new knowledge and makes learning more meaningful. It helps broaden their understanding of the challenges the world faces. According to (Beane, 2011), the fountainhead of curriculum integration is a curriculum that is developed keeping in mind the current problems and issues in life. The focus of this is personal and social where social concerns are what the world faces. This helps instigate the learner's curiosity. The *PYP Learning and Teaching* indicates that learning is not limited to traditional subjects alone, but goes beyond them.

Recommendations for ESD

As mentioned in the literature, there is a rift between what is on paper and what is actually carried out with regards to sustainable development. Leite (2022) suggests that the 17 SDGs can be used to redefine education for global citizenship, sustainable development and climate change. There needs to be a paradigm shift in education systems so that it focuses on the health and sustainability of people and the planet. In her article, Elliott (2021) mentions the Pan Canadian Global Competencies set by the Council of Ministers of Education, Canada (CMEC). These six competencies help students balance the ever-changing demands of life, work and learning. She throws light on the fact that to meet the SDGs educators have to use different strategies to help students be aware and practice the six competencies on different projects.

Another important fact mentioned in the literature is that ESD addresses learning content and outcomes, innovative pedagogy and 'learning by doing', and uses a whole-school approach to engage communities in achieving sustainable

change (Leicht et al., 2018). Using an example from the article written by Elliott (2021), if a school has to make their playgrounds green, they could use a local plant nursery and hardware store. This will incorporate Goal 8: Decent Work and Economic Growth; Goal 11: Sustainable Cities and Communities; and Goal 15: Life on Land. Are teachers equipped with the skills to integrate real life experiences into their everyday lessons? According to (Wals, 2012) to be able to give students new experiences and information, schools need to take steps outside their boundaries and make new connections.

For optimal efficiency, schools need to contemplate links to the outside, and therefore an enrichment in new methods, information and experiences that those connections could offer in ESD (Wals, 2012). He also suggests that there are activities that can be carried out as individuals and collectively, both inside and outside the classroom.

Education has a life-changing role in ensuring that the SDGs are met by 2030 and to help face the challenge the world is facing today. According to Educate a Child and fhi360 (2016), education not only targets SDG 4: Quality Education but also helps focus on the goals whose focal points are poverty reduction, reduced inequalities, health and nutrition, economic growth, promoting peace and democracy. Many of the development challenges that prevail today can be part of primary education.

The two documents analyzed, PYP Learning and Teaching Guide and PYP Developing a Transdisciplinary Programme of Inquiry, were published in 2018 and 2012 respectively. The UN implemented the SDG goals in 2015. Even though one of the guides was published after the SDGs it is interesting to note that the PYP guides help encourage Education for Sustainable Development.

Implications for Practice

The PYP curriculum framework does not explicitly mention the SDGs; though there are a lot of skills, values and attitudes that encourage SD. Knowledge of the SDGs, along, with these skills and attitudes, are necessary to adopt lifestyles that help face the social, economic and environmental challenges of the future. Moreover, the dimensions of the 2030 Agenda are not equally balanced across the curriculum framework. The reflection of the dimension “Partnership” is very less compared to the dimension “Planet”. There is very little scope to bring awareness about SDG 17, which is “Partnership for the Goals”. There needs to be more opportunities for all the SDGs and the five dimensions to be incorporated into the curriculum framework.

The study was carried out looking the PYP guides, which is for elementary school students. A similar study, with the MYP guides, which caters to middle school students, will help fill the gaps and cover the SDGs, and their targets, that have reflected less or not reflected at all in the PYP curriculum framework. Curriculum developers should consider the age of the learners and decide on goals and targets that are appropriate for the learners, to encourage better attitudes towards sustainability.

Implications for Further Research

This study focused on the PYP written curriculum documents. The two documents analyzed were PYP Learning and Teaching Guide and PYP Developing a Transdisciplinary Programme of Inquiry. The study looked for the UN SDGs and their targets in the analyzed documents and how the written International Baccalaureate Primary Years’ Programme help embrace the 17 sustainable development goals.

The current study can be a basis to look at the applied framework and see how PYP teachers implement the SDGs in their lessons. From their study, McGuinness et al., (2016) found that many teachers found it difficult to strew in all the elements of the PYP Transdisciplinary Framework, namely themes, concepts, skills, attitudes, learner attributes. They also found that many teachers had to come up with their own activities to implement the PYP. Some teachers were confident and some not about the methods and activities used.

An area for further research can be the practices and beliefs of teachers related to the SDGs and keeping the aims and objectives of the IB programme in mind. Another area for further research is to look at the new concept of Education for Sustainable Development Goals (ESDGs). Education for Sustainable Development progresses to achieve the UN SDGs. Thus emerges the concept of Education for Sustainable Development Goals (De Montfort University, n.d.,).

Limitations

There are some possible limitations to this study. The two documents analyzed, PYP Learning and Teaching Guide and PYP Developing a Transdisciplinary Programme of Inquiry, were published in 2018 and 2012 respectively. A lot has changed since then. One of the major causes of these changes is Covid-19. The pandemic has affected all sectors, throughout the world. According to Dorn et al., (2021), the pandemic caused a five-month delay in progression in mathematics and a four-month delay in reading. It also widened the opportunity and achievement gaps between advantaged and disadvantaged students. Therefore, the findings of this study cannot be generalized to all the PYP schools around the world. Moreover, the curriculum framework guides need to be updated post pandemic. Another limitation encountered was during the methodology of the analysis. Some of

the interpretations were subjective and could have been biased. This has limited the researcher's ability to conduct an in-depth analysis of the study.

Conclusion

Ban Ki-Moon, the eighth secretary-general of the United Nations stressed on the fact that the 17 SDGs cover every aspect of our lives. There is no correct method to teach the sustainable development goals. However, we do need an urgent shift in mindset so that there is a difference in understanding, thinking and practices. This is a crucial time for schools to practice and bring awareness about the SDGs.

