

Creating a Curriculum to Advance Environmental Education in Turkey through Grades 1-8

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Introduction

I have always been someone who follows the new and tries to stay educated about various topics as much as possible. I think it was about 3 years ago when I first started really conducting thorough research on the topic of environmentalism and as I learnt more and more I realized how important an issue it was, I felt really compelled to do something about this issue. The personal project gave me a medium to focus on a topic that I wanted to know more about, was passionate about, and that I was eager to develop into a project that would greatly benefit my community. I felt that the topic of environmentalism and trying to find ways to better my community in that domain was perfect for that. I wanted to use it as an opportunity to develop my skills as well as do something about this issue that has been in my mind for a long time.

Criterion A: Investigating

Context/ Inspiration

According to the IPCC climate report that is signed by many scientists all around the world, if we fail to address the climate crisis and reduce our carbon emissions by the year 2030, we will have already enacted irreversible change to our environment and basically we would be at the point of no return. (Intergovernmental Panel on Climate Change 2018). With reports such as these it is becoming an undeniable fact that the climate crisis is the single most important challenge that we face in the world right now. Ninety-seven percent of all climate scientists even agree upon the fact that the climate change trends seen all around the world are extremely likely to have been caused by human activities. (NASA 2019)

Knowing these facts, I felt compelled to make my project about environmentalism and the climate crisis. I felt disturbed by the fact that not many people were aware of the magnitude of this issue and even if they were aware, they didn't care enough to do anything about it. Therefore, I felt I had to do something to raise awareness on this issue and make young people aware of the crisis going on in the world.

The Goal/ Product

The goal of my project was *to be able to make my country more environmentally friendly*. In trying to spread awareness about my topic I realized the importance of engaging with students from a young age. Firstly, because they would be the ones most affected by the climate crisis and also because young people will shape the future. It was also important for me to focus on my country, Turkey, because it is what I am familiar with and where I believe a lot of progress regarding this issue still needs to be made.

To achieve my goal, I wanted to create a product that will really address the issue and find feasible solutions to the problem we are faced with. So, I decided to create an *Environmental Education Curriculum for students from grade 1 through grade 8* which will consist of classroom activities and projects that will be integrated into the already existing curriculum provided by the Ministry of Education in Turkey. This way, throughout their primary and secondary education, students will be constantly exposed to issues regarding environmentalism as well as solutions to the problems we face. As the children grow up, they will learn these issues as a part of their normal curriculum and in the end will grow up to be adults who will be aware of the challenges we face and help find solutions to said challenges.

My goal is extremely challenging because getting a proper education from a young age can greatly alter the way you look at the world. So, being extremely cautious about the content of my product was important. Other than that, I have never had any experience teaching and, for that reason, coming up with projects that will really be able to convey the underlying message of environmentalism in a manner that all the students can understand was demanding. Despite all of these challenges, I felt it was necessary for me to choose this goal/product as I was really passionate about finding a solution to this problem.

To further conduct my research I had to find an essential question to be a guide in this process so I picked *What are the methods that the top 5 most eco-friendly countries (according to the Environmental Performance Index 2018 Switzerland, France, Denmark, Malta and Sweden) have used in order to become more eco-friendly and how much did they value environmental education?*

Global Context

The Global Context that I felt was the most compatible with my topic was *Globalization and Sustainability*. Both parts of this global context can easily be applied within the context of my project. Firstly, the concept of sustainability played a major role in the creation of my product. Being sustainable and environmentally friendly go completely hand in hand and one cannot exist without the other. The subtopics of "the interconnectedness of human-made systems and communities" as well as "the relationship between local and global businesses" related well with my topic and its aspect of globalization. Within nature everything is interconnected and, keeping this in mind will help guide me to link progress in Turkey with progress around the globe. I also linked my project with United Nations Sustainable Development Goal 13 entitled Climate Action. The link with the SDG, with an emphasis on sub goal 13.3, tied in perfectly with my global context and made my project overall stronger and allowed my project to have a much clearer end goal.

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Prior Learning

As previously mentioned, I had been really interested on the topic of environmentalism for a while. Especially in the past year or so the climate crisis came to the attention of the public eye and more people learnt about the dangers of the crisis, including myself. With that I felt that I had to get involved and joined certain environmental organizations. My best friend and I even opened the first "eco-club" at my school and we have been advocating for environmental justice through that medium for a while. I felt it was my responsibility, it was a debt I owed to the planet in which I lived to take action. All of this meant that my project was really personal to me.

