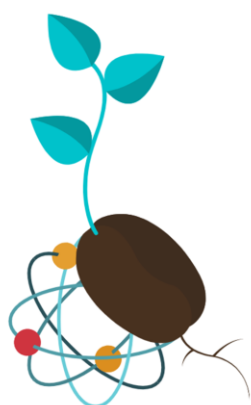


DELIVERABLE 2.2
TOOLBOX FOR DESIGN
OF SEEDS INTERVENTION



SEEDS

VERSION V.2.

VERSION CONTROL SHEET

• Project summary

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TABLE OF CONTENTS

VERSION CONTROL SHEET	1
DISCLAIMER	4
ABBREVIATIONS	5
LIST OF TABLES	6
1. SEEDS study protocol	8
1.1. Summary	8
1.2. Introduction and rationale	9
1.3. Objectives	10
1.4. Study design	10
1.5. Study population	14
1.6. Methods	16
1.7. Statistical analysis	17
1.8. Ethical considerations	18
1.9. Administrative aspects, monitoring and publication	18
1.10. References	19
2. PROTOCOL FOR THE FOCUS GROUPS	22
2.1. Summary	22
2.2. Focus group with ambassadors	24
2.3. Focus group with stakeholders	28
3. MATERIALS FOR THE AMBASSADORS TRAINING	31
4. STEM QUESTIONNAIRES	32
5. SUMMARY OF RESULTS OF FOCUS GROUPS	36
5.1. Focus group with ambassadors	36
5.1.1. Description of focus groups	36
5.1.2. Summary of the results	36
5.1.2.1. Physical activity and sedentary time during school hours	36
5.1.2.2. Snacking within and outside school hours	38
5.1.2.3. Behaviour chosen by the ambassadors	39
5.1.2.4. Behaviours to address during an intervention	40
5.1.2.5. The role of science and technology	41
5.1.2.6. Student engagement	41
5.2. Focus group with stakeholders	41
5.2.1. Description of focus groups	41
5.2.2. Summary of the results	43
5.2.2.1. Physical activity and sedentary time during school hours	43
5.2.2.2. Snacking within and outside school hours	44
5.2.2.3. The role of science and technology	45
5.2.2.4. Student engagement	45

ANNEX A. LEADERSHIP SKILLS AMBASSADORS	47
ANNEX B. LIST OF BEHAVIOURS	48
ANNEX C. Preparation material for focus groups.....	49
ANNEX D. METHODOLOGY FRAMEWORK FOR THE FOCUS GROUPS	50
ANNEX E. Question route focus group ambassadors.....	52
ANNEX F. QUESTION ROUTE FOCUS GROUP STAKEHOLDERS	64
ANNEX G. PARTICIPANTS OF FOCUS GROUPS STAKEHOLDERS	70

DISCLAIMER

This publication is the sole responsibility of SEEDS Consortium and reflects only the authors' view. Thus, the European Commission (EC) is not responsible for any use that may be made of the information it contains.

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ABBREVIATIONS

CoR	Gemeente Rotterdam
CS	Citizen Science
EC	European Commission
ECSA	Verein Der Europaeischen Burgerwissenschaften - ECSA E.V.
EMC	Erasmus Universitair Medisch Centrum Rotterdam
EU	European Union
HUA	Charokopeio Panepistimio
IC	Informed Consent
IISPV	Fundació Institut d'Investigació Sanitària Pere Virgili
SEEDS	Science Engagement to Empower Disadvantaged Adolescents
STEM	Science, Technology, Engineering, Mathematics
SWAFS	Science With And For Society
UOE	University of Exeter

LIST OF TABLES

Table 1.	Timeline of the SEEDS project
Table 2.	An example of a pre-defined list of stakeholders to be invited by the Dutch team
Table 3.	Program of the Ambassador Training
Table 4.	Description of the focus groups
Table 5.	Behaviours listed by the students
Table 6.	Description of the focus groups with stakeholders

EXECUTIVE SUMMARY

Science Engagement to Empower Disadvantaged Adolescents (SEEDS) aims at fostering science interest, literacy and STEM (Science, Technology, Engineering and Mathematics) education, by raising the health understanding, while also pursuing the empowerment of youth in an extreme citizen science based approach. This approach encompasses the participation of leader' adolescents in the whole research process: identifying adolescents barriers and necessities for having a healthy lifestyles and designing a community-based public intervention for adolescents of low-socioeconomic areas.

This document describes the Toolbox of the SEEDS intervention, developed as part of Work Package (WP) 2. First, barriers and facilitators for leading healthy lifestyles were identified, this was achieved via focus groups with adolescents as well as with adult stakeholders. Furthermore, a selection of participating students, the ambassadors, are trained in every site during an ambassador training program to gain more knowledge of health and science, but mostly to be able to confidently participate in the Makeathon, the co-creation event for developing the intervention.

This deliverable is a compilation of documents and tools developed as part of WP2, partly making use of products developed in WP4. It includes the protocol and timeline for the whole SEEDS study. Furthermore, a protocol, question routes and first results of the focus groups are also provided. Additionally, materials for training ambassadors are contained here too. Lastly, the STEM-questionnaire used for pre- and post-assessment is included in this deliverable.

1. SEEDS study protocol

1.1. Summary

Rationale: The global prevalence of childhood overweight and obesity is still on the rise, and inequalities are widening between children from advantaged and disadvantaged families. Adolescence is a challenging but important period to promote healthy lifestyles, since young adults are sufficiently mature to understand the reasons behind behavioural adoption, and behaviours that are taken in adolescence can have a long-term impact on the individual's health and wellbeing. Adolescents may be considered a hard-to-reach group, as they could be more difficult to engage in research and health education programs than adults or younger children, particularly in deprived communities. There is, therefore, a gap in the scientific knowledge concerning effective interventions for adolescents and inclusive approaches to empower them to engage in healthy lifestyles.

Objective: The aim of SEEDS is to engage adolescents from deprived neighbourhoods in designing an intervention related to an active and healthy lifestyle. Furthermore, the activities aim to seed interest in Science, Technology, Engineering and Mathematics (STEM).

Setting: The SEEDS project will run in four European countries: Netherlands, United Kingdom, Greece and Spain.