The IB PYP documents show that the curriculum is a wholesome one that caters to, not only the core subjects, but also paves the path to help students become responsible and caring global citizens. Global citizenship education empowers young people with the necessary skills to make the world a sustainable place.

REFERENCES

- Allen, M. (2017). *The Sage encyclopedia of communication research methods*. SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781483381411>
- Appleton, A. F. (2006). Sustainability: A practitioner's reflection, *Technology in Society*, 28(1), 3-18.
https://econpapers.repec.org/article/eeeteinso/v_3a28_3ay_3a2006_3ai_3a1_3ap_3a3-18.htm
- Australian Government. (2010). *Sustainability curriculum framework*. Department of the Environment, Water, Heritage and the Arts.
<https://cpl.asn.au/sites/default/files/journal/Sustainability%20Curriculum-Framework.pdf>
- Beane, J. A. (2011). Curriculum integration and the disciplines of knowledge. In Sefton-Green, J, Thomson, P, Jones, K & Bresler, L (Eds.), *The Routledge international handbook of creative learning* (pp.. 193–196). Routledge.
- Bienia, B., Dykiel, M., & Bragiel, E. (2019). Sustainable development – concept, definitions. *Європейський Вектор Економічного Розвитку*, 2(27), 17–25. <https://doi.org/10.32342/2074-5362-2019-2-27-2>
- Bokova, I. (2015, May 19). *Why education is the key to sustainable development*. The World Economic Forum.
<https://www.weforum.org/agenda/2015/05/why-education-is-the-key-to-sustainable-development/>
- Bourn, D., Hunt, F., Blum, N., & Lawson, H. (2016). *Primary education for global learning and sustainability: A Report for the Cambridge Primary Review Trust*. <https://cprtrust.org.uk/wp-content/uploads/2016/02/Bourn-report-160217-final.pdf>

Bowen, G. A. (2009). Document analysis as a qualitative research method.

Qualitative Research Journal, 9(2), 27–40.

<https://doi.org/10.3316/QRJ0902027>

Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and Practice*, 2(1).

<https://doi.org/10.1186/s42466-020-00059-z>. [How to use and assess qualitative research methods | Neurological Research and Practice | Full Text \(biomedcentral.com\)](#)

Business Development Bank of Canada. (n.d.). *What is a developed country*. BDC.

<https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/templates-business-guides/glossary/developed-country>

Cambridge International. (n.d.). *What we do*. Cambridge Assessment International Education. <https://www.cambridgeinternational.org/about-us/what-we-do/>

Cayley, M. (2012). *The Brundtland report: A short critique*.

https://www.academia.edu/7757839/The_Brundtland_Report_A_Short_Critique

Costanza, R., & Patten, B. C. (1995). Defining and predicting sustainability.

Ecological Economics, 15(3), 193–196. [https://doi.org/10.1016/0921-8009\(95\)00048-8](https://doi.org/10.1016/0921-8009(95)00048-8)

Crawford, E. O., & Montague, L. (2017). Conscientious consumerism: A curriculum pilot to support the sustainable development goals. *Childhood Education*,

93(6), 480–492. <https://doi.org/10.1080/00094056.2017.1398556>

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications, Inc.

- Curren, R. (2009). Education for sustainable development: A philosophical assessment. *Impact*, (18), 1-68. <https://doi.org/10.1111/j.2048-416x.2009.tb00140.x>
- Davis, J. M., Engdahl, I., Samuelsson, I. P., & Siraj-Blatchford, J. (2008). *The Gothenburg recommendations on education for sustainable development*. https://www.researchgate.net/publication/282121662_The_Gothenburg_Recommendations_on_Education_for_Sustainable_Development
- De Montfort University. (n.d.). *Introducing ESDG – Education for the sustainable development goals at DMU*. <https://esdg.our.dmu.ac.uk/about/introducing-esdg/>
- Dobson, G., & Edersheim, K. (2021, October 23). Future directions: International education and the SDGs. *University World News*. <https://www.universityworldnews.com/post.php?story=20211022143153986>
- Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2021). *COVID-19 and education: The lingering effects of unfinished learning*. McKinsey & Company. <https://www.mckinsey.com/industries/education/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning>
- Educate a Child and fhi360. (2016, November 20). *Education and the SDGs*. Education Above All. <https://educationaboveall.org/library/education-and-sdgs-occasional-paper-2>
- Elliott, S. (2021, February 12). *A whole-school approach to teaching the UN sustainable development goals*. EdCan Network. <https://www.edcan.ca/articles/a-whole-school-approach-to-teaching-the-un-sustainable-development-goals/>

- Franjic, S. (2018). Importance of environment protection on the global level. *Scientific Journal of Research and Reviews*, 1(2), 5.
https://www.researchgate.net/publication/334550140_Importance_of_Environment_Protection_on_the_Global_Level
- Fulgham, R. (1986). *All I really need to know I learned in kindergarten*. Ivy Books. https://openlibrary.org/books/OL22361944M/All_I_really_need_to_know_I_learned_in_kindergarten
- Furner, J. (2004). Conceptual analysis: A method for understanding information as evidence, and evidence as information. *Archival Science*, 4(3–4), 233–265.
<https://doi.org/10.1007/s10502-005-2594-8>
- Gabrielli, P. (2015, February 11). *When did humans start polluting the earth?* World Economic Forum. <https://www.weforum.org/agenda/2015/02/when-did-humans-start-polluting-the-earth/>
- Gauvain, M., Beebe, H., & Zhao, S. (2011). Applying the cultural approach to cognitive development. *Journal of Cognition and Development*, 12(2), 121–133. <https://doi.org/10.1080/15248372.2011.563481>
- Gehlawat, M. (2017). Education for sustainable development. In M.A. Peters (Ed.). *Encyclopedia of educational philosophy and theory* (p. 643). Springer.
https://doi.org/10.1007/978-981-287-588-4_100294
- Gondwe, M. (2017, December 15). *Start them young: Primary school teachers should teach SDGs*. EAIE. <https://www.eaie.org/blog/primary-school-teachers-should-teach-sdgs.html>
- Griffiths, A., Schönrock, P., Williams, L., & Costa, N. (2015, September 23). *7 steps towards sustainable development by 2030*. devex.