As for subject specific knowledge, throughout my school life I had heard plenty of times about the dangers of climate change but to be honest most of the time it was put to the sidelines. Due to the nature of the Turkish curriculum the units in science lessons that are about climate change are usually towards the very end of the school year and almost never get taught due to time constraints. Even if they are taught, they just go on to say that climate change is bad but don't give students many feasible ways to help solve the issue. I believe that the climate crisis needs to be taught with a more "hands-on" approach. Fortunately, I have also had some teachers who have gone out of their way to teach the dangers of the crisis with engaging activities, which have been the places where I have learnt most about the topic. Also, in English classes we have talked a lot about the dangers of urbanization on our planet and we read an article on the "Top 5 eco-friendly cities in the world" which I wrote an essay about(see Appendix A).

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Literature Review

For the goal to be fully achieved a good understanding of what other countries are doing, and how far behind is Turkey by comparison, was crucial. That is why to be able to find an answer to the essential question, I conducted research on what the most important steps in were becoming more ecofriendly as a country. I concluded that that environmental education was valued in many of the top countries of the Environmental Performance Index (EPI), a ranking system that shows how eco-friendly a country is. This source was effective in showing what needed to be improved in Turkey and also acted as an impartial tool to compare certain countries on the environmental aspect. (see appendix D for full evaluation of sources)

After my topic had been finalized, in accordance with my literature review and prior learning, I had to conduct extensive research on the already existing curriculum of Turkey's Ministry of Education. This helped me to identify the classes and specific points within the curriculum that the projects could relate to and be integrated into. I conducted this thoroughly and recorded into my project journal along with its English translation. Throughout my research I used the official website of the Turkish Ministry of Education (Milli Eğitim Bakanlığı) where they

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have provided all the curricula necessary with specific points on what the curricula aims to teach, which was an extremely helpful source. (see Appendix D)

There was also a curriculum on Environmental Education created by U.S. Environmental Protection Agency called the "Quest for Less" which I also used within my research. For me that guide was a source of inspiration and helped me in conducting my own curriculum. The source was extremely thorough and provided many ideas and resources for me to look back on. (see appendix D) During the evaluation process of these sources I used and widely developed my research skills focusing especially on media literacy.

I also conducted an interview with Döndü Erhan a biologist and teacher at our school as a part of my research(see appendix G) That interview provided a lot of insight on what it takes to teach about environmentalism as well as what topics should be focused on. It reaffirmed a lot of the things I already believed which made me feel as if I was on the right track. It was also a great source of inspiration while creating projects and made me feel even more passionate about my topic.

Criterion B: Planning

Product Specifications

I decided that my final product to be to an *Environmental Education curriculum for grades 1 through 8*. My initial product was going to be a suggestion paper on the steps that Turkey should take in order to become more ecological. My research led me to realize that my topic was a bit too broad and unfeasible, so I soon noticed that I had to make certain adjustments. After conducting research on the top 5 most environmentally friendly countries according to the Environmental Performance Index, it was clear to see that environmental education was a priority for all these countries. So, I decided to focus more on environmental education in my final product.

This curriculum will provide projects/activities to be integrated within the already existing curriculum objectives determined by the Turkish Ministry of Education within various lessons. The curriculum aims to be perfectly integrated into the regular education system rather than a stand-alone lesson regarding environmentalism. The curriculum aims to serve as a guide for teachers to be more environmentally conscious within their education while still being able to adhere to the objectives provided by MEB's curriculum and not having to "sacrifice from the lesson" in order to be able to conduct these projects. The curriculum should be comprehensive and understandable. Also, after the curriculum is implemented in schools, students should have a better understanding of the climate crisis and their role as citizens in being environmentally conscious.

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For the product to be successful it must:

- Adhere to the rubric discussed in Appendix F
- Be useful for teachers and easy to implement
- Take inspiration from the top 5 countries that have been researched
- Be organized and well thought out
- Use tests projects in order to understand what ways students can retrieve information, what methods are most important in achieving my goal and what specific points do I need to focus on whilst creating my activities.

Developing Product Criteria

Before starting to make the product, I knew how important it was to make criteria to be followed as a guideline as well as to be able to look back and assess what was done accordingly. The detailed rubric with the criteria can be seen in the form of a table in Appendix E. This rubric allowed for the ease of ranking with the use of band levels as well as keeping it organized using subcategories such as aesthetics, environmental considerations, functions etc. If the band levels 6-8 are reached in all categories, the product has been created according to plan and is successful.