Study design: SEEDS is a cluster randomized controlled citizen science intervention trial that aims to engage and actively involve adolescents in generating new knowledge whilst producing scientifically legitimate and reliable results. We will identify key behaviours on physical activity, sedentary behaviour and snacking behaviour through focus groups with adolescents aged 13 to 15 years old. During focus groups with relevant stakeholders, we will identify ways to overcome barriers and facilitate healthy and active lifestyles. In the Makeathon, a one-day event that bring people from different backgrounds together to work on solutions to a specific problems, ambassadors, adolescents of intervention group, and stakeholders will jointly design an intervention focusing on healthy and active lifestyles. This intervention will be implemented at intervention schools and the effect of the intervention to support healthy and active lifestyles will be compared to control schools. We will use baseline and end-of-study questionnaires to assess the effectiveness of the citizen science intervention in promoting healthy lifestyles, determinants and STEM outcomes.

Study population: Six to eight schools in deprived areas of each pilot country will be recruited. In total, we aim to include 180 adolescents in the intervention group and 180 adolescents in the control group, per country. 15 adolescent-ambassadors per country from the intervention schools will be selected who will participate in all-phases of the research in an extreme citizen science approach: the focus groups, makeathon, intervention implementation, data interpretation and, if conditions allow to travel, an exchange to Brussels to disseminate the results.

Intervention: As this is a citizen science project, we will use the input of adolescents in all stages of the project. This means that at the design stage, we do not yet know in detail the type of interventions for a healthy and active lifestyle that will be delivered. We anticipate that adolescents will develop information campaigns (e.g., at social media), lifestyle activities (e.g., organize dance battles in the neighborhood), or revise rules at school, home or in their environment related to an active and healthy living (e.g., no pizza delivery inside schools). The intervention will last 6-months.

Main outcomes of interest: Main outcomes of interest are the differences on physical activity, sedentary behaviour, snacking behaviour and STEM interest between control and intervention group, and between countries.

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: Evaluation will rely on questionnaires and focus groups. The ambassadors benefit from the project as they are educated in science and research and involved in the design and implementation of the intervention. The participants in the intervention group may benefit from the implemented interventions. Participants in the control group will only complete surveys. There are no additional risks or benefits for individuals from the control group.

1.2. Introduction and rationale

Childhood overweight and obesity is one of the larger public health crises we are currently facing (1, 2). The global prevalence of childhood overweight and obesity is still on the rise, and inequalities are widening between children from advantaged and disadvantaged families (3). Several factors may contribute to these inequalities, including the family budget (4), financial strain, sports facilities available in the neighbourhood (5) and the availability of junk food (6).

Adolescents with obesity are more likely to become obese adults and therefore, be at a higher risk of obesity-associated disorders (7). Moreover, adolescence is the optimal period to promote healthy lifestyles since young adults are sufficiently mature to understand the reasons behind behavioural adoption (8), and behaviours that are taken in adolescence can have a long-term impact on the individual's health and wellbeing (9).

Adolescents may be considered a hard-to-reach group, as they could be more difficult to engage in research and health education programs than adults or younger children, particularly in deprived communities (10). There is, therefore, a gap in the scientific knowledge concerning effective interventions for adolescents and inclusive approaches to empower them to engage in healthy lifestyles.

The aim of the Science Engagement to Empower Disadvantaged Adolescents (SEEDS) Consortium is to engage adolescents from deprived neighbourhoods in designing interventions that improve an active and healthy lifestyle. Furthermore, our activities aim to seed interest in scientific methodologies, promote careers in Science, Technology, Engineering, Mathematics

(also known as STEM careers), and empower them by enhancing their critical thinking capabilities.

The SEEDS project is a Citizen Science project that aims at engaging and actively involving adolescents in generating new knowledge whilst producing scientifically legitimate and reliable results. We will train adolescents in scientific methods and enhance critical thinking. This will help them in making decisions based on scientific evidence and reliable information. We will empower adolescents and support them in creating change to promote a healthy lifestyle. Through this empowerment, we will involve adolescents from disadvantaged backgrounds in the development and delivery of activities that promote healthy lifestyles to their peers. Furthermore, the SEEDS project is rooted in the Quadruple Helix model by inviting key stakeholders in science and society to deliver change through raising the science interest of vulnerable adolescents.

This study will evaluate the effectiveness of the SEEDS project to find out if this Citizen Science approach is a useful method to increase participation among adolescents, promote healthy and active lifestyles and to generate STEM interests.

1.3. Objectives

The main objectives of the SEEDS project are:

- To improve healthy lifestyles: To engage adolescents from deprived neighbourhoods in designing interventions that increase physical activity, reduce prolonged sedentary time and increase healthy snacking choices.
- To increase STEM interest: To engage adolescents from deprived neighbourhoods in designing interventions that seed interest in scientific methodologies, promote STEM careers and empower them by enhancing their critical thinking capabilities.

1.4. Study design

SEEDS is a multicenter cluster randomized controlled study, with interventions conducted in **four European countries**: 1) Greece, 2) The Netherlands, 3) Spain and 4) The United Kingdom. The project will last for 24 month. Each country obtained the ethical approval in their own countries.

- Greece: 953/10-03-2021
- The Netherlands: MEC-2021-0396
- Spain: 085/2021
- The United Kingdom: 1st approval) 21-03-24-B-02; 2nd approval) 21-07-14-B-04

This citizen science project will use the input of adolescents in all stages of the project. This means that at the design stage, we do not yet know in detail the type of interventions that will be delivered. Importantly, we will not implement ideas for interventions that are subject to any violation of the physical or mental integrity of the adolescents.

The evaluation will take place through questionnaires at baseline and end-of-study. No biomaterials will be collected.

All materials in the appendices, like information letters, intention forms, informed consents and questionnaires, are in English, but will be translated to the local language of each pilot country.

The intervention of the SEEDS project has several phases. The research activities are discussed below.

Table 1. Timeline of the SEEDS project.

	2021	2022
Further preparing of SEEDS protocol	Jan - Sept	
First approval METC	May – Sept	
Recruitment of high schools	Apr - Sept	
Recruitment of ambassadors	Jun - Sept	
Recruitment of stakeholders	Jun – Nov	
Conducting focus groups with ambassadors and stakeholders	Jun - Sept	
STEM questionnaire for ambassadors	Jun- Sept	
Submit final questionnaires to Ethical Committees for the approval	Nov	
Training of ambassadors	Oct	
Pre-measurements	Nov	
Local Makeathons	Nov	
Discuss outcome of local Makeathons and create intervention protocol	Nov - Dec	
Implementation of SEEDS local interventions		Jan - Jun
Post-measurements		Jun
Brussel Exchange		Nov
Dissemination activities	Jan - Dec	Jan - Dec

Focus group ambassadors

The aims of the focus group with ambassadors are to gain insights in the barriers and facilitators of key behaviours related to a healthy and active living and to identify the behaviour ambassadors want to address during makeathon (see below) and intervention phase. Moreover, during the focus groups, the ambassadors will choose an extra behaviour between a list of 15 health behaviours (this is not mandatory, each country could decide if they will add this extra behaviour). Furthermore, the focus groups will provide input on how science and technology could help changing these behaviours and how to engage teenagers in all phases of the project.