<https://www.devex.com/news/7-steps-toward-sustainable-development-by-2030-86861>

Haktanır, G., Güler, T., & Öztürk, D. K. (2016). Education for sustainability in Turkey. In J. Siraj-Blatchford, C. Mogharreban & E. Park (Eds.), *International perspectives on early childhood education and development* (pp. 139-153). Springer.

Hammarberg, K., Kirkman, M., & Lacey, S. De. (2016). *Qualitative research methods: When to use them and how to judge them*, 31(3), 498–501.

<https://doi.org/10.1093/humrep/dev334>

Harit, N., & K, T. T. (2021, February 24). *Education for sustainable development: Is India ready to embrace it?* Policy Circle.

<https://www.policycircle.org/life/education-for-sustainable-development/>

International Baccalaureate. (2009, January). *The Primary Years Programme: A basis for practice*. Peterson House.

http://www.ohioib.org/PYP_basis_for_practice.pdf

International Baccalaureate. (2012). *PYP developing a transdisciplinary programme of inquiry*. Peterson House

International Baccalaureate. (2018, October). *Learning and teaching*. Peterson House

International Baccalaureate. (n.d.). *Benefits of the IB*. International Baccalaureate.

Retrieved March 10, 2022, from <https://ibo.org/benefits/>

International Baccalaureate. (n.d.). *Key facts about the PYP*. International

Baccalaureate. Retrieved March 10, 2022, from

<https://www.ibo.org/programmes/primary-years-programme/key-facts-about-the-pyp/>

International Baccalaureate. (n.d.). *PYP curriculum framework*. International Baccalaureate. Retrieved March 10, 2022, from

<https://www.ibo.org/programmes/primary-years-programme/curriculum/>

International School of Milan. (2021, July 28). *The flexibility of the IBPYP* [Video]. YouTube.

Jhangiani, R. S., & Chiang, I.-C. A. (2015). *Research methods in psychology* (2nd ed.). Pressbooks.

Kahriman, D. (2016). *Comparison of early childhood education educators' education for sustainable development practices across eco versus ordinary preschools* [Unpublished doctoral dissertation]. Middle East Technical University.

Kainja, S. (2020, January 20). *Catch them young, watch them grow*. UNICEF. [Catch them young, watch them grow | UNICEF Malawi](#)

Kates, R. W., Parris, T. M., & Leiserowitz, A. A. (2005, April). What is sustainable development? *Environment*, 47(3), 8-12.

Klarin, T. (2018). *The concept of sustainable development: From its beginning to the contemporary issues* [Unpublished doctoral dissertation]. University of Zadar.

Langit-Dursin, R. (2018, May 1). Teaching the sustainable development goals to students. *PYP Dunia Blog*.

<https://pypduniablog.wordpress.com/2018/05/01/teaching-the-sustainable-development-goals-to-students/>

Laurie, R., Nonoyama-Tarumi, Y., Mckeown, R., & Hopkins, C. (2016).

Contributions of education for sustainable development (ESD) to quality

- education: a synthesis of research. *Journal of Education for Sustainable Development*, 10(2), 226–242. <https://doi.org/10.1177/0973408216661442>
- Lee, J. C.-K., Tsang, E. P. K., & Gough, A. (Eds.). (2020). *Green schools globally: Stories of impact on education for sustainable development*. Springer.
- Leedy, P. D., & Ormrod, J. E. (2016). *Practical research: Planning and design*. Pearson.
- Leicht, A., Heiss, J., & Byun, W. J. (Eds.). (2018). *Issues and trends in education for sustainable development*. UNESCO Publishing.
<https://unesdoc.unesco.org/ark:/48223/pf0000261445>
- Leite, S. (2022). Using the SDGs for global citizenship education: Definitions, challenges, and opportunities. *Globalisation, Societies and Education*, 20:3, 401-403. <https://doi.org/10.1080/14767724.2021.1882957>
- Logsdon, A. (2020, September 17). *Why concrete reasoning is the foundation for learning*. verywellfamily. <https://www.verywellfamily.com/concrete-reasoning-2162163>
- Lomazzi, M., Borisch, B., & Laaser, U. (2014) The millennium development goals: Experiences, achievements and what's next. *Global Health Action*, 7(1), Article 23695. <https://doi.org/10.3402/gha.v7.23695>
- Lombard, M., Snyder-Duch, J., & Bracken, C. C. (2002). Content analysis in mass communication: Assessment and reporting of intercoder reliability. *Human Communication Research*, 28(4), 587–604. <https://doi.org/10.1111/j.1468-2958.2002.tb00826.x>
- McKeown, R. (2002). *Education for sustainable development toolkit version 2*. 1–142. http://www.esdtoolkit.org/esd_toolkit_v2.pdf

- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1), Article 1653531.
<https://doi.org/10.1080/23311886.2019.1653531>
- Miyazawa, I. (2012). *What are sustainable development goals ?* Institute for Global Environmental Strategies. <https://www.jstor.org/stable/resrep00768>
- Mohamad, M. M., Sulaiman, N. L., Sern, L. C., & Salleh, K. M. (2015). Measuring the validity and reliability of research instruments. *Procedia - Social and Behavioral Sciences*, 204, 164–171.
<https://doi.org/10.1016/j.sbspro.2015.08.129>
- Moon, B. K. (n.d.). *Sustainable development in the 21st century with Ban Ki Moon*. Coursera. <https://www.coursera.org/lecture/sustainable-development-ban-ki-moon/summary-JvkbC>
- NCERT. (n.d.). *About us*. NCERT. <https://ncert.nic.in/about-us.php?ln=>
- Ortega, M. del C. S., & Taboada, M. de la M. (2018). Education for sustainable development and the International Baccalaureate. *Journal Of Supranational Policies of Education*, 7, 38-54
- Oxfam. (2019). *The sustainable development goals: A guide for teachers*. Oxfam Digital Repository.
<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620842/edu-sustainable-development-guide-15072019-en.pdf?sequence=4&isAllowed=y>
- Philippine Statistics Authority. (n.d.). *How are the sustainable development goals different from MDGs?* <https://psa.gov.ph/content/how-are-sustainable-development-goals-different-mdgs>

