SAVE POND HOCKEY – PROMOTING ENVIRONMENTAL RESPONSIBILITY AND CLIMATE ACTION

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Climate actions and raising awareness of climate change are important, influencing people's awareness of climate change. Climate change affects already winters and winter sports. People who play winter sports such as pond hockey players, must face such changes as the playing season shortens and the conditions get worse.

The purpose of this bachelor's thesis was to find out how Save Pond Hockey tournaments promote and raise awareness of climate change. Another objective was to find out the climate actions of the commissioner and the climate awareness of the people participating in Save Pond Hockey tournaments.
The commissioner of this thesis was Save Pond Hockey. Save Pond Hockey organizes pond hockey tournaments around the world. The purpose of the tournaments is to raise awareness of climate change and climate crisis and encourage people take climate actions.

The research was conducted both as a qualitative study and quantitative study and the data gathering method was a survey. The survey consisted of seventeen open and closed questions about past tournaments and Save Pond Hockey's climate work and actions. The answers from the survey supported the theoretical basis gathered for the thesis. The survey was sent to team captains and players who participated in Save Pond Hockey tournaments in 2022. Total fifty-three people answered to the survey. The results of the thesis was needed to enable the commissioner to discover the impact of its own work and activities on the climate awareness of the participants in the tournaments and to take possible future climate and environmental actions.

The results of the survey highlight issues raised in the open comments of the survey, such as increasing marketing and visibility, the sustainability and responsibility of Save Pond Hockey's own operations, and information sharing. The outcome of the research work was that Save Pond Hockey needs an environmental program to use which directs its environmental work. In addition, there could be done communication and marketing plan to follow to increase visibility.

Keywords Climate Change, Climate awareness, Climate responsibility, Pond hockey, Climate action

Pages 49 pages and appendices 1 page

Table of contents

Appendices

Appendix 1: Thesis data management plan_Hirvonen

1 Introduction

What makes this thesis topic interesting is that topic is current and the effects of climate change on winter sports are already visible. This thesis examines how to promote climate actions and how to raise climate awareness through Save Pond Hockey tournaments. The author of this thesis is interested in finding out how participants feel that the Save Pond Hockey tournaments have affected their awareness of climate change. In addition, it is important to find out if the tournaments inspire participants to take climate actions in their personal or working life. When the results of this thesis are done, the commissioner of the thesis receives important information about its own environmental responsibility and climate actions.

The research was conducted both as a qualitative study and a quantitative study and the necessary information was collected through a survey. The survey consisted of closed and open questions. The answers received from the survey are presented in various graphs, from which it is easy to observe percentage distributions. The basis of the thesis is based on background research and the application of information.

The research questions of the thesis were:

- How does attending a Save Pond Hockey tournament affect participants awareness and action on climate change?
- How does Save Pond Hockey tournaments raise awareness of climate change?
- What is the climate impact of participants who join tournaments and how to measure this impact?
- How does attending Save Pond Hockey tournaments affect a participant's environmental awareness?

Understanding the severity of climate change is important to minimize the effects of climate change, such as floods and storms due to extreme weather events, and to avoid new ones. It is already known that the amount of snow and ice cover will decrease, and the arrival of winter will be delayed. Over the last fifty years, it has been observed that the thickness of

the ice cover in the Baltic Sea has thinned and the length of the ice cover period has shortened significantly, but mild winters have become more common (Gregow, Mäkelä, Tuomenvirta & Juhola, 2021, pp. 149). This has disadvantages especially for snow dependent winter sports such as pond hockey, which is discussed in this thesis. In Finland, the biggest changes in winter are best seen in southern Finland. It is important to communicate about climate change now, as the reduction in greenhouse gases is reflected in the climate with a delay (Gregow, Mäkelä, Tuomenvirta & Juhola, 2021, pp. 20-22). Creating a climate resilient society requires the cooperation of every sector (Valtioneuvosto, 2021).

2 Climate change

The climate has always changed, but today humanity produces enormous amounts of greenhouse gases in the atmosphere, which intensify the natural greenhouse effect. As a result, the climate changes and the changes are exceptionally fast. The main factor in climate change is the greenhouse gas effect. The Earth's atmosphere works like a greenhouse. Radiation from the sun can enter the surface of the Earth, but heat radiation cannot escape directly into space. We need natural greenhouse effect to live on Earth. The surface temperature of the Earth would be lower without the greenhouse effect, about -18 °C, but thanks to the surface temperature of greenhouse gases it is about +14 °C. Greenhouse gases are naturally presented in the atmosphere, the most important of which are carbon dioxide (CO_2) and water vapor (H_2O). However, their concentration is low compared to other gases such as oxygen (O) and nitrogen (N). As the amount of man-made greenhouse gases in the atmosphere keeps increasing, the global climate will get warmer. These extra greenhouse gases come mainly from fossil fuels. Fossil fuels are mainly used to produce energy. The changes that can be seen in the seas, atmosphere, and glaciers show that the planet earth is warming due to greenhouse gas emissions (Ilmasto-opas, n.d.-a).

The carbon stored in geological strata over millions of years has only been released by man in decades. Before it took millions of years for similar changes to take place, or for example a meteorite hit the earth, now in a couple of hundred years human activity has managed to achieve the same changes. The atmosphere can only be protected by reducing emissions.

Climate change and the atmosphere can be studied with surface measurements, satellites, and climate models. (Tiedekulmapokkari 3, 2021)

It is worrying that the average global temperature has risen by about 0.74 °C in one hundred years 1906–2005 (YK, n.d.). If similar lifestyle keeps on going as before, the average global temperature will rise to an estimated 2.5 °C but crossing the 1.5 °C limit would already have significant consequences for nature and consequently, for humans (World wildlife fund, n.d.-a).

Climate risks are various and might be linked to different industries. Cooperation between different industries and countries will be required in the future to ensure overall safety. Cooperation and the commitment of all countries are needed to tackle climate change in the future (Valtioneuvosto, 2021).

Two thirds of Finns climate emissions are caused by housing, transport, and food. One third consists of other consumption. Environmental policy has a key role to play in mitigating climate change. In the future, the responsibility for causing environmental damage should be placed on the shoulders of transport, industry and construction that emit greenhouse gases. Businesses should be instructed to avoid disadvantages. Environmental policy could always guide society to choose the lowest-emission solution and favor actions that improve the state of the environment (Tiedekulmapokkari 3, 2021).

Climate change is already here. In 2021, the world experienced astonishing floods and rains instead of snow, forest fires and dry long hot periods. Global warming could lead to a third of world food production at risk by the end of the century and several areas are getting uninhabitable. Countries are still dependent on coal, oil, and gas, although other sources of renewable energy are available. Air pollution from the fossil fuels alone kills about nine million people a year worldwide (The Guardian, 2021).

The years 2015–2019 were the warmest on record in Earth’s measurement history. The estimate is 1.1°C (± 0.1°C) compared to with the preindustrial era between 1800 and 1900. The shrinking of the Antarctic ice sheet increased at least sixfold between 1979 and 2017.

The extent of Arctic summer sea ice in 2015–2019 was also historically low (Intergovernmental Panel on Climate Change, 2019).

2.1 Impacts of climate change on the Arctic and cold areas

Temperatures will rise in various parts of the world in different ways. Global warming is happening fastest in the Arctic. Northern regions, such as Finland, are warming more than the rest of the world. Especially winter temperatures are rising more than summer temperatures. This will lead to rising sea levels, an increase in extreme weather events and eventually the entire ecosystem. The effects extend to the global climate. This can all be known through climate modeling. (World wildlife fund, n.d. -b) As stated earlier, if the amount of greenhouse gases in the atmosphere continues to rise, temperatures will rise faster in cold areas than anywhere else on Earth. In Finland this would mean 2.5 times warming compared to the rest of the world. Especially in winter, temperatures rise faster than in summer (Kaksonen, 2012).

In Finland, for example, the changes will be reflected in rising temperatures during the winter, as precipitation changes from snow to water, and an increase in precipitation. The snow cover time will be shorter and there will be less frost. Especially in southern Finland, winters become cloudier and grayer. In the future, winters may be compared to eternal November. Snow reflects sunlight well and if there is no snow, the environment becomes grayer and darker. The change will be greater in the South than in Northern Finland. Permanent snow cover will only be available in Lapland by the end of the century. Due to the increase in precipitation, the surface of the Baltic Sea is expected to rise. In addition, storms and their intensity are predicted to increase, especially in marine and coastal areas, leading to increased storm damage (Ilmasto-opas, n.d. -f).

The average temperature in Finland in 2020 was 4.8 °C, which is a record high. The winter was also very mild throughout the country, only exception was northern and central Lapland. The winter was also record rainy. In January 2020, the temperature in Turku was 9.2 °C while in Utsjoki the coldest temperature was -38.8 °C. Variations around the country can be large in Finland (Ilmatieteenlaitos, n.d. -a).

Permanent snow cover means the period when there is 1cm of snow on the ground. There will be a permanent snow cover in Lapland around the end of October. However, the first snow will rain on the fells as early as August-September. Permanent snow cover in Helsinki will rain at the end of December. When the temperature stays below 0 °C all day round, the thermal winter has begun (Ilmatieteenlaitos, n.d. -b).

2.2 Climate change mitigation and adaptation

Climate policy is guided by the Paris agreement, the UN climate agreement, and the Kyoto Protocol. The Paris agreement aims to keep global temperatures below 1.5 °C. This agreement covers the period after year 2020 and is a continuation of the year 1992 UN Framework Convention on climate change (Ilmasto-opas, n.d. -c).

The number of populations will increase in the coming decades, and this threatens to increase greenhouse gas emissions in the atmosphere. Plant based diet in general plays a significant role fighting against climate change. Switching to a plant-based diet, especially in the Western countries, will significantly reduce the amount of greenhouse gases in the atmosphere. The land that used to be grazing land would return to its natural state and be able to sequester carbon again. It is equally important to avoid food waste (Beijing forum, 2013, pp 147-251).

Most of the greenhouse gas emissions are coming from the energy sector, so it plays a leading role in combating climate change. Replacing fossil fuels with renewable energy sources, especially in electricity and heat production is an important measure to mitigate climate change. For example, solar panels, solar water heating geothermal energy or fuel cells powered by natural gas (Ilmasto-opas, n.d. -d).

Sustainable energy system is created by reducing emissions through various social, economic, and technical solutions, such as the smart grid or the consumer elasticity of demand market. Energy revolution refers to the control of intelligent energy to control variable production and to integrate the production of buildings, transport, heat, and fuels into the electricity system (Tiedekulmapokkari 3, 2021).

Energy-efficient construction and housing play a key role in achieving climate goals. The so-called zero-emission buildings with high energy efficiency, are built wisely, but the energy they consume also comes mainly from renewable energy sources. Energy savings are made during the maintenance of the property, but good building plans and high-quality construction are important things to consider when thinking about the energy efficiency of properties (European Commission, n.d. -a).

Consumers can influence emissions by buying an electric car or choosing a car that can be refueled with biofuels. However, the most important thing would be to think about which vehicle to choose and whether you need a car to get around at all. Favoring public transport as well as walking and cycling are important, especially in big cities. Route planning and alternative travel methods significantly reduce emissions, without forgetting road layout planning. Remote work is a good option for those for whom it is possible (Ilmasto-opas, n.d. -e).

Forests and soils have a major impact on the fight against climate change. Forests effectively sequester carbon dioxide and store it in the soil, in which case we speak of carbon sinks. Almost as much carbon is stored in the Earth's forests as in the entire atmosphere, or about 900 gigatons. However, the largest carbon stocks are located tropical forests as well as in the soils of boreal forests. Carbon has been stored in the soil, forests, and dead trees. Forests also reflect radiant energy back into space and produce volatile vapors that form the small particles needed to form cloud droplets (Tiedekulmapokkari 3, 2021). Stopping deforestation and increasing natural carbon sinks is particularly important now and in the future. The safest way to sequester carbon is to protect and restore forests and bogs (Maa- ja metsätaloustuottajain keskusliitto, 2017).

The seas contain fifty times more carbon than the Earth's atmosphere and sequester on third of all anthropogenic CO_2 emissions. The seas have therefore absorbed much of the anthropogenic CO_2 emissions. However, this has acidified the seas and now threatens calcareous organisms and coral reefs (Tiedekulmapokkari 3, 2021).