Developing a Project Plan

While creating the project, setting deadlines and adhering to them was a must in order to ensure that I had the time and resources to create such a demanding project. The plans that were created can be seen in Appendix F. The first one being a handwritten plan that was used to develop the general idea of the project including research, goal, global context and much more. After having set goals, in the second plan certain time periods and deadlines as well as the steps needed to be taken to achieve the goals were determined. The steps that were taken were logged into the process journal. More specific plans on the activities within the final product were planned in a journal and used as a guide when transferring everything into the digital space (see appendix C). During this period, I especially developed my organization skills. Everything about the project had to be planned to the tee but then once everything was planned, the hard part was over and the rest came with ease.

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Criterion C: Taking Action

My research and planning led me to realize that I knew a lot about environmentalism however I didn't have much knowledge on teaching this concept and what types of skills it required. In order to create a successful product, I realized the importance of developing this skill and knew very well that it wasn't a skill that could be just read about, it had to be experienced.

So, I decided that I needed to test one of my projects to gain hands-on experience of what it was like to teach about environmentalism. In accordance with my criteria

I planned an activity to be conducted with 7th grade students. The necessary arrangements were made, and the activity was conducted. (see appendix H). At the end of the activity I got feedback from the teacher helping me out as well as from the students. This allowed for me to better understand what problems teachers could face while implementing the activities within my curriculum and what ways were ideal for students to understand a concept. The feedback I received from the students and the teacher (see Appendix I) made me aware of the points which my product needed to improve on and what points I was doing well at. All these things combined came together to work as a guideline for the rest of my project creation process and allowed for it to be much smoother and easier.

Thinking Skills

Prior to the project I had already been thinking a lot about what I could do to help combat the climate crisis. Especially in the environmental clubs that I attend we try to come up with ideas on how to spread awareness and engage with people. Yet, I had never used my thinking skills to engage with a younger audience. So, I had to be extra creative in the creation of the product. The activities needed to be new and exciting which forced me out of my comfort zone to really advance my creativity.

Communication and Social Skills

I previously had conducted similar activities within the "eco club" at my school which led me to develop a good set of communication and social skills. This project made me into an even better communicator since I had to arrange test projects in cooperation with my teachers and MYP coordinator. Also, conducting an interview developed my skills as a communicator and also as an active listener. During the test project I also had to communicate with the students to get feedback and to be able to conduct the lesson properly.

Criterion D: Reflecting

Evaluating the goal based on criteria

Throughout the project my goal roughly stayed the same. From the very beginning I wanted to explore ways to ameliorate the state of environmentalism and eco-friendliness in Turkey. Generally speaking, I believe that my product has reached many of the criteria I had planned for it. The one point that I believe could be improved on is the band level named materials. (see appendix E). During the test project we realized how difficult it was to conduct a completely technology-based project without forming any waste. That aspect could definitely have been better, but in hindsight I also do believe that I was slightly too ambitious in the criteria making process for that band level. The other band levels I believe I have achieved

the 7-8: rigorous mark, which was what I initially aimed for. My own evaluation generally matched the evaluation from my teacher. She also mentioned in her comments that more visuals could have been added to support the activity. Also, I received feedback from the 7th grade students as well which was all quite positive (see appendix I). I considered all the feedback I received and created the project accordingly.

My knowledge and understanding of the topic and global context

My knowledge on the environmentalism aspect of the project was already quite extensive, as it had been something I have been interested in for a long time. Yet even within that sphere I got to learn a lot of new things through my research in particular. While examining the EPI report I got to see evidently how far behind Turkey was from many countries. This was something that I had noticed and felt disturbed by; however, I did not realize that the issue was to such a grand extent. The part in which I believe I have immensely deepened my understanding was the teaching aspect of my project. Beforehand I did not understand fully what it took to teach something, to get a point across, to create projects that resulted in a positive impact and were effective. Especially, engaging with students and teachers was extremely rewarding in the sense that it taught me valuable information and made me more adept in creating the change I want to see in the world. The goal behind this project was to spread awareness and create a more environmentally aware generation. Throughout the project I learnt exactly what it took to be in that position where you can greatly change a person's view and how important it is that the message of environmentalism is taught from a young age.

With regard to the global context I felt that it helped me really link local change with global change. I got to see the extent that personal change can affect the environment easily with my research. I saw that many ecofriendly

countries made it a priority to educate youth and that proved the importance of personal change. I saw the interconnectedness of personal change to local change and lastly to global change. I also felt ashamed about the state of my country and the type of "not my problem" attitude that was conveyed within my community. I got to grasp even more deeply that any change done regarding the environment could never be localized, it is an issue for the whole world at large.

My development as an IB learner

If I have to be really blunt about my performance throughout the project, I think my biggest weakness would definitely be time management. I believe that in certain aspects with this project, considering the given time period, the deadlines I set for myself within the planning period were too ambitious. So, I believe that time management in general, with a focus on anticipating how long certain tasks will take is something I will need to improve on.