- Piontek F. (2005) Alternative approaches to development implementation and their effects on capital. *Social Inequalities and Economic Growth*, 69–100.
- Pramling Samuelsson, I. (2011). Why we should begin early with ESD: The role of early childhood education. *International Journal of Early Childhood*, 43(2), 103–118. <https://doi.org/10.1007/s13158-011-0034-x>
- Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman, & R. Burgess (Eds.), *Analyzing qualitative data* (pp.. 305 – 329). Routledge.
- Rodrigues, Z. B. (2021, January 18). *Education: A study based on the UNESCO report on the four pillars of knowledge*. Revista Científica Multidisciplinar Núcleo do Conhecimento. Retrieved May 25, 2022, from <https://www.nucleodoconhecimento.com.br/education/four-pillars>
- Rosa, W. (Ed.). (2017). *A new era in global health: Nursing and the United Nations 2030 Agenda for sustainable development*. Springer Publishing Company. 10.1891/9780826190123
- Sarabhai, K. V. (2014). ESD and sustainable development goals. *Journal of Education for Sustainable Development*, 8(1), 1–2. <https://doi.org/10.1177/0973408214538584>
- Schug, M. C. (1987). Children’s understanding of economics. *The Elementary School Journal*, 87(5), 507–518. <http://www.jstor.org/stable/1001428>
- Sengupta, S., & Rodriguez, I. (2021, January 12). *Relevance of SDGs for companies and business*. Seventeen Goals Magazin. <https://www.17goalsmagazin.de/en/the-relevance-of-the-sustainable-development-goals-sdgs-for-companies/>

- Srivastava, A., & Thomson, B. S. (2009). Framework analysis: A qualitative methodology for applied policy research. *JOAGG*, 4(2), 75.
http://research.apc.org/images/a/ad/Framework_analysis.pdf#:~:text=Framework%20analysis%20is%20a%20qualitative%20method%20that%20is,frame%2C%20a%20pre-designed%20sample%20and%20a%20priori%20issues.
- Sterling, S. (2014, November 28). The importance of education for sustainable development. *University World News*.
<https://www.universityworldnews.com/post.php?story=20141126162856455>
- Sustainable development*. (2020, January 20). Drishti IAS. Retrieved June, 2022, from <https://www.drishtiias.com/to-the-points/paper3/sustainable-development-3>
- Taşar, M.F. (2020). Impact of the eco-schools program on “Education for Sustainable Development” in Turkey. In A. Gough, J.C.K. Lee, E.P.K. Tsang (Eds.), *Green schools globally : Stories of impact on education for sustainable development* (pp.. 345-363). Springer.
- Taylor, M. L., & Porath, M. (2006). Reflections on the International Baccalaureate program: Graduates’ perspectives. *Journal of Secondary Gifted Education*, 17(3), 149-158.
- Thakur, S., & Chetty, P. (2020, January 27). *How to establish the validity and reliability of qualitative research?* Project Guru.
<https://www.projectguru.in/how-to-establish-the-validity-and-reliability-of-qualitative-research/>
- The International Baccalaureate. (2018, November 26). How sustainable is your school? *The IB Community Blog*. <https://blogs.ibo.org/blog/2018/11/26/how-sustainable-is-your-school/>

The International Baccalaureate. (n.d.). *Education programmes*. International

Baccalaureate. Retrieved March 21, 2022, from

<https://www.ibo.org/programmes/>

The International Baccalaureate (IB). (n.d.). *Our mission*. International

Baccalaureate. Retrieved March 19, 2022, from [https://www.ibo.org/about-](https://www.ibo.org/about-the-ib/mission/)

[the-ib/mission/](https://www.ibo.org/about-the-ib/mission/)

The International Baccalaureate (IB). (n.d.). *Primary Years Programme (PYP)*.

International Baccalaureate. Retrieved March 19, 2022, from

<https://www.ibo.org/programmes/primary-years-programme/>

The United Nations Development Programme (n.d.). *Sustainable development goals*.

<https://www.undp.org/sustainable-development-goals>

The World Bank. (n.d.). *Our work*. World Bank.

<https://www.worldbank.org/en/about/annual-report/our-work>

Udon Thani International School. (n.d.). *What are the key components of the PYP?*

Udon Thani International School.

<https://www.udoninternationalschool.com/en/academics/pyp-for-parents/key-components-pyp/>

UNESCO. (1978). *Intergovernmental conference on environmental education*.

<https://unesdoc.unesco.org/ark:/48223/pf0000032763>

UNESCO. (2014). *UNESCO roadmap for implementing the global action programme on education for sustainable development*.

<https://unesdoc.unesco.org/ark:/48223/pf0000230514>

UNESCO. (2016). *UNESCO 2015*.

<https://unesdoc.unesco.org/ark:/48223/pf0000244834>

UNESCO. (2022, May 5). *What you need to know about education for sustainable development*. UNESCO.org. Retrieved March 26, 2022, from

<https://www.unesco.org/en/education/sustainable-development/need-know>

UNESCO. (n.d.). *Education for sustainable development*.

<https://en.unesco.org/themes/education-sustainable-development/what-is-esd/sd>

UNESCO. (n.d.). *UN decade of ESD*. UNESCO.

<https://en.unesco.org/themes/education-sustainable-development/what-is-esd/un-decade-of-esd>

United Nations. (2010). *Sustainable development: From Brundtland to Rio 2012*.

https://www.e-education.psu.edu/emsc302/sites/www.e-education.psu.edu/emsc302/files/Sustainable%20Development_from%20Brundtland%20to%20Rio%202012%20%281%29.pdf

United Nations (2015). *Millennium development goals indicator*.