Focus groups will have a maximal duration of 75 minutes and all will be conducted online or in-person, depending on the restrictions due to the COVID-19 pandemic. Since we are working with adolescents aged 13-15 years, a trusted person (e.g., school teacher or community worker) will be present to ensure a safe environment during the group session. We aim to conduct one focus group per intervention school with 4 to 6 ambassadors.

The focus group will be audio recorded. The following information will be collected from the ambassadors at the start of the focus group: age, gender, ethnic background, education level and year of education. Ethnic background will be assessed by the question: “With which cultural background do you most identify?”.

Full transcripts of the focus groups will be generated. After transcribing the focus groups, personal information will be replaced by a code. Transcripts will be translated to English. After completing a Data Transfer Agreement, codified data will be shared with the partners involved in the project.

Before the start of the focus group ambassadors will complete in a STEM questionnaire (in detail below in the questionnaire section).

Informed consents will include both data collection parts: STEM questionnaire and audio recording of the focus group. Both the ambassador and the parents/legal guardians need to give their consents to participate in the focus group.

Focus group stakeholders

The aim of the focus group with stakeholders is to reflect on the barriers and facilitators that ambassadors have specified, to identify ways stakeholders can help overcoming those barriers, to indicate the feasibility of changing those behaviours during a 6-month intervention, and to reflect on how science and technology could help in changing these behaviours.

Focus groups will have a maximal duration of 75minutes and all will be conducted online. The focus group will be audio recorded. At the start of the focus group, we will ask for participants age, gender, ethnic background, job title, number of years in this role, and number of years working in this neighbourhood. Ethnic background will be assessed by the question: “With which cultural background do you most identify?”.

Full transcripts of the focus groups will be generated. After transcribing the focus groups, personal information will be replaced by a code. Transcripts will be translated to English. After completing a Data Transfer Agreement, codified data will be shared with the partners involved in the project.

Informed consents will include the audio recording of the focus group.

Ambassador Training

The voluntary training of ambassadors will be organized as a modular program. The primary goal of this training is to build a team of ambassadors, to transfer knowledge relevant for SEEDS, and empower them to be involved throughout the project. We designed three modules with different topics, see Table 3. First of all, there will be an introduction into the SEEDS project, healthy and active lifestyles and Citizen Science. Secondly, we will introduce the ambassadors to the versatility of research. Lastly, we will show them how to do a Makeathon, so they feel prepared for this.

The information letter to ambassador and their parents or legal guardians includes the training for ambassadors. All ambassadors are invited and will be encouraged to join this training, but are not obligated to do so. There will be no data collected during the training.

Makeathon

Makeathons protocol is described in deliverable 2.1. Makeathons are events that bring people from different backgrounds together to work on solutions to a specific problem. In a SEEDS-Makeathon, ambassadors, their peers from the intervention schools, and stakeholders will co-create interventions to improve active and healthy lifestyles. The following persons will participate in the Makeathon: 15 ambassadors, minimum 15 peers from intervention schools, 1 stakeholder for each 15 adolescent's participants (e.g, school teacher, physical education teacher, youth care worker, knowledge institutes, policy makers). The set-up of the Makeathons will depend on the COVID-19 restrictions.

Participants will be divided into smaller groups of 3-5 persons. Together they will search for solutions on the previous identified challenges. Stakeholders will support the adolescents in the development of interventions. All solutions and interventions will be discussed between the smaller groups, resulting in one intervention for all schools, in each country. The Makeathon will define the local intervention, the number of associated activities, the concepts within each activity are implemented, and the ways in which the activities should be disseminated and implemented.

Videos and photos from the Makeathon results will be collected. There is no additional data collection. We will ask permission from the ambassador and the parents or legal guardians to use the images of their child if they are recognisable. This part is detailed in the informed consent. The information letter to ambassador and their parents or legal guardians includes the Makeathon.

Intervention

As this is a citizen science project, we will use the input of adolescents in all stages of the project. This means that at the design stage, we do not yet know in detail the type of interventions for a healthy and active lifestyle that will be delivered. The intervention may differ among countries but the intervention implemented in each country will be the same in all high schools. Ambassadors, students from the intervention group and stakeholders will decide during the Makeathons who will implement the intervention: ambassadors or students themselves (by a peer-led approach), by experts or by stakeholders.

Questionnaires

For ambassadors (n=15/country):

All ambassadors will complete a STEM questionnaire at 2 time-points, before start of the focus group (June-September 2021) and after the intervention (May-June 2022). The questionnaire

includes questions on general characteristics and the following STEM outcomes: life science interest, “scientific capital”, and interest in STEM careers.

Informed consents will include the STEM. Both the ambassador and the parents/legal guardians need to give their consents.

For all participating adolescents (n=360/country):

All adolescents from intervention and control schools will complete a questionnaire at the beginning of the school year (November 2021) and at the end of the school year (May-June 2022). The questionnaire includes questions on sociodemographic characteristics, health-behaviours and their determinants (i.e., physical activity behaviours, sedentary behaviours, snacking behaviours and extra behaviour (optional) chosen by ambassadors in each country) and STEM outcomes (i.e., life science interest, “scientific capital”, and interest in STEM careers).

Informed consents for participating adolescents will include the questionnaire. Both the ambassador and the parents/legal guardians need to give their consents.

Exchange Brussels

After the intervention is finished, the ambassadors from all countries will be invited to go on an exchange to Brussel for disseminating the project and the outcomes obtained. During this exchange meeting, they will interact with ambassadors from other countries as well as with the researchers on the SEEDS project.

Ambassadors are free to choose if they want to join the exchange to Brussels. The optional exchange activity is mentioned in the information letter. All costs will be covered by the SEEDS project.

1.5. Study population

Population (base)

High schools in deprived areas in each pilot country will be invited to participate in this research project. Each country will use their own way to identify deprived neighbourhoods.