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Another aspect of the project that was quite challenging was coming up with an idea for each grade level. The criteria I had set for myself was quite demanding as each activity had to be integrated into the MEB system, had to be an engaging activity, and had to teach environmentalism according to the grade level of the students. Although this was hard, I believe I persevered and developed my creative thinking skills greatly while developing my product. I used certain methods to get over my hurdle which was that firstly I brainstormed and planned out each product in my process journal. (See appendix C) The journal allowed me to jot down any idea I had which really helped spark my creativity and plan accordingly, which led my product to be successful overall.

Another ATL skill that I used a lot was my communication skills. In order to obtain a lot of the information necessary for my project I had to be able to talk to a lot of people, teachers to be specific. I used a lot of the connections I had formed previously with teachers in the test project process as well as the interview I conducted. Therefore, as I developed my communication skills, I also ended up developing my collaboration and social skills.

To conclude, I can wholeheartedly say this project has been extremely valuable for my personal development and fulfilment. It has been a goal for me personally or, more so a responsibility I feel, to do something about the state of the environment. This project has been a platform where I could achieve my goal. This project will be a perfect guide for my future learning and further projects I would like to conduct on the topic of environmentalism. Hopefully, I will be able to take this project to the next step by implementing the curriculum I have created within my school and even in many of the schools in my city.

Appendices

Appendix A: essay on the effects of urbanization on our planet

How the challenges of climate change and urbanization can be solved.

According to the IPCC climate report that is signed by many scientists all around the world if we fail to address the climate crisis and reduce our carbon emissions by the year 2030, we will have already enacted irreversible change to our environment and that basically we would be at the point of no return. With reports such as these it is becoming an undeniable fact that the climate crisis is the single most important challenge that we face as a world right now. Ninety-seven percent of all climate scientists even agree upon the fact that the climate change trends seen all around the world are extremely likely to have been caused by human activities.¹ The radical shift towards urbanization has also been one of the biggest factors that has augmented the effects of the climate crisis but it is believed that they can also be a part of the solution. Urbanization in the 21st century is pretty much inevitable, but climate change does not have to be in order to solve such a big issue in urban cities three major concepts must be considered: legislation, reducing consumption and innovative technological solutions.

All around the world the bright minds of our generation are working extremely hard to develop brand new, state of the art technology to improve our quality of life and to use for the betterment of our environment. For example, in San Francisco a huge portion of the buses used by everyday citizens are hybrid-electric buses meaning that their inner combustion is a mix between traditional engines and electrical ones that save a lot of energy. Other than that, their light rails are also zero emission. In Denmark, the government has even gone a simpler route and has built super cycle highways to encourage their residents to commute via biking. Although this type of infrastructure is not revolutionary in any way the accessibility and the support for these types of highways and other lanes by the government has led 45% of all residents to choose biking as their preferred way to commute every single day.

Despite the world's resources being limited ever since the beginning of the industrial revolution we have been upping our consumption as if we have an infinite supply of resources. Because of all this reducing our consumption whilst living in a consumer society may seem like a radical idea but it is extremely important and is much easier than it may seem. Even the personal choices we as everyday citizens such as refusing to take plastic bags or using our own reusable water bottles play a huge role in reducing the amount that we consume. An example is in Stockholm where the city has achieved its goal to reduce the usage of fossil fuels by switching to district heating. Even the switch to energy efficient and well insulated glass panes in households has led Stockholm to reduce its carbon footprint. Advances in sustainable food, recycling and composting in San Francisco as well as all around the world have also been a huge component in consuming less and less.

The most important tool we can use to solve the climate crisis is by local governments as well as heads of states taking legislative action. The adaptation of the concept of a circular economy instead of a linear one could be critical for states in transitioning to an eco-friendlier style of governance. For citizens to go through with ecofriendly actions they must first understand the importance of the topics that we are faced with. The type of education needed can only be provided by governments as they must lead their citizens to make the right choices. It has been proven over and over again that this type of action taken by governments leads to real results. For example, the Moroccan government right before hosting the 2016 United Nations Climate Change Conference took action by banning all plastic bags in supermarkets. In return the consumption of plastic has vastly dropped in all Moroccan cities. Singapore on the other hand limits car ownership in the city by enforcing high taxes on cars which discourages its citizens from purchasing cars. It is a clear trend amongst the most sustainable cities in the world such as Vancouver, Stockholm and Copenhagen that the usage of comprehensive plans to tackle the climate crisis is the forefront of success. None of the other methods used to solve this issue may prevail if legislative action is left in the shadows.