<http://mdgs.un.org/unsd/mdg/default.aspx>

United Nations. (2016). *Final list of proposed sustainable development goal indicators*.

<https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf>

United Nations. (n.d.). *Agenda 21*.

<https://sustainabledevelopment.un.org/outcomedocuments/agenda21>

United Nations. (n.d.). *Conferences, environment and sustainable development*,

<https://www.un.org/en/conferences/environment>

United Nations. (n.d.). *Final list of proposed sustainable development goal indicators*.

<https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf>

United Nations. (n.d.). *Indicators*. <https://sdgs.un.org/topics/indicators>

United Nations. (n.d.). *Towards a net-zero future*. United Nations Act Now.

https://www.un.org/actnow?gclid=Cj0KCQjwyOuYBhCGARIsAIdGQRNJgLIgSs9vqTVBv0AXYVQDosYJPws1RuOoGdnchPxRDzc7EJwVpCgaAu0SEALw_wcB

United Nations. (n.d.). *Transforming our world: the 2030 Agenda for sustainable development*. <https://sdgs.un.org/2030agenda>

United Nations Department of Economic and Social Affairs. (n.d.) *Do you know all 17 SDGs?* <https://sdgs.un.org/goals#goals>

United Nations Economic and Social Commission for Western Asia. (n.d.). *The 5Ps of the sustainable development goals*.

https://www.unescwa.org/sites/default/files/inline-files/the_5ps_of_the_sustainable_development_goals.pdf

United Nations Educational, Scientific and Cultural Organization. (n.d.). *UN decade of ESD*. <https://en.unesco.org/themes/education-sustainable-development/what-is-esd/un-decade-of-esd>

United Nations Environment Program. (n.d.). *Why do the sustainable development goals matter?*

<https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter>

United Nations General Assembly. (2011). *Synthesis report on best practices and lessons learned on the objective and themes of the United Nations Conference on Sustainable Development*.

<https://digitallibrary.un.org/record/698220?ln=en>

- Venkataraman, B. (2009). Education for sustainable development. *Environment*, 51(2), 8-10. <https://doi.org/10.3200/ENVT.51.2.08-10>
- Wackernagel, M., & Galli, A. (2007). An overview on ecological footprint and sustainable development: A chat with Mathis Wackernagel. *International Journal of Ecodynamics*, 2(1), 1–9.
https://www.researchgate.net/publication/234092351_An_overview_on_ecological_footprint_and_sustainable_development_A_chat_with_Mathis_Wackernagel
- Wals, A. E. J. (2012). *Shaping the education of tomorrow: Full length report on the UN decade of education for sustainable development*. United Nations Educational, Scientific and Cultural Organization.
<https://unesdoc.unesco.org/ark:/48223/pf0000216472>
- Wals, A. E. J., & Kieft, G. (2010). *Education for sustainable development*. Edita 2010. <https://cdn.sida.se/publications/files/sida61266en-education-for-sustainable-developmentresearch-overview.pdf>
- Wilson, V. (2011). Research methods: Content analysis. *Evidence Based Library and Information Practice*, 6(4), 177. <https://doi.org/10.18438/B86P6S>
- World Commission on Environment and Development. (1987). *Report of the world commission on environment and development: Our common future*.
<https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>
- Yalçinkaya, E. (2013). Analyzing primary social studies curriculum of Turkey in terms of UNESCO educational for sustainable development theme. *European Journal of Sustainable Development*, 2(4), 215.
<https://doi.org/10.14207/ejsd.2013.v2n4p215>