Greece uses Hellenic Statistical Authority (ELSTAT) (17) to identify deprived areas; The Netherlands uses the Status scores computed by The Netherlands Institute for Social Research (SCP) (18); Spain use the “Statistical National Institute - Institut Nacional de Estadística” (INE), to identify the deprived areas in Tarragona province (Spain) (19) and The United Kingdom uses two measurements: The Multiple Deprivation Index (MDI) (20) and the percentage of students attending the school who are eligible for free school meals (FSM) (21) to identify deprived areas. We aim to include six to eight high schools in deprived areas per country. Schools will be randomised to the intervention and control condition.

High schools that are willing to participate will be paired by common characteristics (e.g., same educational level or type of education) and randomised into the control group or intervention group at a ratio of 1:1. The randomization code is computer generated with Research Randomizer software (Geoffrey C. Urbaniak and Scott Plous, Lancaster, PA, USA). (22) The allocation will not be blinded, however, the researchers who will analyse data will work with allocation concealment. Intervention schools which will receive the whole intervention of the SEEDS project. Controls schools will not receive any kind of intervention during the SEEDS project, but they will be offered the opportunity to implement parts of the intervention after the last measurement round.

In each school, we aim to include 45-60 adolescents between 13- and 15-years-old. Furthermore, from each intervention school, four to six ambassadors will be selected by their teachers based on their leadership skills, their level of English and willingness to participate in SEEDS (Annex A). They will participate in the whole SEEDS project including the design, implementation, data collection, and interpretation of the data, considering their leadership characteristics. We aim to recruit a diverse group of ambassadors which is representative of the students age, gender, and education level.

Inclusion criteria

Schools:

Schools will be included if they are based in deprived areas, are willing to participate in the SEEDS project irrespective of becoming an intervention or control school, and are willing to provide students time to complete the questionnaire during school hours. They also agreed that, if they become an intervention school, they are willing to participate in the Makeathon and will facilitate the implementation of the intervention designed by their students. Participating schools will sign an informed consent to declare participation in the SEEDS project. After signing this form, schools will be randomized into an intervention or control condition.

Adolescents and ambassadors:

Adolescents are included into the SEEDS project if they are aged between 13 and 15 years old, at baseline, and attend one of the participating high schools. All students in the participating high schools are invited to fill in the questionnaires at the start and at the end of the intervention. Informed consent must be signed by adolescents and their parent/legal guardian.

Stakeholders:

Local and national stakeholders will participate during the focus group and Makeathon. Stakeholders will be selected based on their expertise in healthy and active lifestyles, and their experience in working with adolescents. We aim to include stakeholders from all four domains as specified in the model of the Quadruple Helix, where “Government” represents local and regional policymakers; “Community” includes citizens, NGOs, civil society, community groups and individuals; “Business” involves businesses, entrepreneurs, chambers of commerce and the

creative industry; “Academia” includes universities, research institutions and networks, but also individual scientists and employers from the public sector industries such as hospitals or health care institutions. The stakeholders will be included in the focus group phase, the makeathons phase and the dissemination phase.

Exclusion criteria

The non-compliance of the inclusion criteria will be considered as exclusion criteria.

Sample size calculation

We conducted sample size calculations for three main outcomes related to STEM, physical activity and snacking behaviour. In total, we aim to recruit three to four intervention and three to four control schools with a total of 45-60 adolescents participating per school. This will result in 180 adolescents from intervention schools and 180 adolescents in the control schools in each pilot site. This number is sufficient to detect a 10% difference in proportions, accounting for clustering at school-level, with a power of 0.80 and alpha 0.05 and accounting for 20% loss to follow-up.

Similar numbers will be recruited in all countries, resulting in 1,440 participating adolescents of which 720 are in the intervention and 720 are in the control group.

1.6. Methods

Study parameters/endpoints

Focus groups

Main outcomes of the focus groups with ambassadors are key-behaviours they want to address in an intervention and ideas how to engage adolescents during the intervention. Main outcomes of the focus group with stakeholders are the reflection on key-behaviours, existing interventions and results and thoughts about how to overcome barriers.

Questionnaires

The following study parameters will be collected by means of questionnaires:

Socio-demographic information: gender, date of birth/age, school, grade, level of education, ethnic background, family affluence, family structure, family support, family communication and family meals.

STEM outcomes: The questions are based on three previously published surveys and consists of questions to understand students’ interest in (life) science (taken from the STEM interest survey) (11), “scientific capital” (taken from the Science Capital Survey) (12) and interest in STEM career pathways (taken from the Attitude towards STEM questionnaire) (13).

Health-behaviours: The questions will focus on physical activity behaviours, sedentary behaviour and snacking behaviour. Questions were taken from the HBSC questionnaire (14), PAQ-C questionnaire (15) and the beverage frequency questionnaire (16).

After the focus group, ambassadors will decide if they want to add another health-related behaviour. If this results in additional questions to the questionnaire, the METC will be informed and an amendment will be submitted.

At the beginning of the project we did not yet specify secondary endpoints. As this is a citizen science project, we will only know after the Makeathon phase in which interventions will be developed, what the primary and secondary outcomes or parameters will be. Therefore, we did not yet specify primary and secondary outcomes. The outcomes of the questionnaire are physical activity and sitting, nutrition and interest in STEM. After focus groups, countries can add a third, optional, behaviour which is an additional outcome.

Randomisation, blinding and treatment allocation

Schools will be randomised into intervention or control schools. The adolescents will know if their school is participating as in intervention or control school, for this reason, there will not be allocation concealment.

Study procedures

We will use questionnaires and focus groups to assess all outcomes of interest.

Withdrawal of individual subjects

Adolescents can stop filling in the questionnaire at any time for any reason if they wish to do so without any consequences.

Ambassadors can stop at any time for any reason if they wish to do so without any consequences.

1.7. Statistical analysis

Focus group

Transcriptions of the focus groups with both ambassadors and stakeholders will be thematically analysed using NVivo. Themes generated will be investigated and explored by identified SEEDS research staff to enable iterative comparison on the developing themes.

Questionnaires

Baseline descriptive of the intervention and controls schools will be presented. Continuous data that follow normal distribution will be expressed as mean \pm standard deviation (SD), not-normally distributed data as median (IQR), while categorical data as n (%).

Generalised linear mixed models will be used to analyse differences between the intervention and control groups and changes in outcomes from baseline to the end of the intervention. Analysis

will be adjusted for relevant sociodemographic characteristics in which the intervention and control group may differ. Furthermore, we will take into account that results may cluster within countries and schools. Missing values will be imputed, if needed, following common procedures.

1.8. Ethical considerations

Regulation statement

This study is considered non-WMO, and therefore no regulatory statements are addressed.

Recruitment and consent

During the recruitment phase of high schools, the high schools will be informed about SEEDS project characteristics with an information letter. Participating schools will sign a letter of intention.