To conclude, the climate crisis is a complex and in-depth issue that can not be solved with only one type of solution it must be tackled holistically and viewed from many angles. Innovative solutions that focus on the reduction of consumerism and which is supported by governments in the form of legislative action is the way in which we may solve this issue. While dealing with such a detrimental issue it may be extremely easy to feel quite pessimistic yet examples of cities all around the world providing real change gives us glimpse of hope for a better future and encourages us to be a part of the change that we wish to see.

¹ "Climate Change Evidence: How Do We Know?" NASA, NASA, 30 Sept. 2019, <https://climate.nasa.gov/evidence/>.

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Appendix C: Parts from Process Journal plans of activities

04.03.2020

1st Grade - fun, game style activity

differentiate recyclable materials

bayrak, yonca, gümüş?

- kagıt geridekalabilen
- plastik ambalaj/recyclable
- cam malzeme
- pil

- Give examples using pictures of different types of materials
- Explain how some materials can be recycled or reused, define these terms
- Bring 4 or more cardboard boxes to class and ask the kids to decorate the boxes as they please (markers, paper, plastic, glue etc.)
- Separate the class into two, bring a bunch of different sorts of waste ask them to form a line
- one by one each kid will pick up a piece of trash and put them in the categories
- at the end all of the waste will be checked out properly and categorized accordingly
- The bins will then be held in class to carry on the separation.

07.01.2020

2nd Grade - [2.6.3, 2.6.4, 2.6.2]

Repurposing Plastic for a good cause

introduce recycling

- making a dog bowl out of yogurt containers
- using plastic water bottles to plant flowers etc.
- plastic water bottles as watering cans

- mention that 1st we should use less plastic
- and we should reuse it
- lastly if all else fails we should recycle

make separate steps for separate purposes

3rd Grade - [3.6.4, 3.6.5]

The Dangers of Oil Spills

- In a tub filled with water spill some oil into it, show oil spills
- Use little pieces of plastic to add to your post
- use toy boats to better show your model

explain how these effect wildlife, how they go extinct

mention that it is needed human effect

Grade 4 - [4.4.3.1, 4.5.4.5]

- read or watch the Lorax with your class
- talk especially about the following quotes:
 - "the days when the grass was still green and the birds was still wet and the clouds were still clear"
 - "talk about the natural sites near them & their impact"
- "I am the Lorax and I speak for the trees, for the trees have no tongues."
- "a creature of hazzori war/the environment also has rights just like all of you but it can't protect its own rights that's why it is your job"
- the message:
 - "ask students if they have some things resembling this, which are useful but harming the grass"
 - "if someone like you cares a whole awful lot, nothing is going to get better no it's not."

08.01.2020

5th Grade - [conscious consumers]

- without giving any details ask students to fill their "what I have consumed this week" worksheet.
- make the students share what they have consumed, calculate the amount of waste they have made
- ask students to think about and research the ways in which the products they have bought have effected the environment
- ask the students to research ways that they could have avoided less damage on the planet and what swaps they can use to be more eco friendly

6th Grade - climate & renewable resources [5.6.5.2, 6.6.4.2]

- prepare worksheets of different "students" that live in different climates, put them around the classroom
- ask students to go around the room, read the different worksheets and think of what climate the sheets may be referring to
- ask students to note down what climate the paper may be, what countries can this climate be seen in
- ask students to note down how these climates have or may change in the future due to climate change
- lastly, ask the students to pick one of the climates and write a new story 10 years from now, predicting how the climate will be.

→ inspiration: Quest for Less

- ↳ Weigh your waste
- ↳ a project we did in ESS lessons

7th Graders Topics: math, social sciences, sciences

- M. 7.4.4.2 → statistics: median
- M. 7.4.5.1 → percentages
- F. 7.6.2.2 → plant experiments
- F. 7.4.5.3 → making a project on waste

- students go out to the garden and collect all of their trash
- The trash is separated into sections plastic, paper, glass etc.
- Percentages are calculated, mean, median and peak are determined
- Three plants are bought in one bit of unrecyclable waste are put in then in one compostable materials in one nothing
- Their growth is observed, graphs are made, conclusions are found
- projects on waste management are brainstormed

8th Grade

"middle ground" social activity

- set up chairs in the middle of the class
- read out certain prompts those who agree will approach the middle and sit + explain their stance
- then the rest will join and explain their stance
- Calculate carbon footprint from conservation.org/carbon-footprint-calculator/#/