In such a future where warming continues, climate change and its many impacts will become increasingly threatening, according to the IPCC climate report (Intergovernmental Panel on Climate Change, 2022-a, pp. 87-89). When considering and implementing a nature-based solution and adaptation options, unwanted side effects should be considered, and trade-offs should be made. Nature-based adaptation solutions can bring unwanted side effects, such as increased methane release from larger wetlands. However, nature-based adaptation solutions can increase the sustainability of agriculture, make residential areas more comfortable and protect biodiversity (Intergovernmental Panel on Climate Change, 2022-b, pp. 90 – 91).

Global political agreements have been made to reduce greenhouse gas emissions, but emissions are still rising. The growth rate of emissions should first slow down and then decrease. Eventually, carbon dioxide only begins to be released from the atmosphere when more carbon is bound to the sinks than is released into the atmosphere (Ilmasto-opas, n.d. -d). International cooperation is needed to understand and address climate change and global environmental problems. Emissions must be reduced to protect the atmosphere (Bruyninckx, 2018).

2.3 Effects on winter sports

Cold weather, ice and snow are important for winter sports. If the snow and ice cover time decreases, then it will also be more difficult to practice winter sports. Natural snow is always a better option than artificial snow, already in terms of price and energy efficiency. Warming especially in wintertime causes thinning of the ice sheet. In large lakes or sea areas, ice cover may be partially lost. It is known that seas and lakes will freeze later and melt earlier. Skating on natural ice will move to ice rinks and separately frozen skating rinks. In this case Pond hockey is forced to move indoors (Ilmasto-opas, n.d. -b).

In the future, winter sports may require the creation of artificial snow and ice. Snowmaking on machines requires a lot of energy and water and this is very questionable especially in dry areas. Mountainous areas are extremely sensitive to the changes brought about by climate change. Now it has already been aching higher up the mountains to reach the snow line. In

Europe, for example the Alps are economically dependent on winter sports. The absence or disappearance of snow and ice concretely highlights the effects of climate change on winters. Depending on the winter, it is still possible to play pond hockey in Finland on the ice of lakes and seas or on frozen fields for a few months of the year (Humber, 2009). In Canada and the United States, the effects of climate change on winter sports may not be as severe as in Europe. This is because artificial snow is not used in Europe as much as in Canada and the United States (Buerki, 2003).

The impact of changing winters on winter sports was seen in the 2022 Winter Olympics. The Beijing Winter Olympics in 2022 were held entirely on artificial snow. Artificial snow had to be used because Beijing has little amount snowfall in wintertime. This is because climate change has changed the amount of rainfall and raised the temperature in Beijing (Orr, 2022).

One of the benefits of winter sports, like pond hockey, is that they are carbon free. At the same time, ice rinks produce greenhouse gas emissions. Currently, it seems that some places will have to make a full transition to indoor skiing. When in some places winter sports must be abandoned due to global warming, part of the cultural identity is also lost. Indoor winter sports do not provide the same state of mind as outdoor skiing. In Finland, there are already indoors cross-country skiing centers. Skiing indoors is possible all year round. However, indoor skiing completely lacks the landscape elements that people admire outdoors while skiing, as well as the sounds of nature and sensations of nature (Humber, 2009).

3 Save Pond Hockey

Save Pond Hockey (SPH) was founded in 2015 to fight against climate change and to spread climate awareness and information, but above all to save and protect pond hockey as a game. Group of friends were increasingly worried about the impact of climate change on pond hockey which led to the establishment of the organization. Save Pond Hockey is promoting climate action, but climate activism can be also part of individuals climate actions. Save Pond Hockey encourage people to make lifestyle changes to lower carbon footprints. The aim is to raise awareness, through tournaments, of the effects of climate change on winters and winter sports. Especially for pond hockey and thereby increase

people's climate and environmental awareness. Proceeds from the tournaments will be donated to work on climate change. The founders are Käpylä Monday's core group, Svantte Suominen and Steve Baynes. They are two most active volunteers with Save Pond Hockey now. Käpylä Monday is a pond hockey and football club that, as the name implies, plays on Mondays in Käpylä sports park.

Save Pond Hockey hosts tournaments around the world and there has been over twenty tournaments already and participants thousands (Figure 1). Tournaments are mainly announced via Facebook, Instagram and sometimes by twitter. Most new pond hockey teams hear about the tournaments through social media and in cities where have already had tournaments, majority of teams are so-called repeat customers.

Save Pond Hockey had a plan to co-organize the first Save Pond Hockey tournaments in the US in winter 2023 and more tournaments in Canada than before. One of the biggest goals was to organize a World Save Pond Hockey tournament in winter 2023. In January 2023, the world's first Save Pond Hockey tournament was held. The aim was to encourage anyone to organize a Save Pond Hockey game at their local rink or lake in support of climate action. The goal was to have as many Save Pond Hockey tournaments around the world as possible and hopefully attracting more media attention for the movement. Thousands attended on January 21st Save Pond Hockey tournaments all over the world.
Every year, the tournaments feature famous NHL players as well as Olympic medalists. Pond hockey as a game is for everyone as are the Pond Hockey tournaments (Baynes, Steve. 2022).

Figure 1. Save Pond Hockey Helsinki tournament going on with a blue sky in the background in 2022. Save Pond Hockey tournaments are played on outdoor ice. Tournaments cannot always be held on outdoor ice because there is not enough snow and ice due the warm weather. Then the tournament must be cancelled (Figure 1: Maria Hirvonen, 2022).

3.1 Pond hockey

Pond hockey is the original version of ice hockey. The biggest difference between the two sports is that ice hockey is played in the rink and pond hockey is played on natural ice or outdoors. The seashore, the shores of lakes as well as small ponds are suitable for playing pond hockey. Another difference between the two games is that the rules for pond hockey and ice hockey are different. Pond hockey usually has no referee, goalkeeper or periods and the size of the team is about four players. The duration of the game varies from twenty minutes to thirty minutes.

In pond hockey game is not allowed to touch other players physically. The games are usually played in public places and no tickets are sold for the games, but anyone can come and watch the game freely. Playing outdoors gives quite different experience and is more enjoyable than playing in the rink. This is the basis of the original purpose of the pond hockey (Suomen latu, 2013).

Various pond hockey tournaments are organized around the world. The world pond hockey championship is organized in Canada. The first pond hockey championships were organized in 2002 and it was the first of its kind in the entire world. Currently, around 120 teams from around the world participate in the championship every year (world pond hockey, n.d.). There is also European pond hockey championship which is held in Ritten, Italy. Teams are attending from all over Europe. In 2020 teams were coming for European pond hockey championship from e.g., Germany, Italy, Austria, Czech Republic, and Switzerland (European pond hockey, n.d.).

According to Statista, the world's largest number of Outdoor ice hockey rinks could be found in Canada, United States, Finland, Russia, China, Germany, Czechia, France, Slovakia, Japan, Italy, Austria, Switzerland, and Kazakhstan. However, Pond Hockey can be played anywhere where it is cold enough to play outdoor ice hockey (Statista, 2022).

3.2 History of pond hockey

The history of pond hockey is not completely known, as there are many interpretations and theories about it. However, it is known that the roots of ice hockey were born through playing outside. Outdoor hockey was played many years before indoor rinks became popular. Games like ice hockey have been played in ancient Greece and Egypt, but also in America, where Indigenous peoples have played stick and ball games before the arrival of Europeans. However, ice hockey as a game developed from stick and ball games played in the British Isles such as hurling, shirty and bandy, and their history stretches back to the year 1300. Over time, these games began to be played on ice with skates (Martel, 2020).

The skill of skating learned in the Middle Ages and various stick and ball games are the basis of ice hockey. In England, in the 19th century, a game called hockey began to be played, which was sometimes also called bandy. However, the development of the game took place in Canada, where the game arrived with the English soldiers. The world's first ice rink for the sport was built in Montreal. The world's first men's ice hockey game was played in 1875 and the women's in 1889. The rules of the game were written down in 1877 and by the early years of the 20th century, the Canadian version of hockey finally replaced bandy (Isotalo, 2021, s. 48).

4 Environmental responsibility

European union has environmental directive, which is an EU-wide liability regime. It operates on the principle that the person who caused the damage is held liable. The directive seeks to address environmental damage, especially for protected species and for surface and groundwater (Euroopan komissio, n.d. -b).

The word environmental responsibility is often associated with companies' environmental responsibility and responsibility reporting. Customers and employees want to know what the company has done concretely to achieve its environmental goals. The environmental management program is usually used as a tool for this. The environment is considered in all the company's operations and decision-making. Companies can obtain an environmental certificate, which states that the organization is managed with environmental issues in mind. There are industries where an environmental management system or certificate is required. Another issue that affects an organization's acquisition of an environmental management system is responsibility. Every employee in the organization can get involved to produce new ideas for improvements and absolute changes. The environmental system has clear goals, people in charge and indicators to achieve the wanted change and result (Suomen ympäristökeskus, 2019).

Environmental responsibility requires an ethical review from the perspective of the individual to be able to distinguish between right and wrong. The goal is to protect ourselves, our loved ones, our communities, and the entire planet. An ethical lifestyle looks

at the consequences of our actions and decisions, both good and bad. Information about the problem is needed to address the problem. Knowledge and concrete together are needed to make people wake up to climate problems.

Researchers have found that in so-called invisible problems, people do not perceive the scale of the problem without the visual side. Awareness of the problem can be raised through 3D visualization, for example, by showing people how sea level rise would have a concrete impact on coastal cities.

Caring and empathy are effective in motivating people to make more climate-friendly choices. People with more environmental knowledge are more likely to act in a way that promotes the environment. It is possible to see a change in human behavior, when looking back in time a hundred years (Britain, 2015, pp. 165 -168).

4.1 Responsibility of events

The purpose of Save Pond Hockey is to raise awareness about climate change and get people to take climate actions. At the same time, is important to remember that the event itself must be responsible and in line with sustainable development. They key to be a responsible event is to be aware of the environmental impact of its own operations.

It is important to involve partners and subcontractors in developing responsibility work, to engage them in it and to constantly increase environmental awareness. The event must consider the food and drink offered, as well as the organization of recycling and environmental communication. It is important to involve subcontractors and partners in planning responsibility work, thus the event itself can function more responsibly when everyone knows the values and measures based on which the event is produced.

Those participating in the event should be encouraged to arrive at the venue in accordance with the principles of sustainable movement, which means that people are instructed to arrive at the venue by walking, cycling, or using public transport. The energy used in the event should be eco-certified or produced with renewable energies, and the material

needed for the event should be reused as far as possible so that they can be used in the following events. This is how circular economy solutions are supported (Sitra, 2018).

To act responsibly, a company or an organization must investigate and understand the environmental effect of its own operations on both the environment and society as a whole. When one's own environmental impacts are known, one can think about what kind of measures can be taken to reduce the environmental impacts of one's own activities. When the previous measures have been taken, it is easier to think about communicating the activity going forward (Partanen, 2017).

Responsibility work can be guided by an environmental program, such as the EcoCompass. The EcoCompass consists of criteria that the company must follow and fulfill. Fulfillment of the criteria is checked during audits. The introduction of the environmental program starts with the initial survey, where the criteria are reviewed, the environmental effects of the organization are identified, and environmental goals are made. With the help of the above measures, the environmental load is minimized. It is important to choose a person who takes care of responsible work and the fulfillment of the EcoCompass criteria every year. It is necessary to compile a report on the program annually, so that the EcoCompass expert and the organization itself understand and see the changes but also development points of the organization's environmental impact (Ekokompassi, 2022).

4.2 Responsibility of Save Pond Hockey tournaments

Save Pond Hockey does not yet have its own EcoCompass certificate that directs its environmental work. Save Pond Hockey can influence the responsibility of its own organization in the future by acquiring an EcoCompass or another environmental program. With the help of EcoCompass, it would be possible to calculate organization's own carbon footprint and set goals for environmental and responsibility work in the future. Based on the results obtained in this study, the organization can develop its environmental goals and work in the direction that tournaments attendees' awareness of climate change and crisis

increases, and they take more climate actions in the future.

5 Environmental awareness

Environmental awareness as an attitude can be divided into two groups, eco-centric individuals, and anthropocentric individuals. This division is defined by Gagnon Thompson and Barton. In the breakdown, the first group believes in the absolute value of nature and protects it for that reason. The second group looks at the matter from a human point of view, and especially from the point of view of human quality of life and considers that protecting nature helps it. In both cases, environmental awareness can develop human behavior into a more environmentally friendly behavior pattern (Thompson & Barton, 1994).