After signing the letter of intention, we will recruit adolescents and ambassadors:

- a) Potential ambassadors invited by their teachers will receive an information letter with information about the SEEDS project and their potential role in the project. Moreover, they will receive informed consent with an appendix with further information.
- b) Adolescents' will receive an information letter with information about the SEEDS project. Moreover, they will receive informed consent. If they want more specific information about the project, they could check the appendix.
- c) Parents or legal guardians of:
 - i. Ambassadors: Will receive an information letter with information about the SEEDS project, the tasks that the child does how ambassador and legal regulations. Moreover, they will receive an informed consent form giving parental consent. If they want more specific information about the project, they could check the appendix that their child will be given.
 - ii. Participants (adolescents): Will receive an information letter with information about the SEEDS project, the tasks that their child does in the project and legal regulations. Moreover, they will receive an informed consent form giving parental consent. If they want more specific information about the project, they could check the appendix that their child will be given.

Benefits and risks assessment, group relatedness

The ambassadors may benefit from the project as they are taught in science and research and involved in the design and implementation of an intervention. The participants in the intervention group may benefit from the implemented interventions.

Participants in the control group will only complete surveys. There are no additional risks or benefits for individuals from the control group.

1.9. Administrative aspects, monitoring and publication

Handling and storage of data and documents

Focus groups:

- Data are handled confidentially at any time.
- The transcribed interviews will be codified.
- Only codified data will be shared with partners in the project, after completing a Data Transfer Agreement.
- Transcribed interviews will be stored for a number of years, depending per country, at secure drivers in accordance with the current security guidelines and regulations. Storage and destruction of data storage will be documented.

Questionnaires:

- Data are handled confidentially at any time.
- Data obtained from questionnaires will be codified.
- Only codified data will be shared with partners in the project, after completing a Data Transfer Agreement.

All codified data from participating partners in the SEEDS project will be stored in One Drive Business allocated in University of Exeter. This procedure has been specifically stated in the informed consent forms.

Amendments

All amendments will be notified to the Ethical Committees in each pilot country.

Public disclosure and publication policy

All results of the project will be published in academic and scientific journals and discussed at national and international scientific events, seminars, conferences, congresses and workshops. Furthermore, important results may be shared in newsletters or websites of interested parties and institutes.

1.10. References

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2. PROTOCOL FOR THE FOCUS GROUPS

2.1. Summary

Within the SEEDS project we will conduct focus groups with ambassadors and stakeholders. The primary aim of the focus groups with ambassadors is to gain insights in the barriers and facilitators of key behaviours related to a healthy and active living and to identify the behaviour ambassadors want to address during makeathon and intervention phase. Furthermore, the focus groups will provide input on how science and technology could help changing these behaviours and how to engage teenagers in all phases of the project. Behaviours that will be discussed include 1) increasing physical activity and reducing prolonged sedentary time during school hours, and 2) healthy snacking during the day (inside and outside school). Optional, countries may decide to also ask for a third behaviour 3) a health-related behaviour chosen by the ambassadors. The aim of the focus group with stakeholders is to reflect on the barriers and facilitators that ambassadors have specified, to identify ways stakeholders can help overcoming those barriers, to indicate the feasibility of changing those behaviours during a 6-month intervention, and to reflect on how science and technology could help changing these behaviours.

The focus group with ambassadors will take place before the summer holidays (May-July 2021), followed by a focus group with stakeholders (June-August 2021). The focus groups will be conducted by an external moderator or a researcher that is not necessarily part of the SEEDS project. Moderators and researchers will receive an online training to ensure a standardized procedure. All focus groups will be audio recorded. Full transcripts of discussions that relate to the aim of the focus groups will be generated. Introduction, closure and irrelevant discussions will not be transcribed. The transcriptions will be translated to English by each partner. The EMC is in lead in analysing the focus groups, sharing results among partners to be able to proceed with makeathon design, and publishing the results.

This document describes the general study protocol related to the focus groups with ambassadors and stakeholders. The focus groups will be conducted in four different European countries, and depending on the contact with the schools and within the country regulations (e.g., related to the COVID pandemic), the protocol allows for a flexible approach to conduct the focus group. The methodology framework for the focus groups, the questioning route, and the guideline for conducting the focus groups is prepared by HUA and UoE and described elsewhere.

The primary aim of the focus groups with ambassadors is to gain insights in the barriers and facilitators of key behaviours related to a healthy and active living and to identify the behaviour ambassadors want to address during makeathon and intervention phase. Furthermore, the focus groups will provide input on how science and technology could help changing these behaviours and how to engage teenagers in all phases of the project.

The aim of the focus group with stakeholders is to reflect on the barriers and facilitators that ambassadors have specified, to identify ways stakeholders can help overcoming those barriers, to indicate the feasibility of changing those behaviours during a 6-month intervention, and to reflect on how science and technology could help changing these behaviours.

2.2. Focus group with ambassadors

The primary aim of the focus groups with ambassadors is to gain insights in the barriers and facilitators of key behaviours related to a healthy and active living and to identify the behaviour ambassadors want to address during makeathon and intervention phase. Furthermore, the focus groups will provide input on how science and technology could help changing these behaviours and how to engage teenagers in all phases of the project. Focus groups with ambassadors will be conducted before the summer holidays (May-July 2021). The results of the interviews from the focus groups will be used to inform the makeathon and intervention phase to develop an effective intervention. This study protocol is intended as the standardization of aspects for all focus groups among different countries.

Study population

All 15 ambassadors of each country will be invited to participate in the focus groups. Schools will be consulted to ask whether focus groups can best be conducted online or in-person. Focus groups will be conducted with 4 to 6 ambassadors at a time, resulting in 1 to 4 focus groups per country. All ambassadors from one high school will be invited for the same session. If for one high school less than 4 ambassadors will participate in the focus group, sessions will be merged to ensure a dynamic group discussion.

If the recruitment of high schools or ambassadors is delayed, focus groups will be conducted with youth growing up in similar geographical areas and circumstances recruited from other channels than schools (e.g., school associations, neighbourhood communities etc.). All partners will conduct at least 1 focus group with ambassadors or youth from similar neighbourhoods of the high schools participating in the project. If possible more than one focus group will be conducted in each country to allow more powerful conclusions.

Two weeks before the focus groups, ambassadors will receive a STEM questionnaire to complete. This can be completed during school time or out of school, depending on the preference of the schools. Details about this STEM questionnaire are presented in section 5 of this document.