App. endix A

Presence of Sub-code Data of SDGs in the Two Analyzed Documents

Figure A1

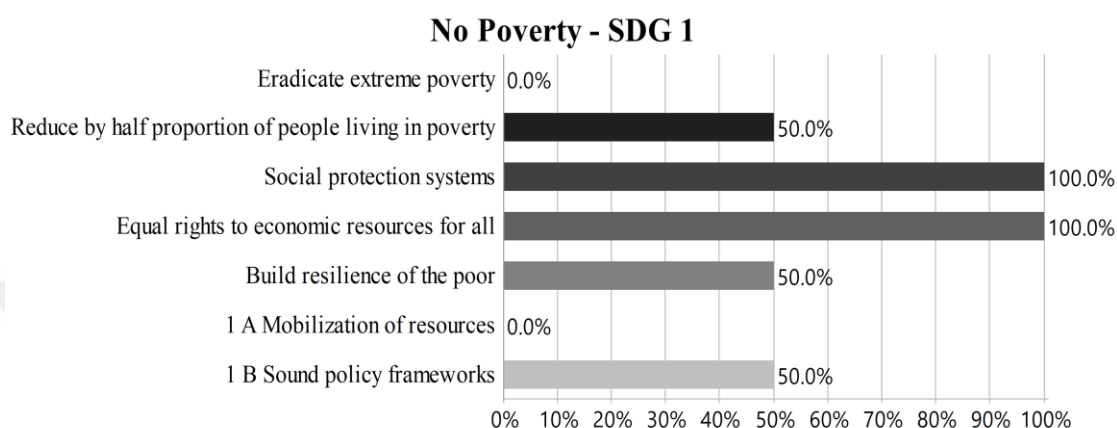


Figure A2

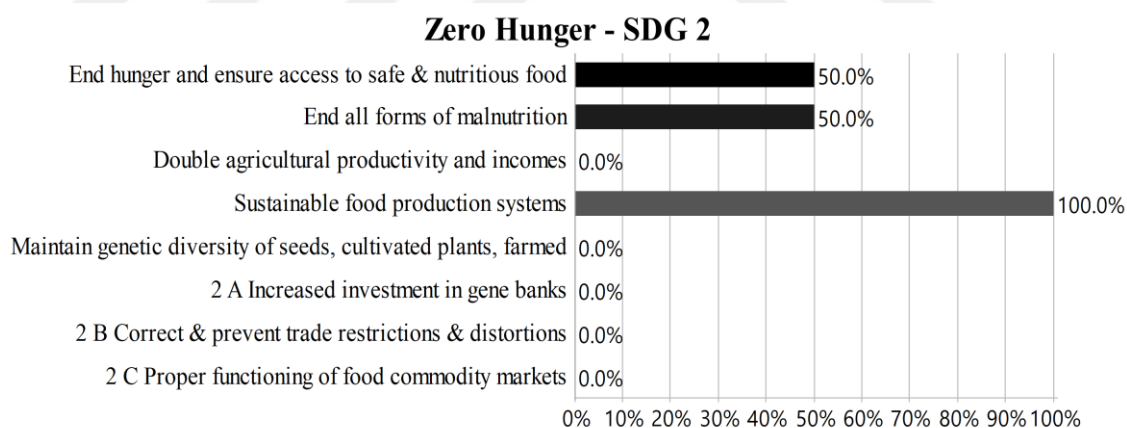


Figure A3

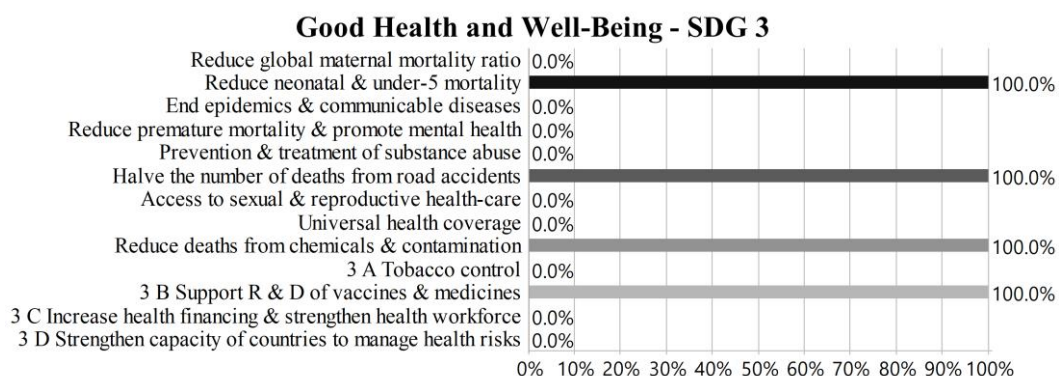


Figure A4

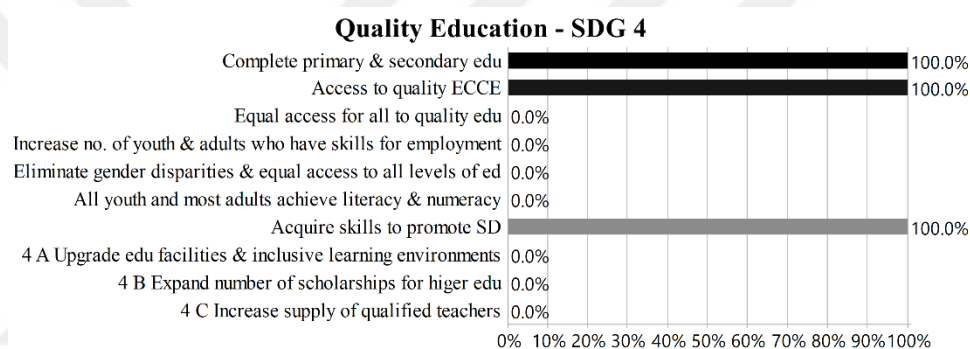


Figure A5

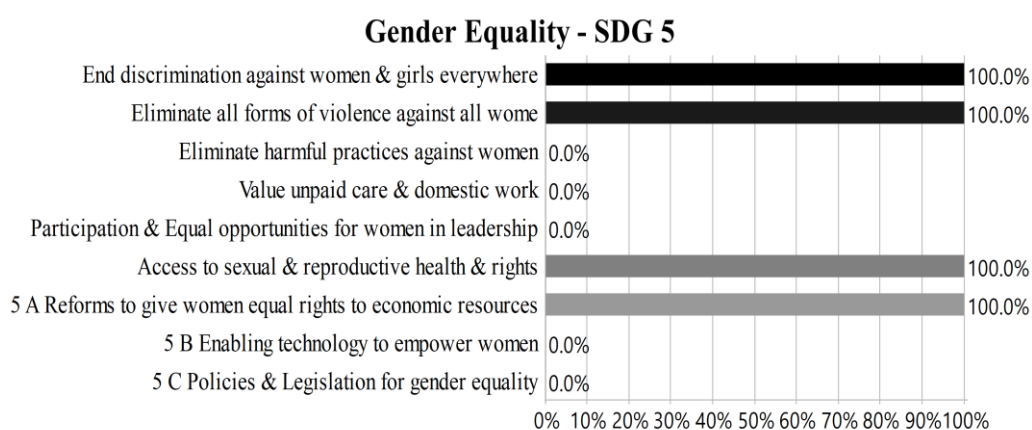