Environmental awareness is important to understand the impact of one's own choices and actions on the surrounding nature and its biota. Environmental awareness refers to how people understand issues and how they react to them. In short, it is a question of understanding the functioning of ecosystems and their significance, which also leads to the need to protect them through action and choice. The aim is to increase environmental awareness. Especially in the field of early childhood education and training which is part of environmental education. Storytelling is one way to promote environmental awareness. Environmental education takes place in kindergartens and schools but also in the workplace and for hobbies. In Finland, environmental education is part of the basic education curriculum. Environmental awareness increases with risen knowledge, skills, values, experiences with environmental education. Motivation enables choices and actions that lead to environmentally responsible activities. Various organizations are also working to raise environmental awareness in different ways (Cohen, 2021).

Save Pond Hockey aims to raise awareness of the effects of climate change on pond hockey and especially how winters are changing. It increases people's environmental awareness through climate change. Climate change and climate crisis together are threatened the future of winter sports such as pond hockey. Save Pond Hockey raises awareness about

climate change through its tournaments and wants to get participants in the tournaments to take climate actions in their own lives and in their working lives (Save Pond Hockey, n.d.).

People can learn environmental awareness both formally and informally. In this case, formal means information obtained from school, and informal means that environmental awareness is learned from somewhere other than school, for example from environmental organizations or from Internet. When students learn about the environment at school, they gain different and better perspectives on the environment (Dirtya, 2018.).

Save Pond Hockey promotes environmental awareness by spreading the information of climate change and its effects to winters and especially its effects to outdoor ice hockey. In this case, people who participate Save Pond Hockey tournaments can learn environmental awareness informal way, through tournaments.

Environmental education aims to make people work for the environment. Everyone has a duty to take care of environment. Such a person has its own term, an environmental citizen. Through people's participation, the goals of sustainable development can be achieved, and decision-making can be influenced. Disseminating environmental awareness is important so that future generations can have a safe life. Every individual has a responsibility to live more environmentally friendly, and environmental awareness is needed to understand this. Environmental information must be up-to-date and based on reliable researched information. If climate information is not shared, it will lead to a deterioration in the state of the environment and an alarming rate of climate change. Schools play key role of spreading the information of climate change through environmental education (Aarnio-Linnavuori ym., 2020, chapter 9).

As mentioned earlier, environmental education is particularly important for young people, as they are the future of this planet and face environmental problems and risks. Environmental education can create critical thinking skills that are useful in solving environmental problems. Environmental education includes participation, research, attitude, action, skills, knowledge, awareness, concern, and citizenry (Figure 2). Environmental education can lead to actions, awareness and change of attitude (Green blogger, 2014).

Figure 2. The picture shows a triangle made up of green arrows, and inside each arrow is written some benefit of environmental education (Green blogger, 2014).

6 Climate action

Climate action means actions towards preventing and restraining climate change. Need of actions is urgent. The UN Sustainable Development goals are universal, and the aim is to rebuild sustainable planet and world for everyone. There are seventeen sustainable development goals and 169 sub-goals. Citizens, countries and their decisionmakers are all needed in the realization of these goals. Climate action -goal can be found in sustainable development goals at number thirteen. One aim for this goal is raise awareness of climate change and this is exactly, what Save Pond Hockey is trying to do. Climate actions are important because climate change is already affecting every country in the world.

Climate action can be something easy as recycling, choosing bike over car, choosing plant-based diet, or supporting charities which are donating money for climate actions or spreading information about climate change and how to affect it. On a larger scale, corporations, industries, and organizations can use their power and decide to choose climate friendly products and services into their operations. This way, they can influence the future and lead the way. The most important thing, however, is doing concrete work on the fight against climate change, either in words or in deeds.

It is important focus and highlight changes people have already seen and noticed around them. That way climate change is easier to understand for people. When people get interested about environment and climate change, it is important to tell people what they can do to slow down effects of climate change. Hope is crucial weapon in the fight against climate change (United Nations, 2015. -a).

Because human activity has caused climate change, every individual can influence climate change through their own choices and actions. It is important to be aware of the role of politics and its power in climate work. The same goes for social movements or climate activism. Climate action can be a variety of community-based events that increase participants awareness of climate change and its effects, various campaigns, or training programs. Climate action and activism often challenge current economic and social policies. The aim is to create a new perspective on nature as well as on each other. Climate activism is intended to influence the existing situation from the point of view of decision-making. The aim is to reverse the situation so that it contributes to mitigating climate change and change the structures of society in a climate-friendly way (Leichenko, 2019).

Save Pond Hockey community's main actions is to share information about climate change and its effects to pond hockey and get people to take climate actions both in their personal life and working life. The goal is saving pond hockey as a game for future generations. Information is shared through social media and on their website. On the website is a list of what an individual can do for the work against climate change. List contains different kind of climate actions. In social media, information about climate change is shared time to time in

the form of various publications or stories. Information about climate change is not yet shared in tournaments. This thesis examines how the sharing of information has been successful and whether awareness of climate change has increased. The information on the website includes useful tips what an individual can do in the fight against climate change. There is encouraged to sign the climate pledge petition, which appeals to decision-makers for their concern about climate change. On the website, there is a documentary made about Save Pond Hockey, which opens information to viewers about what is Save Pond Hockey and what it stands for. More importantly it gives information about climate change. Save Pond Hockey conducts climate work through informative climate communication (Save Pond Hockey, n.d.).

7 Sustainable development

Sustainable development refers to social change that takes place within the limits of the earth's carrying capacity, which is guided, and continuous and which goal is to guarantee the opportunities for a good life for current and future generations. Decision-making and action are divided into three categories. One of the most important prerequisites for social and cultural sustainability is the well-being of citizens and how to promote it. It includes the organization, of poverty, population growth, gender equality, food and healthcare, and education. With economic sustainability, the aim is to guarantee that economic growth is not based on indebtedness or the destruction of reserves. The economy must be on a sustainable basis to guarantee healthcare costs and other expenses due to the aging of the population. Ecological sustainability means human activity within the limits of nature's carrying capacity, biological diversity, and the functionality of the ecosystem. Sustainable development is a global, but also local activity (Ympäristöministeriö, n.d.).

The sustainable development work of all countries is guided by Agenda 2030, which is a sustainable development action program concluded in 2015 at the UN, and the indicators for evaluating the implementation of the goals were published in 2016. The program has seventeen main sustainable development goals and 169 sub-goals (Figure 3). The purpose of the goals is to eliminate extreme poverty from the world and secure the well-being of the environment in a sustainable way. Practical solutions and funding determine how the goals

of sustainable development will be achieved. The member countries of the UN are committed to achieving the implementation of sustainable development goals with the help of financing and various other means. All this requires innovation, technology, and the utilization of science (Ulkoministeriö, n.d.).

Figure 3. The seventeen goals of sustainable development listed below in the picture (United Nations, 2015. -b).

8 The purpose and goal

The purpose of the research is to increase awareness of implementation and success of climate actions. More specifically, the aim is to know, how does Save Pond Hockey tournaments promote and raise environmental awareness of climate change and climate crisis. The research topic was chosen due the commissioner's interest of knowing how their events increase participants awareness of climate change, and how Save Pond Hockey has succeeded in raising climate awareness among participants.

The purpose is to deal with positive environmental impact from the perspective of the organization. The result is needed to know the impact of one's own actions on the climate awareness of the participating people and in possible future climate and environmental

actions. The results of promoting environmental responsibility from tournaments and events encourage and guide other similar operators and organizations to join in similar activities. When the results of thesis are done, organization receives important information about its own environmental responsibility and its promotion.

9 Research question and the target of research

The research question was selected on the commissioning party request to know, how does attending Save Pond Hockey tournaments affect a participant's environmental awareness.

The main research questions were:

- How does attending a Save Pond Hockey tournament affect participants awareness and action on climate change?

Three sub-questions were determined to support the main question, which were:

- How does Save Pond Hockey tournaments raise awareness of climate change?
- What is the climate impact of participants who join tournaments and how to measure this impact?
- How does attending Save Pond Hockey tournaments affect a participant's environmental awareness?

In short, the purpose was to study by using the above questions climate awareness, climate actions, environmental responsibility and how to increase climate awareness through climate actions in Save Pond Hockey tournaments.

10 Research methods

This research was conducted by using both quantitative and qualitative research. Qualitative research is briefly explained in terms of responding to phenomena. Observation, informal interviews, and data and text analysis are among the methods used to gather qualitative

data. The purpose is to answer a research question and make observations that are not predetermined. The object of the research can be an organization, place, community, event or even a city or country. In this case it was organization (Mack, Woodsong, MacQueen & Guest, 2005, pp. 12).

Quantitative research is describing an object using numbers and statistics. Quantitative research answers the questions what, where how often and how much. This research method is well suited if there is need to find out the opinion of a large group about something. Quantitative research aims to explain phenomena based on numerical results, cause, and effect relationship, and categorizes and compares information (Heikkilä, 2014, pp. 15).

This thesis was conducted using a survey that consisted largely of open-ended questions. The survey was conducted by sending the survey questions to the appropriate target group, the team captains and players participating in the tournaments. This provided the relevant information. The purpose of the survey was to find out whether participants climate awareness has increased through participation in tournaments.
The quantitative method was well suited for use in a survey where numerical data is desired. In this thesis, it means numerical data about the thoughts and opinions of people participating in different tournaments. The survey included pre-standardized questions for the respondents as it should be in quantitative research (Heikkilä, 2014, pp. 15).

The theoretical parts of the thesis were collected from articles, internet, personal notices, and books. The results of the research and the theory have been formed both with the help of theoretical and material answers to the survey questions. In this research, qualitative content analysis has been used as an aid to create clarity in the material. The study has used a factual perspective to create indicators of survey responses from team captains and members. The responses to the survey are indicative but provide information about reality.

Gathering the theoretical basis and material included in the study was the first part of starting this research. With the help of the thesis supervisor, the method of both quantitative and qualitative research was chosen as the research strategy. The research

process progressed after selecting the research problem by getting to know theory. The theory succeeded in specifying a more precise definition of the research problem. In this case, it meant the impact of Save Pond Hockey tournaments on climate awareness and impact among participants. Through open survey questions, there was an opportunity to make the voice of the participants heard. The conclusions and results of the research provide answers to the research question and guide future actions.

10.1 Survey implementation

The survey was produced by using Google Forms. Google forms is management software for surveys. By using google forms, is possible to create different kind of surveys and manage them, but also analyze results in real time. It is easy and user-friendly survey management software (Google).

Survey was open from 14.09.2022 to 12.12.2022. A total of fifty-three responses were received to the survey. Responses to the survey came from Finland, Germany, and Canada. Questionnaire contained seventeen questions about past tournaments and Save Pond Hockey's climate work and actions. The survey was sent to the team captains, and they were asked to forward the survey to their teammates. In addition, survey was shared via social media to reach more people who participated in the tournaments. Few respondents were contacted by phone to get more answers to the survey. The survey was conducted using open and closed questions. The main questions related to climate change and climate actions were:

- Did you know that profits from Save Pond Hockey tournaments are donated to projects tackling climate change?
- Before participating in a Save Pond Hockey tournament, did you realize that climate change is already impacting winter sports, such as pond hockey?
- Did participating in a Save Pond Hockey tournament raise your awareness of climate change?
- Did participating in a Save Pond Hockey tournament inspire you to take climate action in your personal life?

- Did participating in a Save Pond Hockey tournament inspire you to take climate action in your working life?

10.2 Reliability and validity of the research

As mentioned before, this research was conducted by using both qualitative and quantitative research. In qualitative research is important not to manipulate the phenomenon of interest. The most important test of qualitative research is its quality. The research had to be done carefully, i.e., asking the right questions to get high-quality answers (Eisner, 1991, pp.58).

No consensus has been reached regarding the evaluation of the quality and sustainability of qualitative research. However, the most important thing is consistency to keep qualitative research reliable. The research question must be valid enough to reach the desired result. Validity describes the compatibility of processes, data, and different methods in qualitative research. Reliability, on the other hand, means that the obtained result can be repeated. This creates challenges in qualitative research (Leung, 2015).