Appendix D: OPVL Evaluation of Sources

Number	Sources
1	<i>2018 ENVIRONMENTAL PERFORMANCE INDEX Research Report</i>
	an excellent, super thorough source Origin: Yale University eco science, extremely reliable Purpose: comparison of countries on an environmental scale Value: gives a ranking of countries regarding environmental performance Limitation: not recent report conducted in 2018 yet not bias
2	<i>Ministry of Education (MEB) website</i>
	Great source for me to see the existing Turkish curricula Origin: super reliable as it is the MEB's own website Purpose: curriculum for teachers Value: shows exactly what the curriculum aims to achieve Limitation: not extremely detailed or specific
3	<i>Quest for Less environmental education curriculum</i>
	Amazing source on what an environmental curriculum should be Origin: U.S. Environmental Protection Agency along with teachers, reliable Purpose: a guide/curriculum for teachers Value: is a point of inspiration and model for my project Limitation: published in 2005 the facts are quite old yet not bias
4	<i>The IB learner profile: International Baccalaureate Organization website</i>
	Extremely reliable source Origin: the creators of the personal project, unbiased Purpose: provide information on the IBO Value: provides information on ATL's Global Context help on Personal Project etc.
5	<i>Key aspects of environmental protection in Switzerland article</i>
	A good source Origin: article and provided by the Swiss government Purpose: give information about environmental protection in Switzerland Value: information on Swiss ecofriendly policies Limitations: may be bias
6	<i>IPCC special report: Global Warming of 1.5 °C</i>
	Excellent reliable source Origin: IPCC comprised of many scientists Purpose: report the real dangers of the climate crisis Value: provides me incentive to make a project like this Limitations: not many as it is not bias
7	<i>NASA Global Climate Change Website</i>
	Great source, reliable Origin: NASA comprised of many scientists Purpose: provide facts about climate crisis Value: provides me incentive to make a project like this Limitations: not many as it is not bias

Source #	Origin	Purpose	Value	Limitations	Total (max 20)
1	5	5	5	4	19
2	5	4	4	4	17
3	5	5	5	3	18
4	5	5	5	5	20
5	3	4	5	3	15

6	5	5	4	5	19
7	5	5	4	4	18

Appendix E: Criteria for Product

Band Levels	1-2 Limited	3-4 Adequate	5-6 Substantial	7-8 Rigorous
Aesthetics	Is very unclear and unorganized with an embellished design	Is somewhat organized and understandable with a complex design	Is easy to understand and mostly organized	Is clear, organized and visually appealing
User/Audience	anyone	any teacher	Any teacher speaking English	The product caters to all teachers and educators speaking the English language and teaching grades 1 through 8
Function	The projects within the curriculum are unclear and hard to conduct	The projects within the curriculum are mostly clear and somewhat easy to conduct	The projects within the curriculum are substantially clear and easy to conduct	The projects within the curriculum are perfectly clear and easy to conduct
Environmental considerations	The product fails to reach its goal of making children environmentally aware	The product somewhat reaches its goal of making children environmentally aware and has a very slight indirect, positive effect on the planet	The product mostly reaches its goal of making children environmentally aware and has an indirect, generally positive effect on the planet	The product reaches its goal of making children environmentally aware and has an indirect, positive effect on the planet
Materials	The product is completely printed, one sided, colored	The product is completely printed, double sided	The product is partially printed but mostly technology based	The product is completely technology based
Size/Content	More than one of the grade levels are missing projects and many projects	One of the projects for a grade level is missing with some projects missing certain requirements	There is at least one project per grade level, with some projects missing certain requirements	There is at least one project per grade level containing the following: material requirements,

	are missing requirements			objectives, steps for project
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Appendix F: Project Plans

Plan

Plan 2

Personal Project Plan

Project title	Creating a curriculum to advance Environmental Education in Turkey through Grades 1-8.		
Student	idil ira	Date/Duration of Project	21.10.2019 - 16.02.2020

Goal: Formulate a statement that clearly shows your goal, based on your personal interests.

The goal of the end of this project is to create a curriculum that can be applied in schools all around Turkey, with the ultimate goal of integrating environmental education into regular everyday lessons. This curriculum will be made after careful evaluation of other countries' programs.

What is the purpose of the goal? What do you hope to achieve? I hope to be able to share a guideline for schools to integrate and at the end raise a generation of environmentally aware students.

Global context: Identify the global context of environmentally aware students

Globalization & Sustainability

Identify which part of the global context you will focus on. I will focus mostly on the Sustainability part because being eco-friendly is closely related to being sustainable.	Explain why you have chosen it, justifying the relevance of your inquiry. This global context is extremely relevant to my topic because sustainability goes hand in hand with being ecological, the globalization aspect comes in with the extensive research conducted on other countries as a guide for the curriculum.
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Product/outcome: What product/outcome will you create in response to the goal, global context and criteria?