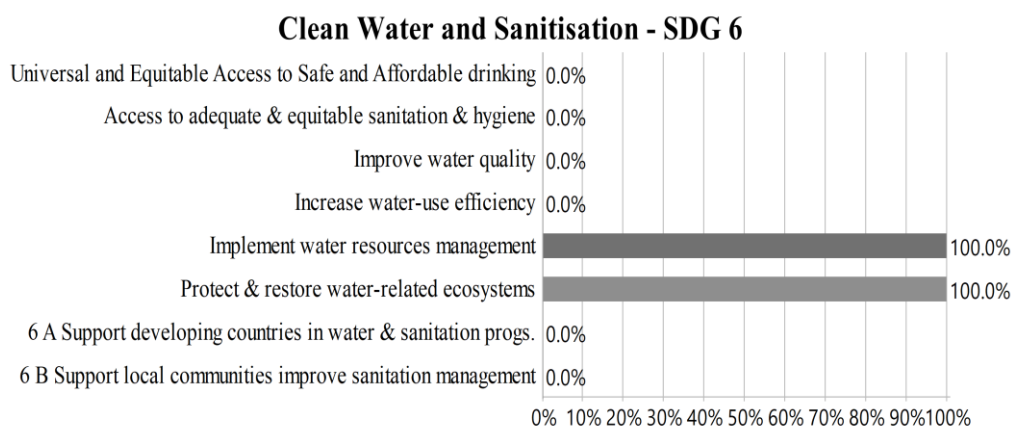
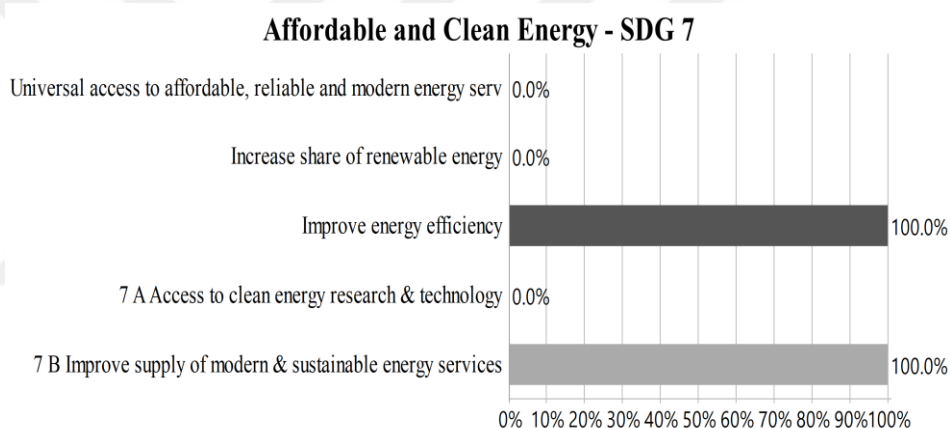
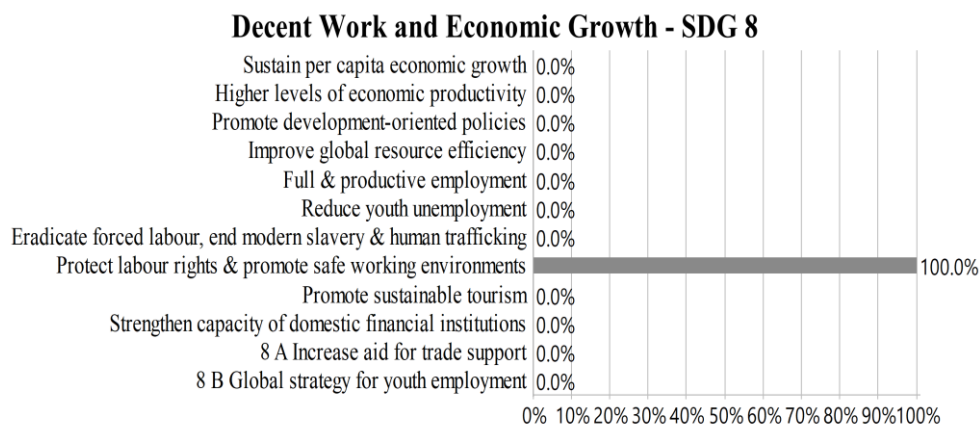
Figure A6**Figure A7****Figure A8**

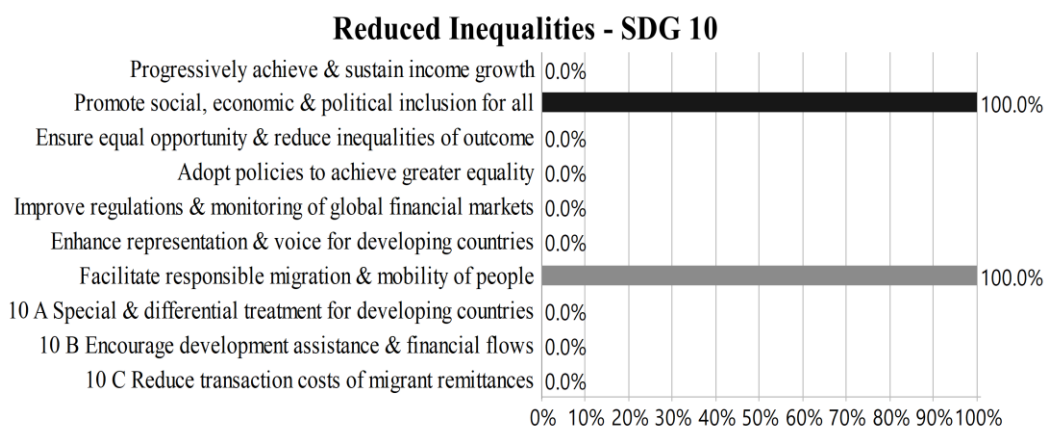
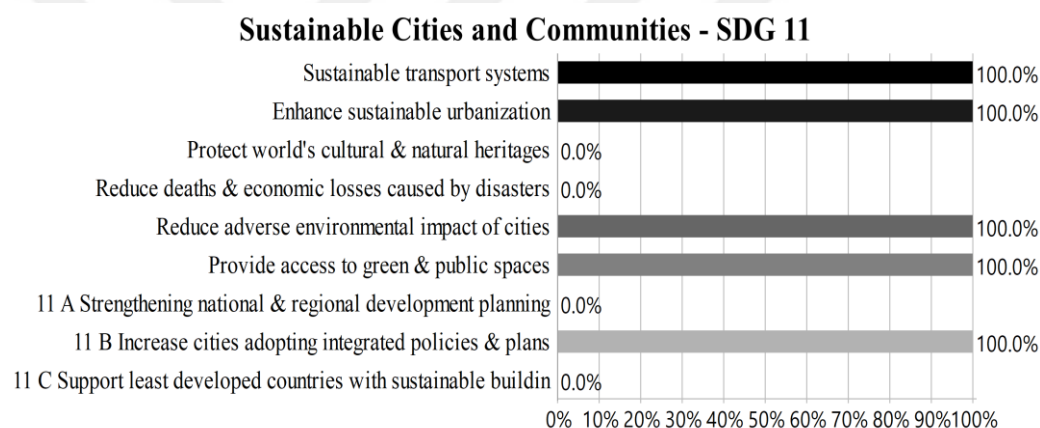
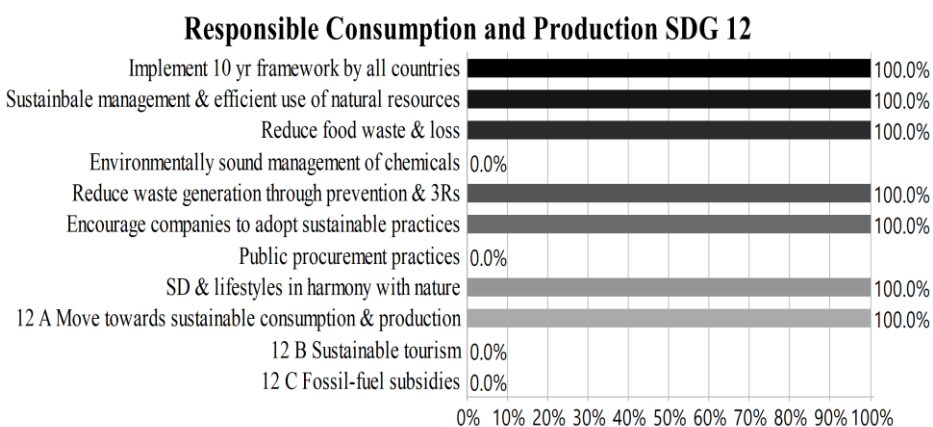
Figure A9**Figure A10****Figure A11**