Selection of behaviours related to a healthy and active living

Behaviours that will be discussed in all countries include:

- 1) increasing physical activity and reducing prolonged sedentary time during school hours
- 2) healthy snacking during the day (inside and outside school)

Optional, countries may decide to also ask for a third behaviour:

- 3) a behaviour related to a healthy and active living chosen by the ambassadors of each country

The SEEDS project is a citizen science study and this means that adolescents are involved in all important decisions. Therefore, we recommend that ambassadors have the opportunity to select

one extra behaviour that they believe is important to address. Ambassadors will receive a 15-item list of key behaviours related to obesity prevention (Annex A), so that ambassadors could select a third behaviour they want to focus on during the SEEDS project. This list was created based on consultations with team members of the consortium, and includes behaviours related to eating habits, physical activity and sports, sedentary behaviours, and media consumption.

During the focus group, ambassadors will be given the opportunity to add important health behaviours that they feel are missing. Although not all these cannot be addressed in SEEDS, we will collect this information and provide feedback to the schools or important stakeholders to address in future projects.

Methods

Focus groups will have a maximal duration of 75 minutes and all will be conducted online or in-person. Since we are working with adolescent's aged 13-15 years, a trusted person (e.g., school teacher or community worker) will be present to ensure a safe environment during the group session. The trusted person will be briefly introduced and welcomed at the start of the session. The trusted person will not be part of the discussion. In online focus groups, the trusted person will not activate the camera or microphone during the remainder of the session.

Online focus groups will take place on a medium that includes a chat function (e.g., Microsoft Teams, Zoom). Each country will select a secure platform that is easily accessible and participants are familiar with (e.g., the online platform used for online classes of high schools).

Data collection

The following information will be collected from the ambassadors at the start of the focus group: age, gender, ethnic background, education level and year of education. Ethnic background will be assessed by the question: "With which cultural background do you most identify?". The focus group will be audio recorded. Full transcripts of discussions that relate to the aim of the focus groups will be generated. Introduction, closure and irrelevant discussions will not be transcribed. Countries may decide to use software to transcribe the audio recordings, if their usage is approved by their country regulations (e.g., AmberScript). Transcripts will be translated to English by each country.

Ethical approval

Informed consents will include both data collection parts: STEM questionnaire and audio recording of the focus group. If in your country an ethical approval is needed to conduct focus group interviews, you should make sure ethical approvals are received before focus group interviews are conducted.

A co-responsibility agreement will be signed by all partners of the SEEDS consortium.

After transcribing the focus groups, personal information will be replaced by a code. The codified data will be shared on OneDrive.

Processing the outcomes of the focus groups

The following information will be sent to the EMC within 3 weeks after conducting the focus groups:

- English transcript of the focus group
- Date of the focus group
- Duration of the focus group in minutes, from introduction to end
- Location of the focus group
- Number of participants
- Characteristics of the participants

The English transcriptions will be thematically analysed by researchers from the EMC and UoE using NVivo software. Two researchers will independently code one focus group per country, and a preliminary coding scheme will be developed. Subsequently, all focus groups will be coded by two independent researchers on the basis of this coding scheme. New codes will be added to the coding scheme if necessary and after consensus is reached. Overarching themes will be identified to draw conclusions.

Publishing the outcomes of the focus groups

A preliminary summary report will be drafted by the EMC and UoE during the summer based on the data from countries that were able to conduct focus groups before the summer holidays. The report will be updated after all countries have completed the focus groups. We aim to publish the results of the focus groups with ambassadors and stakeholders in an academic journal.

COMMUNICATIONS WITH THE AMBASSADORS

A template of the emails to send will be provided by IISPV. All countries will translate the communication to their own language. Also, the STEM questionnaire and question routes are provided in English. These will be translated by each country.

This document describes the general structure of communication with ambassadors. The approach on how to communicate with the ambassadors needs to be discussed with the participating schools, and therefore may differ per country. The approach described below will give a guidance, but should be tailored to the specific school setting.

First interaction with the ambassadors

Teachers of intervention high schools will select ambassadors based on standardised criteria related to their leadership skills. When students have shown their interest, teachers will hand out informed consent forms to be completed by the ambassadors and by their parents. Teachers will

explain the purpose of an informed consent, and urge ambassadors to read the documents carefully with their parents. Ambassadors and parents can give their informed consent online using the QR code in the document or by signing a paper format.

Researchers will contact the ambassadors to arrange an introduction meeting via email, and their parents or main contact from school will be in copy. This meeting can take place at school or via a video- or phone call. At this first moment of interaction, ambassadors will be informed about the general SEEDS project. Furthermore, they will be informed about the purpose of the focus group. Researchers will briefly discuss the mails and activities that will be sent in the coming weeks (e.g., Customer Journey and STEM questionnaire (see below)). They will check the availability for conducting the focus groups. Ambassadors will have the opportunity to ask questions.

2 weeks before the focus group – General email related to the focus groups

Two weeks before the focus group, we will send the ambassadors an email to inform them what they can expect from the focus group. Depending on the context and regulations, parents or the contact from school will be in the copy. In this email we will explain the general structure of the focus group and how data will be collected. They will also receive information on the STEM questionnaire which they will receive on paper or a link to an online survey. The email will contain two attachments:

- Attachment I: A document describing practical issues. The time of the meeting and the location, and for focus groups conducted online the link to the online room, what password to use, and how to activate the camera and microphone if conducted online. In this document we will also describe the rules during the session. We will encourage students to actively contribute to the group discussion. Therefore, in online focus groups, we ask them to activate camera and microphone during the whole session.
- Attachment II: We will ask ambassadors to make a Customer Journey in preparation of the focus group, a technique often used in Social Marketing. This activity will help ambassadors defining their habitual day, reflecting on their own behaviours, and identifying areas for opportunities to improve a healthy and active lifestyle for themselves and their peers. The Customer Journey will be centred around a healthy and active living, including the same set of behaviours that will be addressed in the focus groups. Although this is an optional activity, we highly encourage ambassadors to work on this Customer Journey. Ambassadors do not need to share their map with the researchers. This will not be used for scientific input. If ethical approval is needed, countries should make sure this is arranged before handing out the materials.

This preparation activity is prepared by the EMC (Annex B).

2 weeks before the focus group – Specific email to obtain informed consents (if missing)

Ambassadors or parents of ambassadors that did not yet return the informed consent forms will be contacted to ask to return the informed consents as soon as possible. We encourage ambassadors and parents to contact us for any further clarifications.

1 week before the focus group – Reminder

One week before the focus group, we will send the ambassadors a reminder.