Product: an "Environmental Education Curriculum" consisting of projects to be integrated into regular school of students from Grade 1 through 8.

Criteria: Which criteria will ensure my product/outcome is of excellent quality? How will I evaluate it? I will be conducting "test projects" to be evaluated by teachers with a questionnaire.

Research: What do you have to research? Be specific and list how you will collect all the information you need.	Media: - the top 5 countries on the EPI ranking and what they have done to become eco-friendly - Turkish school curriculum	Surveys: - a questionnaire/rubric to be given to teachers so they can evaluate the "test projects"
	Interviews: - have interviews with teachers on what can be the best methods to conduct my projects	Observations & experiences: - make observations while conducting "test projects"

Process Journal: How will you record the significant findings and development of the process? Specify type of format.

the process journal will be recorded via google docs

Report: How will you report it? Written/digital format/mixed media/oral presentation

Written

What will I do?	What do I need?	Date
1. Indicate what countries are the top 5 in the EPI	Computer	September
2. Research the strategies that these countries have used to become eco-friendly.	Computer	December and January
3. Research Turkey's ranking on the EPI	Computer	December
4. Research what lessons and what principles in the Turkish education curriculum can an environmental project be integrated into.	Computer	January
5. Brainstorm on projects that can be done with kids from Grades 1-8	-	January and February
6. Pick out a project to be used as a "test project" to be implemented at the school to see how effective it will be	-	End of January
7. Talk to the responsible teachers as well as principals to get permission to implement the "test project" (can be one from "Quest for Less")	-	February
8. Interview teachers who have previously conducted similar projects in their classes to get ideas and advice from them	Note taking supplies	February
9. Conduct test project and get feedback from teachers on how to improve it	Note taking supplies	February
10. Plan out each part of every project in order to form curriculum: a. What will be needed to conduct it b. What material does the teachers need to know c. If there are any extra materials such as worksheets needed to be made, make those	Computer	February

Appendix G: Interview with Döndü Erhan a teacher and biologist

Can you introduce yourself?

My name is Döndü Erhan. I am 34 years old. I started my undergraduate degree in Biology in 2003. I am actually a Biologist meaning I didn't get my initial degree in the educational faculty but rather in Biology. I graduated my undergrad in 2007. Then, after 3 years of my graduate degree I became a teacher. Teaching biology is actually quite new to me that realm entered my life only in 2010. I have been an IBDP teacher since 2012 and there I teach Biology alongside Environmental Systems and Societies. Teaching ESS with a focus on environmentalism and spreading awareness has especially been important for me as most people regard themselves as being environmentally aware yet they only notice most things only when they are shown or taught those things.

Besides in class do you have any personal interests in environmentalism?

I always support the notion that change regarding environmentalism stems from personal change. If a person does not change within themselves then whatever societal or political change, they aim to inflict upon the world will inevitably not succeed. I believe that whatever minor change I am able to make personally be it in my classroom or in my own home or within my school then leads to major changes. Other than that, I am also interested in ecology as a hobby. The research I do on my own time and the things I read almost always have an underlying message of environmentalism. I am always thinking of ways we can improve the state of the environment. When taken into practice I try my best to educate as many people as possible on how we can help the planet. The simplest example of this being closing the lights in my own home as well as in school and reminding people the importance of this message. While trying to spread this narrative maybe the first person will see what I am doing make fun of my efforts but eventually even if one person stops to think "maybe this issue is important" and starts acting themselves I believe that we will as a society get to a better place.

Within lessons have you done any projects to spread the message of environmentalism and if so, can you give any examples?

I believe that without understanding our planet, our ecosystems it is hard for us to work on eco-friendly projects within our society. So, in ESS lessons there are bottle ecosystems more popularly we can see them as terrariums. Each year with my students I try to work on ways in which we can build systems within these terrariums that work, meaning they can sustain life within themselves without any human intervention and resemble real ecosystems. Then, we change certain things within these systems such as adding acidic substances to be able to see the effects of acid rain on our planet or we change the temperature and examine the results. I want my students to be able to see that what is happening within that small model is actually a simulation almost of what is happening in real life with factories and whatnot, which is direct proof of how we negatively effect our plant. Other than that, there are certain projects conducted by environmental organizations and I try to make students aware of these. For example, Young Reporters is an organization I have been affiliated with for a long time which aims to get students to participate in ecological practices by getting them to act like journalists and report the environmental issues they see in their own communities. Another project is supported by OMO called 'Dışarda Bir Gün' which has many projects/activities, just like your project, aimed at a young demographic because that is where education starts. I try to modify these projects to be able to teach them at the high school level even things as simple as naming the living beings around them to have a better understanding of nature is valuable.