By using open survey questions, respondents had opportunity clarify their answers (yes/no) and had their voice to be heard. The response rate of the survey was good, and all seventeen questions were answered by fifty-three respondents. According to a study conducted at Loyola University Chicago, the average response rate for online surveys is 41.1% (Wu, 2022). The progress of the survey required that each question must be answered. The reliability and validity of the survey are therefore at a good level.

10.3 Anticipation and risk management

The biggest challenges regarding the survey were that there were not enough answers in the survey, which case the results would not be comparable. The survey response time was extended for this reason and a few team captains were contacted to get a higher response rate.

Regarding the schedule, the biggest challenge at the beginning was when the survey could be sent to the participants. Because of this, the work started with a theory focus and after the tournaments it was possible to send a survey to the participants and continue the research section. Coordinating work, studies and thesis created its own schedule challenges. Solution was organizing work more systematically.

One sub-questions turned out to be a tricky one. Sub-question was how to find a way to measure participants climate impacts. This gives a new topic for further studies. It is important to understand which factors affect an individual's climate impacts and find a way to measure this impact.

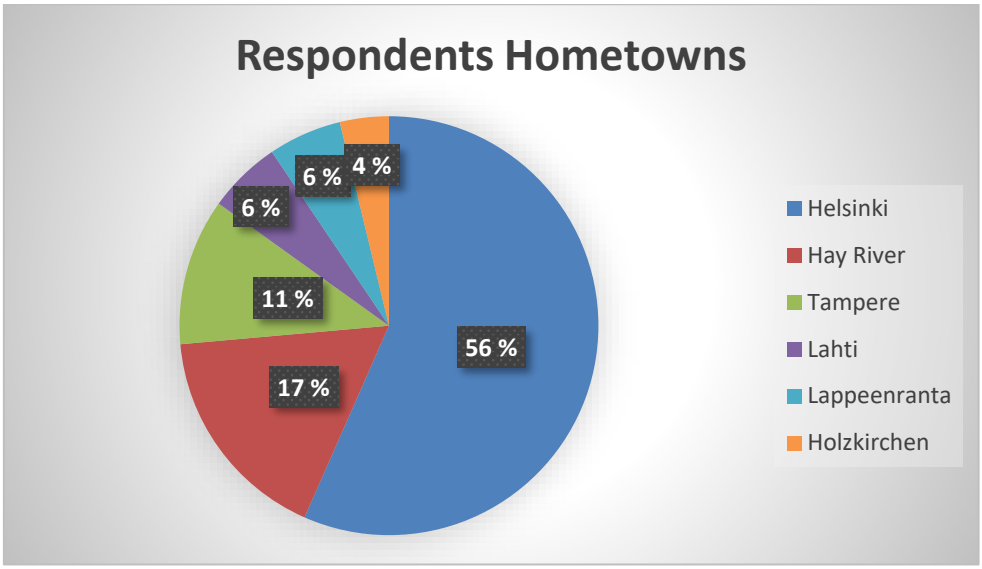
11 Survey results

In this chapter, the aim is to go through the results of the survey and open a little more about the answers received from the survey and the distribution of the response percentages with the help of various figures. Conclusions and more detailed discussion will be reviewed in the next chapter.

The seventeen questions asked in the survey and the answers received from the survey are presented below. The survey respondents were from Finland, Germany, and Canada. The results of the survey are presented by different kind of graphs to make it easier to understand the results.

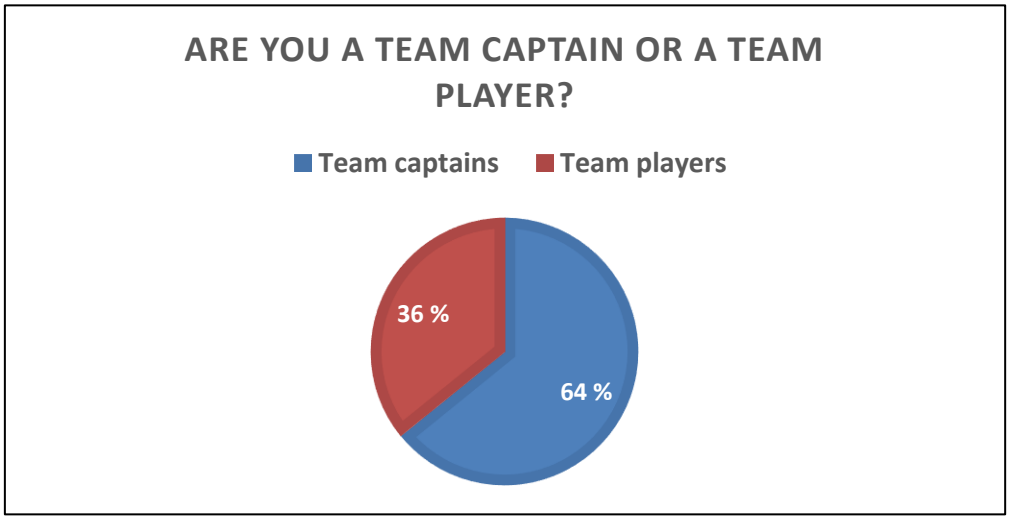
Most answers were received from Helsinki tournament (56%) and the next most from Hay River, Canada (17%). In addition, answers were received from Tampere, Lahti, Lappeenranta, and Holzkirchen in Germany. Most of the Save Pond Hockey tournaments are organized in Finland and that is why most responses have been received from Finland (Figure 4).

Figure 4. The picture shows the cities where respondents participated in Save Pond Hockey tournaments.



The respondents were team captains and team players from different cities and events. Thirty-four respondents (64%) were team captains and 19 (36%) were team players (Figure 5). The surveys were primally aimed at team captains. Team captains were asked to forward the survey to other team members.

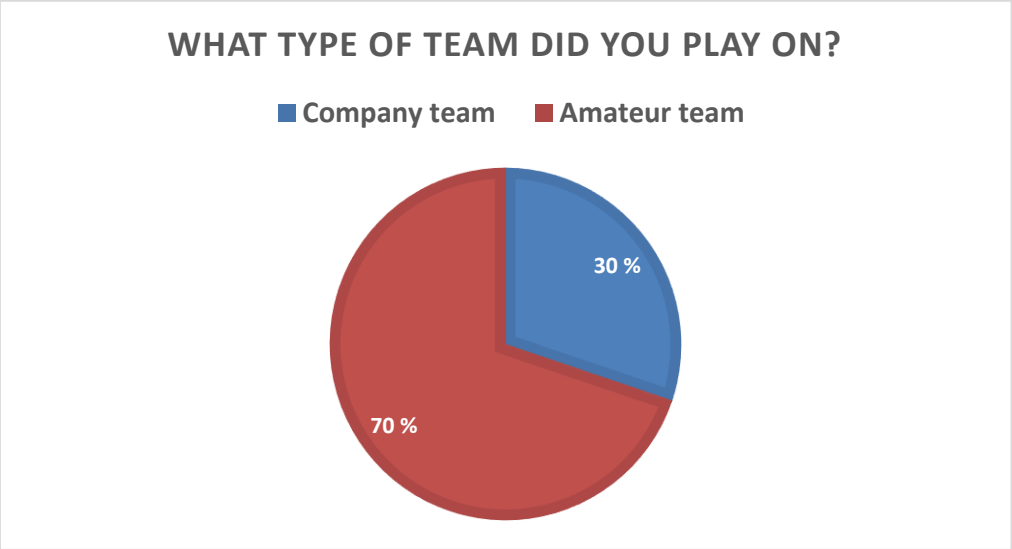
Figure 5. The picture shows how many percent of respondents were team captains and team players.



Save Pond Hockey teams was divided into amateur teams and company teams. Both amateur and company team members answered the survey. Thirty-seven respondents (70%)

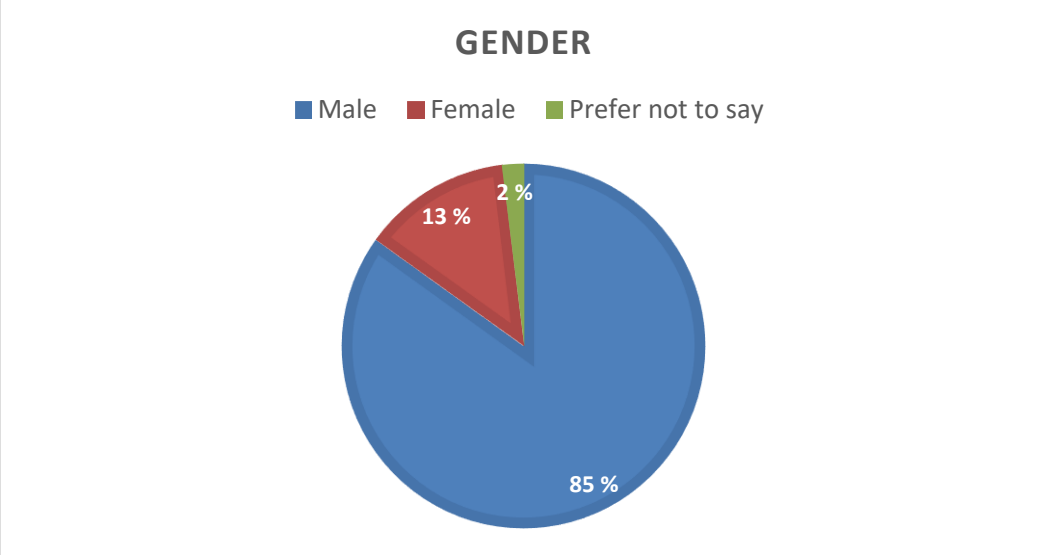
were from amateur teams and other sixteen respondents (30%) were from company teams. Most respondents belonged to amateur teams (Figure 6).

Figure 6. The picture shows in what type of teams did players play on.



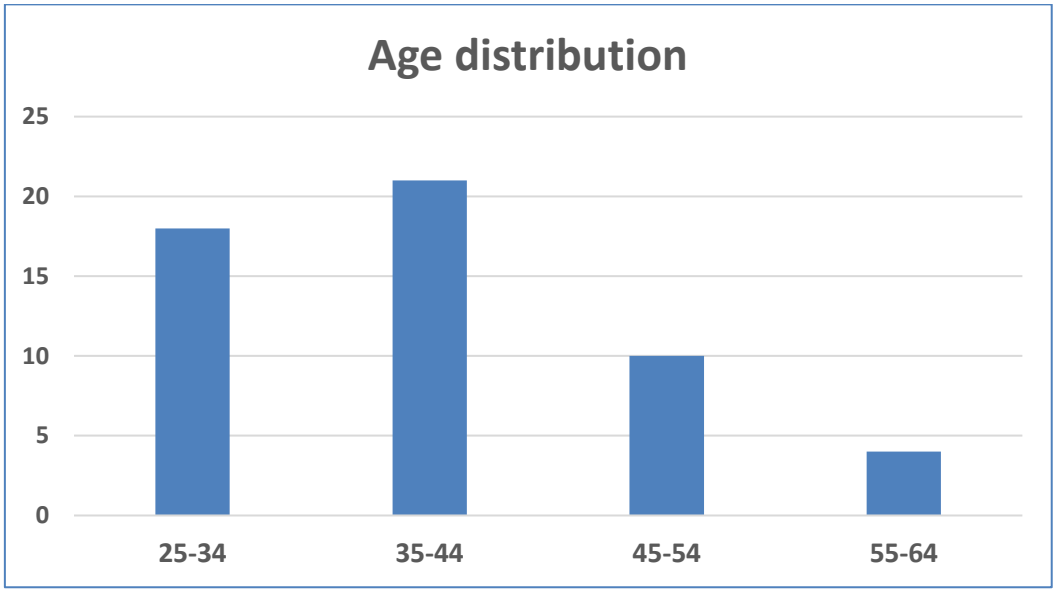
The gender distribution of this survey was quite large, as shown in the graph below. More men than woman answered the survey. Forty-five respondents (85%) were men, and seven respondents (13%) were women. One respondent (2%) did not want to answer this question (Figure 7).

Figure 7. The picture shows the gender distribution of the respondents.