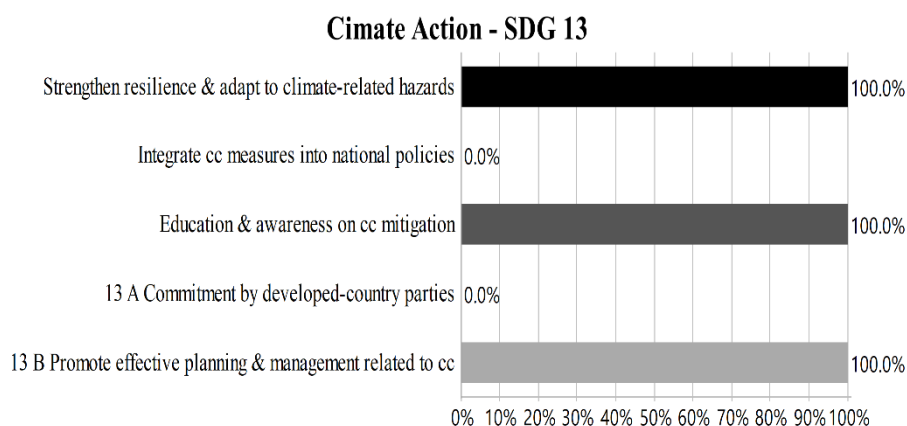
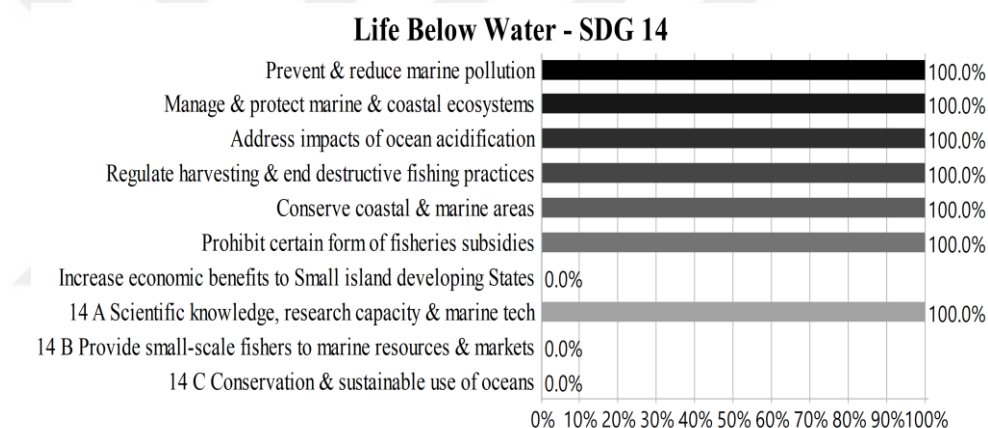
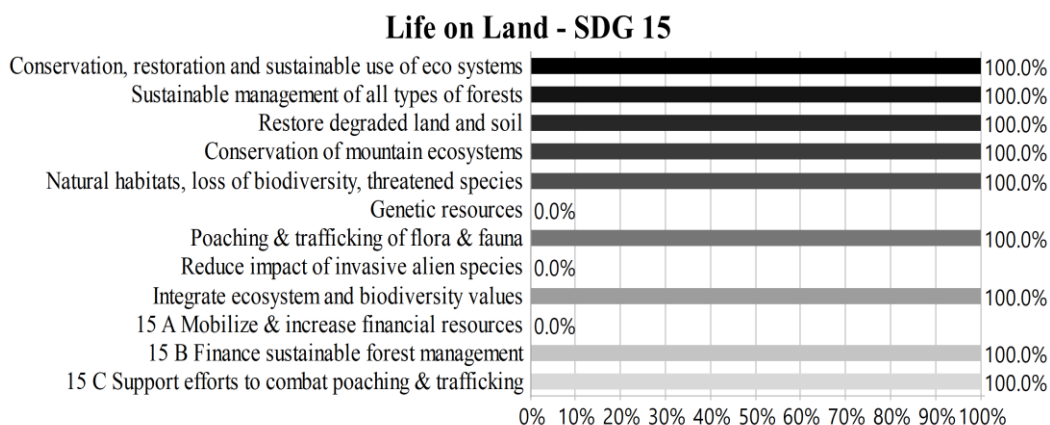
Figure A12**Figure A13****Figure A14**

Figure A15