What is the hardest part about teaching something?

Sometimes the hardest thing is to break the idea that is formed inside a student's head that they will not be able to achieve something. For some reasons certain ideas are set in students heads that they will not be successful and for that reason they don't even try and they resist when you try to help them. So, generally convincing and motivating students can be quite difficult at times. Being a teacher does not only mean the material you're supposed to teach it also encompasses a whole motivational and mentoring aspect, which I believe we as teachers aren't taught enough how to implement in the Turkish Education system. We are not taught how to motivate students in that way which definitely effects the quality of the education

What are the most effective methods while teaching something?

That really depends on the dynamic of the class as well as the content you're teaching. In my classes I like to try many methods and then after trial and error chose the best fit for them. But in general, what I notice is that students really learn more effectively and sustainably in areas where peer learning and interaction amongst peers are encouraged. So, creating this type of environment is extremely important. I don't like to teach my lessons in a mot-a-mot style I like to add anecdotes, ask students about their day talk about their mental wellbeing when necessary and switch thing around basically.

Do you have any experience teaching younger kids? If so for them specifically what may be the most effective way to teach something.

Learning with games is extremely important for younger kids. It helps them better understand and better remember the content. I used to work with younger kids at my former school and also speaking from the experience I have gained with my son I can say that when you make something into a game or a story it is much more enjoyable for them which then leads to a better understanding of the concept. However, here repetition and consistency would be key because it takes a while for younger kid to register the things they learn.

When teaching about environmentalism what are the essentials that must be taught?

I think that sometimes the thing we get wrong about Environmental Education is that we impose our ideas too strongly or that we give students the conclusions ourselves, or tell students what is right and what is wrong instead of making it so that they come to their own conclusions on their own terms. For example, saying to a student "Close that light because I say so or environmentalists say so" can have quite negative backlash from the receiving end. Instead we should give the context such as "not closing the lights has a negative impact on the planet because it uses up precious resources" and hopefully the student will come to their own conclusions along the lines of oh I should close the lights then. When we tell kids you must do this we end up losing them so giving them the right infrastructure to feel it within themselves to be more ecological I think is the right way to go about this.

Appendix H: Photographs from test project



Appendix I: Feedback from Test Project

	Fully agree	Agree	Undecided	Disagree	Strongly disagree
I easily understood what I had to do throughout the activity	12	1	0	0	0
It made it easier for me to understand the lesson because we used real life scenarios	13	0	0	0	0
I have a better understanding of percentages	12	1	0	0	0
I was not aware of how much waste we produced	10	3	0	0	0
I now have a better understanding of how I need to be separating my waste	10	3	0	0	0
I was surprised by the data we collected	12	1	0	0	0
I have learnt something new about environmentalism today	7	6	0	0	0
I feel disturbed about the amount of waste we create	13	0	0	0	0

Band Levels	1-2 Limited	3-4 Adequate	5-6 Substantial	7-8 Rigorous
Aesthetics	Is very unclear and unorganized with an embellished design	Is somewhat organized and understandable with a complex design	Is easy to understand and mostly organized	Is clear, organized and visually appealing ✓
User/Audience	anyone	any teacher	Any teacher speaking English	The product caters to all teachers and educators speaking the English language and teaching grades 1 through 8 ✓
Function	The projects within the curriculum are unclear and hard to conduct	The projects within the curriculum are mostly clear and somewhat easy to conduct	The projects within the curriculum are substantially clear and easy to conduct	The projects within the curriculum are perfectly clear and easy to conduct ✓
Environmental considerations	The product fails to reach its goal of making children environmentally aware	The product somewhat reaches its goal of making children environmentally aware and has a very slight indirect, positive effect on the planet	The product mostly reaches its goal of making children environmentally aware and has an indirect, generally positive effect on the planet	The product reaches its goal of making children environmentally aware and has an indirect, positive effect on the planet ✓
Materials	The product is completely printed, one sided, colored	The product is completely printed, double sided	The product is partially printed but mostly technology based ✓	The product is completely technology based
Size/Content	More than one of the grade levels are missing projects and many projects are missing requirements	One of the projects for a grade level is missing with some projects missing certain requirements	There is at least one project per grade level, with some projects missing certain requirements	There is at least one project per grade level containing the following: material requirements, objectives, steps for project ✓

Teachers Comments:
 Sununun ön hazırlığı ve planlaması güzeldi.
 Yaş grubu özellikleri biraz daha dikkate alınabilirdi.
 Uygulama ile konunun pekişmesi gerçekleşti.
 Daha fazla görsel kullanarak çalısılabilir.