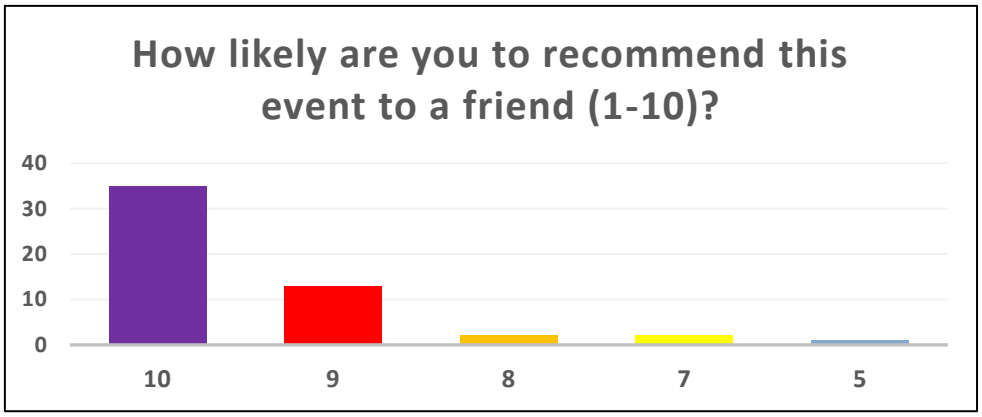
There is an age distribution among those who participated in the survey. All the respondents were over 20 years old. The largest age group were between 35-44 years old and smallest between 55-64 years old. Other age groups were 25-34 years old and 45-54 years old (Figure 8).

Figure 8. The picture shows age distribution of respondents.



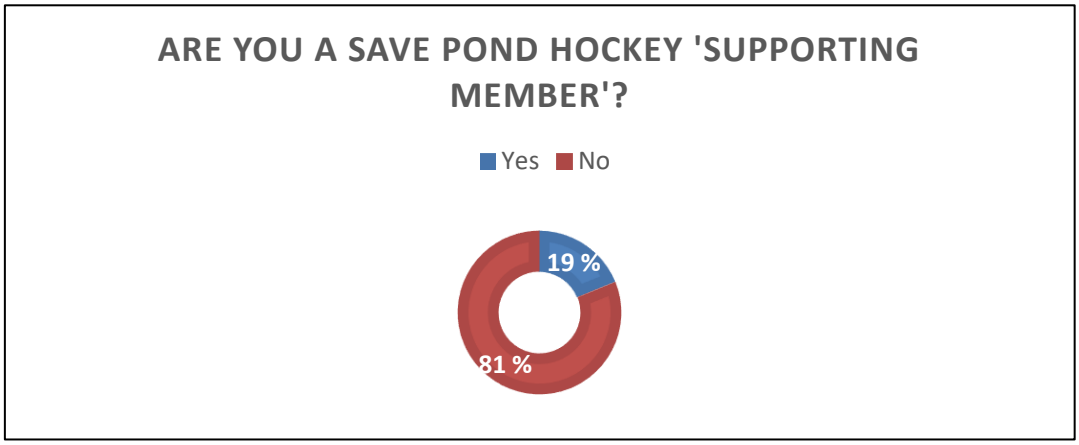
Based on the results of the survey, many of the respondents would recommend the event to their friends (Figure 9). The answer scale was from 1-10 and the lowest result was five. Most of the respondents gave a grade of ten. It means that there were no answers received below a grade of five.

Figure 9. The picture shows how likely respondents recommend Save Pond Hockey tournaments to a friend.



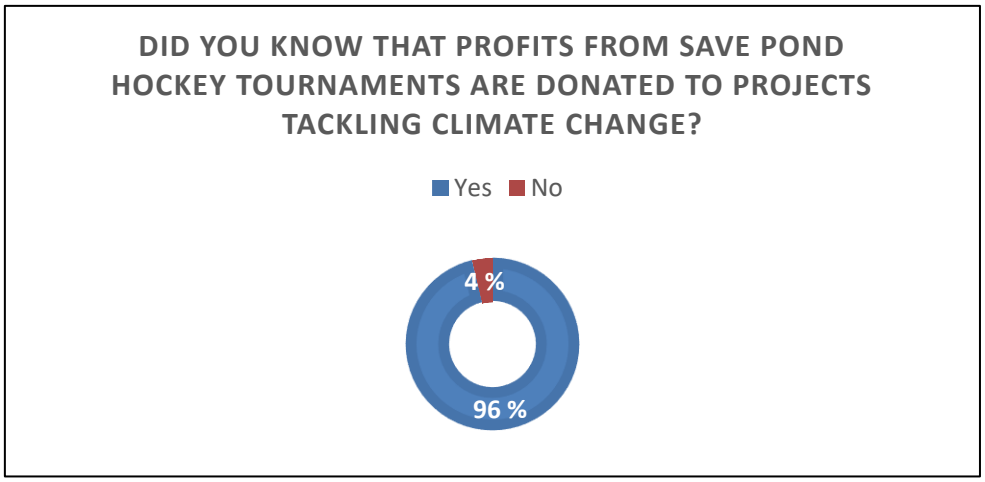
The survey says that 81% of respondents were not Save Pond Hockey supporting members, but ten respondents (19%) were Save Pond Hockey supporting members already (Figure 10). It means that forty-three respondents were not Save Pond Hockey supporting members.

Figure 10. The picture shows how many respondents are Save Pond Hockey supporting member.



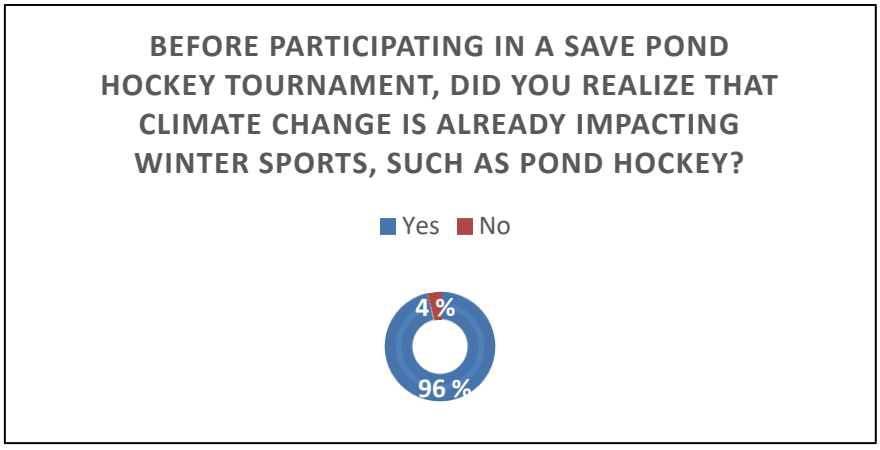
Fifty-one respondents (96%) knew that profits from Save Pond Hockey tournaments are donated to projects tackling climate change. That means that only two persons (4%) did not know that profits from Save Pond Hockey tournaments are donated to projects tackling climate change (Figure 11).

Figure 11. The picture shows how many respondents knew that profits of Save Pond Hockey tournaments are donated to projects tackling climate change.



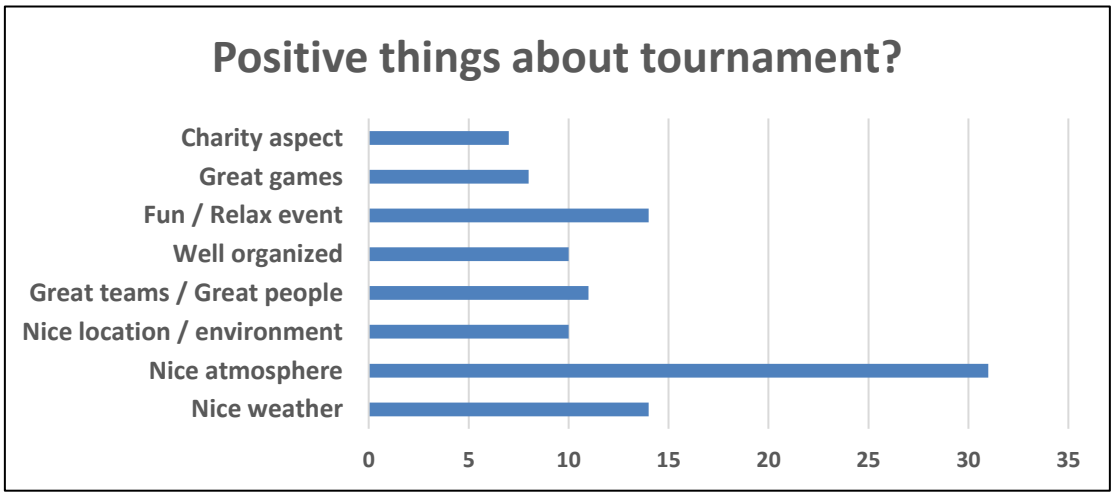
Most respondents knew that climate change is already impacting winter sports. Fifty-one respondents (96%) answered that they knew climate change is already impacting winter sports. That means that two respondents (4%) did not know that climate change is already impacting winter sports (Figure 12).

Figure 12. The picture shows how many participants knew before participating in Save Pond Hockey tournament that climate change is already impacting winter sports.



Below are the respondent's positive comments of the event. Tournament participants appreciated pleasant atmosphere, nice weather and fun and relax event. Respondents also appreciated great games, well organized event, nice location and environment and charity aspect of tournaments (Figure 13).

Figure 13. The picture shows the respondents positive comments about the tournament.



"Nice atmosphere, perfect weather, lots of people and funds raised for climate work."

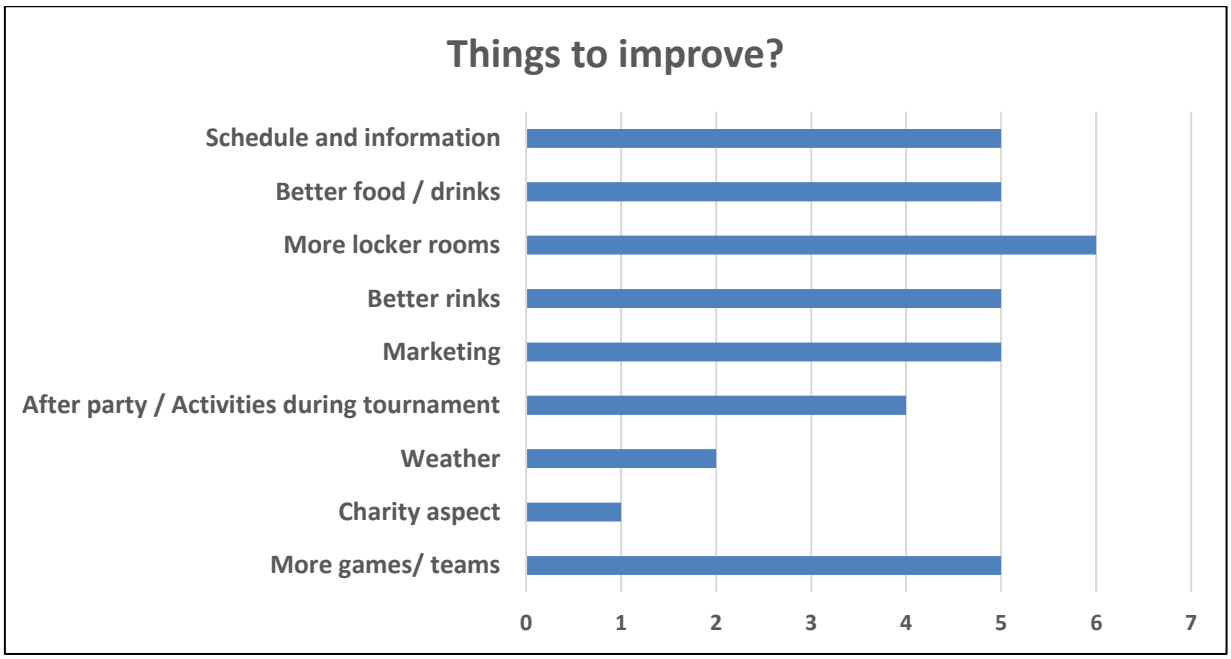
"Great pond hockey atmosphere during the tournament and the weather and the ice condition were most of the time excellent. Overall, the tournament was organized smoothly and the setting at Jätkäsaari was uplifting. We had a great day with our team."

"Everything! Great atmosphere for hockey and even better platform to share information about climate change."

"It was fun, good time, good food and good company! Very well ran event."

Respondents wish to have more locker rooms, better rinks and better food and drinks in the future tournaments. Other things to improve what mentioned was marketing, schedule, and information, after party or other activities during or after tournaments, weather, charity aspect and more games and teams (Figure 14).

Figure 14. The following figure presents things to improve in Save Pond Hockey tournaments.