After the summer – Easy-to-read summary of all focus groups in 4 countries

A summary report will be drafted during the summer and autumn based on the data from countries that were able to conduct focus groups before and after the summer holidays. An easy-to-read summary of the findings in the native language will be shared with the ambassadors. The EMC will prepare a template of this summary, and all countries will translate this summary in their own language. They will be invited to give their inputs on the main conclusions.

From focus group to makeathon

Based on the students' inputs gained during the focus groups, each partner will formulate challenges for which solutions will be created during the makeathon. More information on the challenges for the makeathon will be described in the guidance on makeathons. Furthermore, the input from the ambassadors will be used to build a list of stakeholders to be invited for the makeathons.

2.3. Focus group with stakeholders

The aim of the focus group with stakeholders is to reflect on the barriers and facilitators that ambassadors have specified, to indicate the feasibility of changing those behaviours during a 6-month intervention, to identify ways stakeholders can help overcoming those barriers, and to reflect on how science and technology could help changing these behaviours. Focus group with stakeholders will be conducted during the summer (June-August 2021). Depending on the key behaviours ambassadors have selected in their focus groups, stakeholders will be invited to participate in a focus group session. The selection of stakeholders will be representative of all behaviours that ambassadors have listed. This study protocol is intended as the standardization of aspects for all focus groups among different countries.

Study population

Each country will prepare a short summary after the focus groups with the ambassadors to identify the key behaviours ambassadors want to address and stakeholders that needs to be invited. Depending on the key behaviours ambassadors have selected in their focus groups, stakeholders will be invited to participate in a focus group session. If multiple focus groups have been conducted, there might be a range of key behaviours that ambassadors want to address. Stakeholders within the area of interest will be selected from the pre-defined list that was made by each of the partners, and from the input by the ambassadors. The final selection of

stakeholders will be representative of all behaviours that ambassadors have listed. The final selection will be internally discussed and agreed upon by each research team. The stakeholders in each pilot country will be representative of 4-Helix.

Table 2. An example of a pre-defined list of stakeholders to be invited by the Dutch team.

Stakeholder domain	Example
School	PE teacher, mentor, canteen, administration
Neighbourhood organisation	Sport clubs, preventive youth health professionals, local youth support organisations
Local government	Policy advisors, local prevention coordinators, local sport coordinators
National Knowledge Institutes specialised in physical activity and nutrition	Voedingscentrum, Mulier instituut
Scientist with relevant research projects	Technical university, medical university, social scientist

Methods

Focus groups will have a maximal duration of 75-100 minutes and all will be conducted online. Focus groups will take place on an online medium that includes a chat function (e.g., Microsoft Teams, Zoom). Each country will select a platform that is easily accessible.

Data collection

The focus group will be audio recorded. At the start of the focus group, we will ask for participants age, gender, ethnic background, job title, number of years in this role, and number of years working in this neighbourhood. Ethnic background will be assessed by the question: "With which cultural background do you most identify?". Full transcripts of discussions that relate to the aim of the focus groups will be generated. Introduction, closure and irrelevant discussions will be not be transcribed. Countries may decide to use software to transcribe the audio recordings, if their usage is approved by their country regulations (e.g., AmberScript). Transcripts will be translated to English by each country.

Ethical approval

Informed consents will include the audio recording of the focus group. If in your country an ethical approval is needed to conduct focus group interviews, you should make sure ethical approvals are received before focus group interviews are conducted.

A co-responsibility agreement will be signed by all partners of the SEEDS consortium.

After transcribing the focus groups, personal information will be replaced by a code. The codified data will be shared on OneDrive.

Processing the outcomes of the focus groups

The following information will be send to the EMC within 3 weeks after conducting the focus groups:

- English transcript of the focus group
- Date of the focus group
- Duration of the focus group in minutes, from introduction to end
- Number of participants
- Characteristics of the participants

Transcriptions will be thematically analysed by researchers from the EMC and UoE using NVivo software. Two researchers will independently code two focus groups, and a preliminary coding scheme will be developed. Subsequently, all focus groups will be coded by two independent researchers on the basis of this coding scheme. New codes will be added to the coding scheme if necessary and after consensus is reached. Overarching themes will be identified to draw conclusions.

Publishing the outcomes of the focus groups

A summary report will be drafted by the EMC and UoE after completion of the interviews with stakeholders. We aim to publish the results of the focus groups with ambassadors and stakeholders in an academic journal.

COMMUNICATIONS WITH STAKEHOLDERS

A template of the emails to send will be provided by IISPV. All countries will translate the communication to their own language.

First interaction with stakeholders

Stakeholders will be invited by the research team. They will be informed about the purpose of the focus group. An informed consent will be sent to the stakeholders via email. They will be asked for their availability to set a date for the focus group.

2 weeks before the focus group – General email related to the focus groups

Two weeks before the focus group, we will send the stakeholders an email to inform them what they can expect from the focus group. In this email we will explain the general structure of the focus group and data collection. The email also contains a link to the informed consent (if not yet completed). The email will contain two attachments:

- Attachment I: A document describing practical issues. The time of the meeting, where they can login, what password to use, and how to activate the camera and microphone. In this document we will also describe the rules during the online session. We will encourage stakeholders to actively contribute to the group discussion. Therefore, we ask them to activate camera and microphone during the whole session.
- Attachment II: A short summary of the results of the focus groups with the ambassadors. This contains the key behaviours that ambassadors want to address, and the main barriers and

facilitators. We will ask the stakeholders to start thinking of potential interventions or solutions that may be of interest.

Each country will prepare a short summary of the focus group with ambassadors in their country, to provide to the stakeholders. As an example, the EMC will prepare a summary document that will be send to the Dutch stakeholders. This template is used to ensure that similar information per country is shared with stakeholders.

3. MATERIALS FOR THE AMBASSADORS TRAINING

The voluntary training of ambassadors will be organized as a modular program (Table 3). The primary goal of this training is to build a team of ambassadors, to transfer knowledge relevant for SEEDS, and empower them to be involved throughout the project. We designed three modules with different topics. First of all, there will be an introduction into the SEEDS project, healthy and active lifestyles and Citizen Science. Secondly, we will introduce the ambassadors to the versatility of research. Lastly, we will show them how to do a Makeathon, so they feel prepared for this. The modules can extended with optional activities that meet the needs and interest of the ambassadors.

All materials are available for the SEEDS study group on the shared OneDrive.