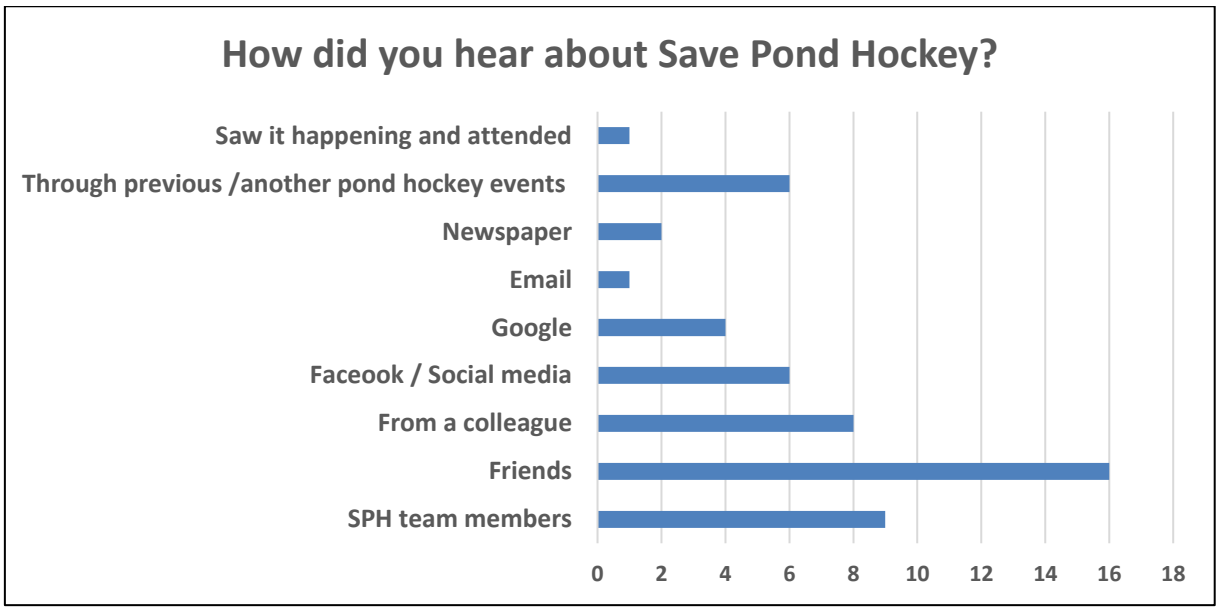


“People coming in by cars and meat being sold in the event. Felt like people are not taking the climate issue seriously. You could set an example in taking it seriously and offering only vegetarian/vegan food and advising people to come by public transportation (or at least shared rides). Also, some companies there made it feel like greenwashing. Makes me not want to be a part of that.”

“Increased awesomeness… involving more kids on the Saturday & Sunday… Friday night is all about show… That will certainly add participates.”

Respondents had heard about Save Pond Hockey tournaments from a friend, colleague, or Save Pond Hockey team member. Most of the respondents had heard about Save Pond Hockey tournament from a friend. They also mentioned google, newspaper, email, previous or another pond hockey events or social media (Figure 15).

Figure 15. The picture shows different ways how respondents had heard about Save Pond Hockey tournaments.

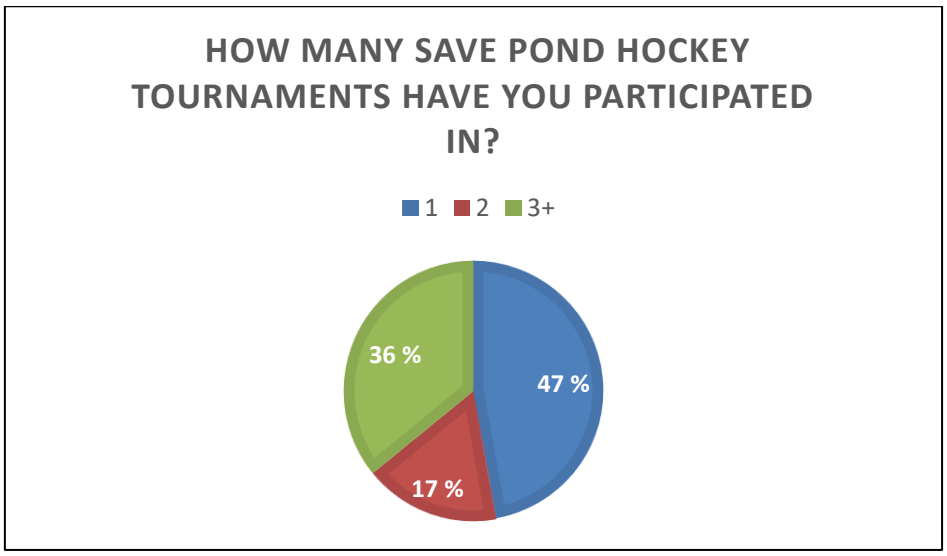


“Asking around on Facebook + browsing through the web.”

“We have our local annual polar pond hockey tournament and they partnered with the Save Pond Hockey initiative.”

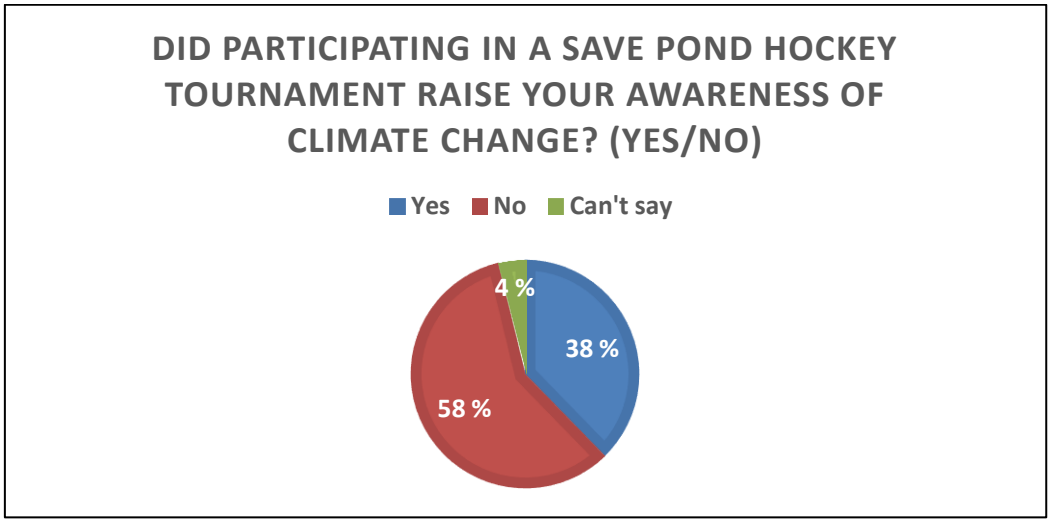
Most respondents had attended once for Save Pond Hockey tournaments. Twenty-five respondents (47%) had participated once for Save Pond Hockey tournaments. Nine respondents had attended (17%) twice and nineteen respondents (36%) three or more times (Figure 16).

Figure 16. The picture shows how many Save Pond Hockey tournaments respondents have participated in.



31 (58%) of respondents answered that participating in a Save Pond Hockey tournament has not raised their awareness of climate change. Twenty respondents (38%) answered that participating Save Pond Hockey tournament has raised their awareness of climate change and two respondents (4%) could not say (Figure 17).

Figure 17. The picture shows the result of did participating in a Save Pond Hockey tournament raise respondents awareness of climate change.

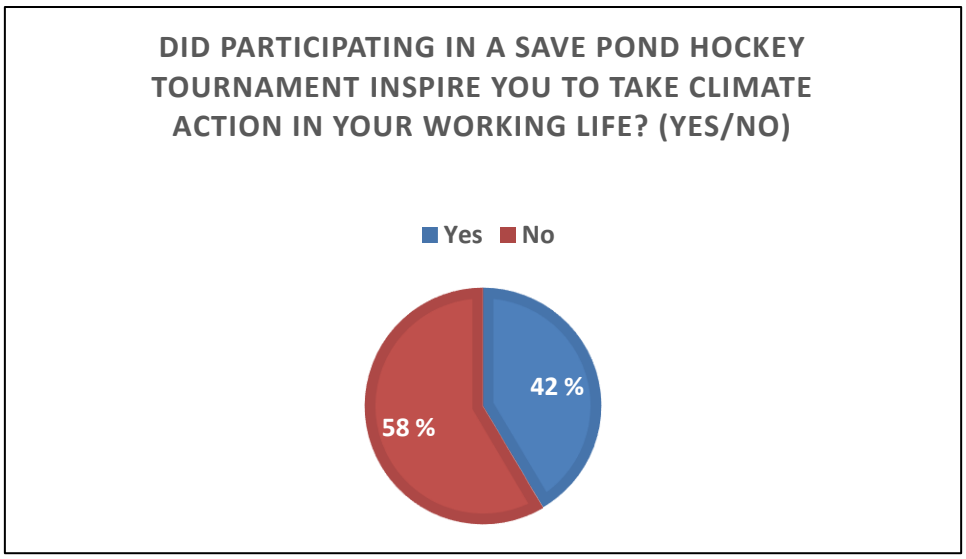


“Yes, the event has been canceled/postponed due to that, so it is rapidly affecting us here in Finland “

“Not really for me but the tournaments are great in reminding us of the matter. “

Thirty-one of respondents (58%) answered that participating in Save Pond Hockey tournament did not inspire them to take climate actions in their working life. Twenty-two respondents (42%) answered that participating in Save Pond Hockey tournament inspired them to take climate actions in their working life (Figure 18).

Figure 18. The picture shows the result of did participating in a Save Pond Hockey tournament inspire respondents to take climate action in their working life.



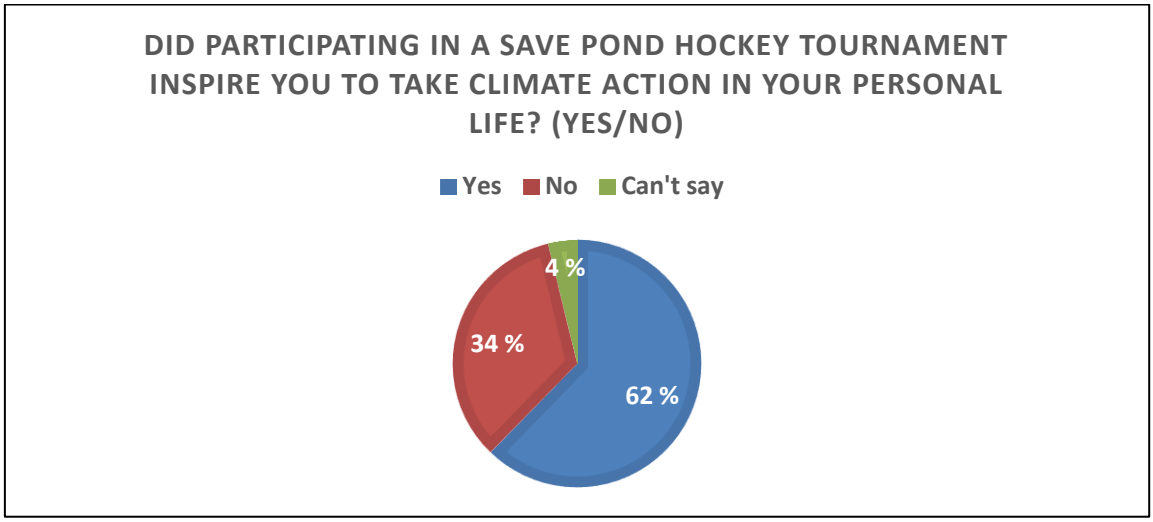
“Yes, working from home more and not using my car for work trips.”

“Yes, promoting EE solutions in work and social media.”

“Yes. It has influenced my search of new career opportunities. I also try to share my values at the workplace.”

Thirty-three respondents (62%) answered that participating in Save Pond Hockey tournament inspired them to take climate actions in their personal life. Eighteen respondents (34%) answered that participating in Save Pond Hockey tournament did not inspire them to take climate actions in their personal life. Two respondents (4%) could not say (Figure 19).

Figure 19. The picture shows the result of did participating in a Save Pond Hockey tournament inspire respondents to take climate actions in their personal life?



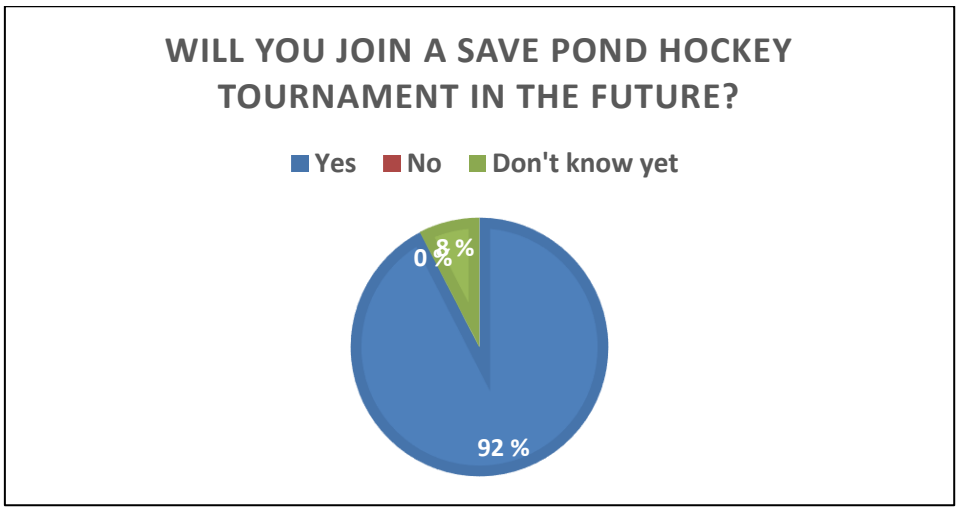
“Yes. Making it more "top of mind" and doing smaller things to not waste energy, not leaving lights on etc. “

“Yes. I have changed my diet for more nature friendly. 90% on my diet is vegetarian. “

“I do not drive the car so often anymore, but really rocking my bike :)”

Forty-nine of respondents (92%) answered that they will join Save Pond Hockey tournament in the future. Four respondents (8%) answered that they do not know if they will join Save Pond Hockey tournament in the future. None of those who responded to the survey answered that they would not participate in Save Pond Hockey tournaments in the future (Figure 20).

Figure 20. The following picture shows will respondents join a Save Pond Hockey tournament in the future or not.



"Yes. Climate is a good factor with this as skating in Helsinki since 1966 on outside ice and really can see the difference."

"Yes. It is a great factor in addition to good games in nice company."

12 Conclusions

As mentioned before, responses to the survey received from Finland, Germany, and Canada. The questions in the survey were the same for everyone, regardless of which country the survey answered from. The answers were quite similar even though the respondents were from different countries.

At the same time, when asking about things to improve and develop in the future, information and marketing came up. Only six respondents had found information about Save Pond Hockey tournaments through social media and four respondents through google. Visibility can be increased both on social media, in Google's search functions and in the form of campaign. Google has a dominant position in terms of search engines, according to data from Statcounter. 90% of search engine users choose Google as their search engine. This shows that google is a useful tool for increasing visibility (Statcounter, n.d.).
Search engine marketing aims to get more visibility for the website in search engine results and thus increase the number of visitors. Visibility can be improved in two ways. With search engine optimization or paid search engine advertising, with which the company can pay the

search engine provider for its visibility. In practice, this means paid keywords that are used to perform a search and because of which an advertising link appears in the search results (Dou, Lim, Zhou & Cui, 2010).

In recent years, social media has become the most popular digital marketing form thanks to the popularity of Facebook and Instagram. In 2022, of all social media platforms, Facebook was the most used platform among marketers worldwide, and Instagram was the second most used. 90 % of global survey respondents used Facebook to promote their business and 79 % used Instagram (Statista research department, 2023).
Marketing on social media can be done i.e., with content marketing or price marketing. One way to increase visibility is to create campaign marketing, which can be implemented on Facebook or Instagram, where the purpose is to get followers to spread information about the campaign on social media, for example through their own status updates or stories (Kortesuo 2014, pp.102–108).

The survey results showed that 92% of respondents would most likely recommend the event to their friends. This can also be concluded from the fact that most of the participants had heard about the event from their friends. According to that, it can be stated that friends, family, and colleagues play a significant role in spreading and conveying information about the event.

Of those who responded to the survey, only ten answered that they were a supporting member of Save Pond Hockey. A low result may be because there is not enough information on the subject for people, or the sharing of information or marketing should be developed to get more support members.

96% of the respondents knew that the profits from the tournaments are donated to various projects to tackling climate change. 96% of the respondents also knew before participating in the Save Pond Hockey tournament that climate change affects winter sports such as pond hockey. From the answers, it can be interpreted that the respondents already had information about the effects of climate change on winter sports.

58% respondents answered that participating in a Save Pond Hockey tournaments did not raise their awareness of climate change. 38% respondents answered that it did raise their awareness of climate change and 4% could not say. This 58% result can be partly explained by the fact that many respondents said that they already knew a lot about the subject. As stated earlier, people with more environmental knowledge are more likely to act in a way that promotes the environment (Britain, 2015, pp. 165 -168).

It is interesting that 62% of respondents answered that participating in a Save Pond Hockey tournament inspired them to take climate actions in their personal life. It seems that it is easier to do climate actions in your personal life than trying to make climate actions in working life. 58% respondents answered that participating in a Save Pond Hockey tournament did not inspire them to make climate actions in their working life.
Part of the reason for this may be a lack of general awareness. People do not necessarily know how they can influence environmental issues in their working life, or they feel that their working life does not give them opportunity to do so. In addition, it could be that people do not know how to influence environmental issues and climate actions in their working life.

It became clear from the open comments that respondents wanted that the event is responsible organized, so that the event could support its own goals and be example to the event participants. This supports the chapter 4.1. responsible event section, where issues that a responsible event organizer should consider when organizing a responsible event were reviewed. For example, involving partners and subcontractors in developing responsibility work in events and taking care of environmental communication (Sitra, 2018).

Development targets emerged based on the open comments received from the survey, especially in terms of communication and marketing, which should be invested in more in the future to gain visibility for Save Pond Hockey and its tournaments. This could be done by increasing visibility and creating communication and marketing plan to follow. This would help the event gain more visibility and thus potentially more participants in the tournaments. In the future Save Pond Hockey could expand its sharing of information about climate change and its effect on pond hockey also in tournaments. Sharing information could

take place through a radio show, opening speech, advertisements and be a visible part of the entire event.

As mentioned before, one way to increase visibility of Save Pond Hockey tournaments is to create campaign marketing. This can be implemented on social media. In addition, cooperation with schools could bring more visibility to tournaments in the form of school teams and more audience.

As it turned out earlier in chapter 4.2., Save Pond Hockey does not yet have an EcoCompass or similar other environmental program in use. Environmental program would help in assessing the responsibility and sustainability of one's own work and in making a communication plan. EcoCompass supports the responsibility of one's own work, but also engages partners and subcontractors in responsibility work. It allows to calculate own carbon footprint. In communication, the principles of sustainable development movement could be considered.

The climate impact of the participants could be measured in diverse ways. In addition to this, a modal share survey could be planned for the year 2024, to find out from where and what transport did the participants use to arrive at the event. This could be included part of a feedback survey. The event's carbon footprint can be calculated by using the EcoCompass. These could be investigated with further research, where the factors affecting an individual's environmental emissions could be examined.

13 Reflection

For my professional development, this research offered a vantage point into the world of pond hockey and especially work against climate change. It was interesting to study how concern about climate change turned into concrete climate actions and thereby can influence people's awareness of the effects of climate change on our environment and get them inspired to do climate actions both in their personal and working lives.

While doing this thesis, I learned how to increase environmental awareness and how to act environmental responsible. I could consider the biggest lesson to be understanding how big impacts climate actions can have. It is also important to note that a good climate communicator should act responsibly and climate-friendly, so that the imago and communication supports its climate work.

This thesis topic was meaningful and as the work progressed, my own interest in pond hockey and Save Pond Hockey tournaments increased considerably. Climate change affects winter sports and the players themselves notice the changes over time. It is admirable that a group of pond hockey players has acted and started to do something to spread the information about the effects of climate change to a wider group and get them to take climate actions.

In terms of my own career development, the work supported information gathering, strengthened project management skills, and dealt with meaningful topics such as from words to actions, promoting climate communication, climate actions, as well as the effects of climate change on the lives of ordinary people, making the phenomenon easier to understand. The thesis brought together what I have learned in sustainable development education. I gained more experience and especially perspectives on the implementation of sustainable development in practice. Doing this thesis strengthened my idea of working with sustainable development field.

I achieved my personal goals regarding the thesis process. Although the work progressed more slowly than planned, I stuck to the original plan and completed the research. Thanks to the topic, I felt that my professional knowledge regarding environmental awareness, actions and responsibility has increased, especially regarding events. The things I learned during the thesis process will be useful in the future as an employee.

Based on the results of the survey, this thesis provides an opportunity for further studies. To increase Save Pond Hockey's climate communication and operations, as well as visibility, there could be done a communication or marketing plan to follow. In addition, by using environmental program monitoring, measuring, and setting goals are easier and climate

work is more goal orientated.

The thesis process gave hope for a transition from words to actions and cooperation, therefore it is possible to turn the direction towards a positive future.
It was a pleasure to do the thesis for Save Pond Hockey and I hope that the results obtained from the work will be useful for promoting future climate awareness and actions.

Sources

Aarnio-Linnavuori, E., Cantell, H. & Tani, S. (2020). *Ympäristökasvatus. Kestävän tulevaisuuden käsikirja*. PS-kustannus. Retrieved 20.3.2022 from https://www.ellibslibrary.com/reader/9789523700574

Baynes, S. (2022). Co-founder and CEO of Save Pond Hockey.

Berninger, K., Hakala, E., Erkamo, S., Pyykönen, J., Tuomenvirta, Heikki., Tynkkynen, O. & Vihma, A. (2021). *Ilmastonmuutos ja Suomen turvallisuus: Uhat ja varautuminen kokonaisturvallisuuden toimintamallissa.* Valtioneuvosto. Retrieved 6.2.2022 from https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/163384/VNTEAS_2021_52.pdf

Britain A. Scott, Elise L. Amel, Susan M. Koger, Christie M. Manning. Routledge. (2015). Psychology for Sustainability: 4th Edition, Taylor & Francis Group. pp. 165 -168 Retrieved 5.4.2022 from https://ebookcentral-proquest-com.ezproxy.hamk.fi/lib/hamk-ebooks/reader.action?docID=3570156

Bruyninckx, H. (2018). *Understanding and acting on the complexity of climate change.* Retrieved 11.3.2022 from https://www.eea.europa.eu/articles/understanding-and-acting-on-the-complexity?utm_medium=email&utm_campaign=EEA%20Newsletter%20September%202018&utm_content=EEA%20Newsletter%20September%202018+CID_e06de27b50a037a3df57be723a8f9e57&utm_source=EEA%20Newsletter&utm_term=Read%20more

Buerki, R., Elsasser, H. & Abegg, B. (2003). Climate change and winter sports: environmental and economic threats. University of Zuric. Retrieved 21.2.2023 from https://raonline.ch/pages/edu/pdf5/burkirep01a.pdf

Chang, A., Liu, R., Milman, O. & Witherspoon, A. (2021). *The climate disaster is here.* The guardian. Retrieved 8.3.2022 from https://www.theguardian.com/environment/ng-interactive/2021/oct/14/climate-change-happening-now-stats-graphs-maps-cop26

Cohen, S. (2021). *Environmental awareness plus global action could lead to change.* Interfaith center for sustainable development. Retrieved 20.3.2022 from https://www.interfaithsustain.com/environmental-awareness/

Dirtya. S. Paradewari, Anchieta. A. Avillanova. & Aloysia. B. Lasar. (2018). *Promoting environmental awareness in learning contexts*. International Journal of Humanity studies. Vol. 1, No. 2. pp.244. Retrieved 10.12.2022 from https://e-journal.usd.ac.id/index.php/IJHS/article/view/1322/1067

Dou, W., Lim, K., Su, C., Zhou, N. & Cui, N. (2010). Brand position strategy using search engine marketing. Mis Quarterl y 34(2), pp. 261–79.

Eisner, E. W. (1991). The enlightened eye: Qualitative inquiry and the enhancement of educational practice. New York, NY: Macmillan Publishing Company.

Ekokompassi-opas. (2022). Retrieved 20.12.2022 from https://drive.google.com/file/d/1dUi-ot1inLiFHRpS3NwSAf0uLsRH4orb/view?_hsmi=212669717&_hsenc=p2ANqtz--V55XN79M1DL83Q9CDKqsFDxKP5k6_-ozZXa9t54d6adRBhRvfHAukwWEO5BrhcxwchCKBdy5mxonIh58cSuYDoEBR-A

European Commission. (n.d.-a). *Nearly zero-energy buildings.* Retrieved 10.3.2022 from https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings_en

European Commission. (n.d.-b) *Ympäristövastuu.* Retrieved 11.3.2022 from https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/environmental-liability_fi

European pond hockey championship. (n.d.) Retrieved 21.2.2023 from European Pond Hockey Championships (europondhockey.com)

Follow green living. (2014). *The manifold importance of environmental education. Blog.* Retrieved 10.12.2022 from https://followgreenliving.com/manifold-importance-environmental-education/

Gagnon Thompson, S. C., Barton, M. A., 1994. Eco-centric and Anthropocentric Attitudes Toward the Environment. Journal of Environmental Psychology, Vol. 14, No. 2, pp. 149-157

Google. (n.d.). Forms. Retrieved 20.12.2022 from https://www.google.com/forms/about/

Gregow, H., Mäkelä, A., Tuomenvirta, H., Juhola, S., Käyhkö, J., Perrels, A., Kuntsi-Reunanen, E., Mettiäinen, I., Näkkäläjärvi, K., Sorvali, J., Lehtonen, H., Hildén, M., Veijalainen, N., Kuosa, H., Sihvonen, M., Johansson, M., Leijala, U., Ahonen, S., Haapala, J., Korhonen, H., Ollikainen, M., Lilja, S., Ruuhela, R., Särkkä, J. & Siiriä, S-M. (2021). Ilmastonmuutokseen sopeutumisen ohjauskeinot, kustannukset ja alueelliset ulottuvuudet. Suomen ilmastopaneelin raportti 2/2021. Retrieved 1.5.2022 from https://www.ilmastopaneeli.fi/wp-content/uploads/2021/09/SUOMI-raportti_final.pdf

Humber, D. & Humber, W. (2009). Let it snow. Keeping Canada's winter sports alive.pp. 139-155

Ilmasto-opas.fi. (n.d, -a). *Kasvihuoneilmiö ja ilmakehän koostuminen*. Retrieved 18.2.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/ilmio/-/artikkeli/420c4ca3-a128-4ae7-882e-3d06e1ea24f5/kasvihuoneilmio-ja-ilmakehan-koostumus.html

Ilmasto-opas.fi. (n.d, -b). *Perinteisten talvilajien harrastaminen vaikeutuu.* Retrieved 4.3.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/vaikutukset/-/artikkeli/487fccbe-e084-4bb6-88b5-afd7a5469b85/talvilajit.html

Ilmasto.opas.fi. (n.d, -c). *Sopimukset ohjaavat kansainvälistä ilmastopolitiikkaa.* Retrieved 10.3.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/hillinta/-/artikkeli/f65a78bb-dc8e.-41a5-b09a-6fa36661880b/sopimukset-ohjaavat-kansainvalista-ilmastopolitiikkaa.html

Ilmasto-opas.fi. (n.d, -d). *Maailman kasvihuonekaasupäästöt kasvavat yhä*. Retrieved 10.3.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/hillinta/-/artikkeli/42433dde-827f-485e-9fa9-45b49fbfa317/maailman-kasvihuonekaasupaastot-kasvavat-yha.html

Ilmasto-opas.fi. (n.d, -e). *Liikkuminen ja yhdyskuntarakenne.* Retrieved 10.3.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/hillinta/-/artikkeli/cd3c06f0-ddc2-4984-840f-c35a98daf01e/liikkuminen-ja-yhdyskuntarakenne.html

Ilmasto-opas.fi. (n.d, -f). *Ennustettu ilmastonmuutos Suomessa.* Retrieved 10.3.2022 from https://ilmasto-opas.fi/fi/ilmastonmuutos/suomen-muuttuva-ilmasto/-/artikkeli/74b167fc-384b-44ae-84aa-c585ec218b41/ennustettu-ilmastonmuutos-suomessa.html

Ilmatieteenlaitos. (n.d, -a). Vuoden 2020 sää. Retrieved 30.3.2022 from https://www.ilmatieteenlaitos.fi/vuosi-2020

Ilmatieteenlaitos. (n.d, -b). Talvien lumista ja lumisuudesta. Retrieved 30.3.2022 from https://www.ilmatieteenlaitos.fi/lumitilastot

Intergovernmental panel on climate change. (2019). Landmark United in Science report informs Climate Action Summit. Retrieved 20.12.2022 from https://www.ipcc.ch/2019/09/22/united-in-science-report-climate-summit/

Intergovernmental panel on climate change. (2022-a). *Climate Change 2022. Impacts, Adaptation and Vulnerability. Summary for Policymakers. Full Reports. Chapter 13.* Retrieved 8.3.2022 from https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_FinalDraft_FullReport.pdf

Isotalo, K. (2021). *Luonnonjäiltä areenoille ja kansallislajiksi*. No 242. [väitöskirja, University of Eastern Finland]. Retrieved 20.12.2022 from https://erepo.uef.fi/bitstream/handle/123456789/24647/16158777351258529766.pdf?sequence=1&isAllowed=y

Jun, Y. (2013). Beijing Forum. 2009-2010. harmony of civilizations and prosperity for all. *Climate Change – A long-term Global Environmental challenge.* pp 247-251. Retrieved 10.3.2022 from

https://reader.elsevier.com/reader/sd/pii/S1877042813005211?token=04E3F9A89E2727EA321E25CB0F06B9099D83761BC8D049E7511FE390EC7A622C0910080CEA8ACC646EBA99C0BFBBC2D8&originRegion=eu-west-1&originCreation=20220317130701

Kaksonen, T., Ojuva, J. & Ouallen, P. (2012). Minne menet matkailu? Näkökulmia matkailun ennakointiin, osa I. Lapin korkeakoulukonserni. Rovaniemi. Retrieved 30.3.2022 from https://matkailu.luc.fi/loader.aspx?id=10f247a3-0cbb-48f6-84d1-953f431b945c

Kortesuo, K. (2014). Sano se someksi. Helsinki: Kauppakamari. pp. 102–108.

Leichenko, R. & O'Brien, K. (2019). Climate and society. Transforming the future. Polity press. pp.200-205. Retrieved 28.3.2022 from https://ebookcentral-proquest-com.ezproxy.hamk.fi/lib/hamk-ebooks/reader.action?docID=5790519

Leung, L. (2015). *Validity, reliability, and generalizability in qualitative research.* Journal of Family Medicine and Primary Care. 3rd Edition. pp. 324-327. Retrieved 20.12.2022 from https://journals.lww.com/jfmpc/Fulltext/2015/04030/Validity,_reliability,_and_generalizability_in.8.aspx

Mack, N., Woodsong, C., MacQueen, K.M., Guest, G. & Namey, E. (2005). Qualitative Research Methods: A Data Collector's Field Guide. Family Health International. pp. 12. Retrieved 21.5.2022 from: https://www.fhi360.org/sites/default/files/media/documents/Qualitative%20Research%20Methods%20-%20A%20Data%20Collector's%20Field%20Guide.pdf

Martel, J. (2020). *Origins of Ice Hockey.* The Canadian encyclopedia. Retrieved 20.12.2022 from https://www.thecanadianencyclopedia.ca/en/article/origins-of-ice-hockey

Maa- ja metsätaloustuottajain keskusliitto. (2017). *Metsät ja ilmastonmuutos*. Retrieved 10.3.2022 from https://www.mtk.fi/-/metsat-ja-ilmastonmuutos

Orr, M. (2022). Beijing 2022: environmental cost of world's first Winter Olympics without natural snow- expert Q+A. Retrieved 20.12.2022 from https://theconversation.com/beijing-2022-environmental-cost-of-worlds-first-winter-olympics-without-natural-snow-expert-q-a-176717

Pajunen, N. Sitra. (2018). *Vinkkejä kestävien tapahtumien järjestämiseen hiihtokilpailuista kokouksiin.* Retrieved 20.12.2022 from https://www.sitra.fi/blogit/vinkkeja-kestavien-tapahtumien-toteuttamiseen-hiihtokilpailuista-kokouksiin/

Partanen, L. (2017). Mitä vastuullinen liiketoiminta käytännössä tarkoittaa? Ecoreal blog. Retrieved 20.12.2022 from https://www.ecoreal.fi/blog/blogi-mita-vastuullinen-liiketoiminta-kaytannossa-tarkoittaa/

Save Pond Hockey. (n.d.) What can I do? Retrieved 1.2.2023 from https://savepondhockey.org/what-can-i-do/

Statcounter. (n.d.) Search engine market share. Retrieved 21.2.2023 from https://gs.statcounter.com/search-engine-market-share

Statista research department. (2022). Countries by number of ice hockey rinks. Retrieved 21.2.2023 from https://www.statista.com/statistics/282353/countries-by-number-of-ice-hockey-rinks/

Statista research department. (2023). Social media platforms used by marketers worldwide. Retrieved 21.1.2023 from https://www.statista.com/statistics/259379/social-media-platforms-used-by-marketers-worldwide/

Suomen latu. (2013). *Ulkoilutavat muuttuneet – Katsaus maailmalle.* pp. 21. Retrieved 28.3.2022 from https://www.suomenlatu.fi/media/vaikuta/vaikuta-tiedostot/boaf_raportti.pdf

Suomen ympäristökeskus. (2019). *Ympäristöjärjestelmät ja johtaminen.* Retrieved 28.3.2022 from https://www.ymparisto.fi/fi-fi/kulutus_ja_tuotanto/ymparistojarjestelmat_ja_johtaminen

Tiedekulmapokkari 3. (2021) Kuinka maailma pelastetaan. *Kohti kestävämpää tulevaisuutta.* Gaudeamus. Retrieved 1.4.2022 from https://www.ellibslibrary.com/reader/9789523456921 Miten merkataan?

World pond hockey. (n.d.). History. Retrieved 9.11.2022 from https://worldpondhockey.ca/en/home/history

Wu, M. (2022). *Response rates of online surveys in published research: A meta-analysis.* Elsevier Ltd. Retrieved 21.2.2023 from Response rates of online surveys in published research: A meta-analysis - ScienceDirect

World wildlife fund. (n.d.-a). *Ilmastonmuutos*. Retrieved 18.2.2022 from https://wwf.fi/uhat/ilmastonmuutos/

World wildlife fund. (n.d.-b). *Arctic climate change.* Retrieved 8.3.2022 from https://arcticwwf.org/work/climate/

Yhdistyneet kansakunnat. (n.d.). *Mitä ilmastonmuutos on.* Retrieved 18.2.2022 from https://unric.org/fi/mitae-ilmastonmuutos-on/

Ympäristöministeriö. (n.d.). *Mitä on kestävä kehitys*? Retrieved 14.1.2022 from https://ym.fi/mita-on-kestava-kehitys

Ulkoministeriö. (n.d.). *Kestävän kehityksen tavoitteet.* Retrieved 15.1.2023 from https://um.fi/agenda-2030-kestavan-kehityksen-tavoitteet

United Nations. (2015, -b). Sustainable development goals. Retrieved 31.3.2023 from https://www.un.org/sustainabledevelopment/blog/2015/12/sustainable-development-goals-kick-off-with-start-of-new-year/

United Nations. (2015, -a). *Transforming our world: the 2030 Agenda for Sustainable development.* pp. 12 - 14. Retrieved 11.3.2022 from https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

Appendix 1: Data management plan

Thesis title: Save Pond Hockey – Promoting environmental responsibility and climate action
Author of the thesis: Maria Hirvonen

Methods and format of the data acquisition

The data has been collected using a Google Forms survey from team captains and players who participated in Save Pond Hockey tournaments in 2022. Fifty-three people answered to the survey. In the survey, the e-mail addresses of the respondents were collected as personal information, nut no other personal information was collected. The survey link was sent to the team captains, who shared the link with the players on the teams.

Data storage during the thesis project

The anonymous answers received with the Google Forms survey are saved on a personal OneDrive and are saved also by the commissioner of the thesis.

Data processing after the thesis has been completed

The material collected during the thesis process is used in the research of the thesis, but also by the commissioner of the thesis. The author's materials will be destroyed one year after the completion of the thesis. Before destruction, the materials are only available to the author and the commissioner of the thesis.