Participating schools will be consulted on how to organise the ambassador training given the COVID-19 pandemic at that moment. The information letter to ambassador and their parents or legal guardians includes the training for ambassadors. All ambassadors are invited and will be encouraged to join this training, but are not obligated to do so. There will be no data collected during the training.

Table 3. Program of the Ambassador Training.

Module	Goal	Content
Module 1. Introduction in the SEEDS project	To amaze the ambassadors, make them curious, and get them involved in research into lifestyles.	<ul style="list-style-type: none"> • Introduction into SEEDS project and citizen science • Introduction into health, lifestyle, and the chosen health behaviors (snacking behavior and physical activity / sedentary behavior)

Module 2. Research training	To introduce ambassadors to the versatility of research.	Research skills and research ethics developed by researchers: <ul style="list-style-type: none"> • The principles of research (science methodology, RCT design) • Data collection, privacy, and data analysis: (we were thinking of a practice where ambassadors can learn some basic data analysis in SPSS using an exemplar data file)
Module 3. Makeathon training	To make ambassadors feel empowered, valuable, and confident to question and work through ideas.	How to do a Makeathon: Why, who, what?

4. STEM QUESTIONNAIRES

What does it mean to be a scientist? Please write down the first three words that come up into your mind.

1. Being a scientist means? [3 short open fields]

1. _____

2. _____

3. _____

Directions for question 2 and 3

There are lists of statements on the following pages. Please mark your answer sheets by marking how you feel about each statement.

As you read the sentence, you will know whether you agree or disagree. Fill in the circle that describes how much you agree or disagree.

Even though some statements are very similar, please answer each statement. This is not timed; work fast, but carefully.

There are no "right" or "wrong" answers! The only correct responses are those that are true *for you*.

Whenever possible, let the things that have happened to you help you make a choice.

Please fill in only one answer per question.

2. How much do you like finding out about...

Score the following items from 1 "strongly disagree" to 5 "strongly agree".

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
What to eat and how to exercise to keep healthy and fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How traits are passed from parents to children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How the human body works	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with the following statements?

Score the following items from 1 “strongly disagree” to 5 “strongly agree”

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
3. Careers...					
I would like to have a job that uses science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who are like me, work in science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I grow up, I would like to be a doctor or work in medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to become a scientist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anyone can become a scientist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Studying science...					
It is important to study science even if you don't want a science job in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A science qualification can help you get many different types of job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. My understandings of science...					
Other people think of me as a science person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to use scientific evidence to make an argument	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know quite a lot about science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident giving answers in science lessons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't think I am clever enough to study any of the sciences at A-level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Science and everyday me...					
Scientists need to be imaginative in their work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Science creates new jobs so more people can have work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is useful to know about science in my daily life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting young people to understand science is important for our society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Your Future

The last questions are about your future. We present you with descriptions of subject areas that involve math, science, engineering and/or technology, and lists of jobs connected to each subject area. As you read the list below, you will know how interested you are in the subject and the jobs. Fill in the circle that relates to how interested you are.

There are no “right” or “wrong” answers. The only correct responses are those that *are true for you*.

When using an online questionnaire program, we suggest to use an information button with the list of job examples. Students can open the information if needing supporting information

	Not at all Interested	Not so interested	Interested	Very Interested
Physics: is the study of basic laws governing the motion, energy, structure, and interactions of matter. This can include studying the nature of the universe. (aviation engineer, alternative energy technician, lab technician, physicist, astronomer)	O	O	O	O
Environmental Work: involves learning about physical and biological processes that govern nature and working to improve the environment. This includes finding and designing solutions to problems like pollution, reusing waste and recycling. (pollution control analyst, environmental engineer or scientist, erosion control specialist, energy systems engineer and maintenance technician)	O	O	O	O
Biology and Zoology: involves the study of living organisms (such as plants and animals) and the processes of life. This includes working with farm animals and in areas like nutrition and breeding. (biological technician, biological scientist, plant breeder, crop lab technician, animal scientist, geneticist, zoologist)	O	O	O	O
Veterinary Work: involves the science of preventing or treating disease in animals. (veterinary assistant, veterinarian, livestock producer, animal caretaker)	O	O	O	O
Mathematics: is the science of numbers and their operations. It involves computation, algorithms and theory used to solve problems and summarize data. (accountant, applied mathematician, economist, financial analyst, mathematician, statistician, market researcher, stock market analyst)	O	O	O	O
Medicine: involves maintaining health and preventing and treating disease. (physician's assistant, nurse, doctor, nutritionist, emergency medical technician, physical therapist, dentist)	O	O	O	O
Earth Science: is the study of earth, including the air, land, and ocean. (geologist, weather forecaster, archaeologist, geoscientist)	O	O	O	O
Computer Science: consists of the development and testing of computer systems, designing new programs and helping others to use computers. (computer support specialist, computer	O	O	O	O

	Not at all Interested	Not so interested	Interested	Very Interested
<i>programmer, computer and network technician, gaming designer, computer software engineer, information technology specialist)</i>				
Medical Science: involves researching human disease and working to find new solutions to human health problems. <i>(clinical laboratory technologist, medical scientist, biomedical engineer, epidemiologist, pharmacologist)</i>	O	O	O	O
Chemistry: uses math and experiments to search for new chemicals, and to study the structure of matter and how it behaves. <i>(chemical technician, chemist, chemical engineer)</i>	O	O	O	O
Energy: involves the study and generation of power, such as heat or electricity. <i>(electrician, electrical engineer, heating, ventilation, and air conditioning (HVAC) technician, nuclear engineer, systems engineer, alternative energy systems installer or technician)</i>	O	O	O	O
Engineering: involves designing, testing, and manufacturing new products (like machines, bridges, buildings, and electronics) through the use of math, science, and computers. <i>(civil, industrial, agricultural, or mechanical engineers, welder, automechanic, engineering technician, construction manager)</i>	O	O	O	O

5. SUMMARY OF RESULTS OF FOCUS GROUPS

5.1. Focus group with ambassadors

5.1.1. Description of focus groups

From June to September 2021, five focus groups have been conducted with ambassadors in the four countries. In Table 1, the characteristics of the participants is presented per focus group. In Spain, a summary of two focus groups was provided. In the other countries, we used the input from one focus groups with ambassadors.

Table 4. Description of the focus groups

Country	Number of participants	Number of females	Mode of delivery	Duration (min)
Greece (GR)	6	4 (67%)	Online	120
The Netherlands (NL)	4	4 (100%)	In school	70
Spain (SP)	3	2 (67%)	In school	53
	3	2 (67%)	In school	43
United Kingdom (UK)	6	3 (50%)	In school	50

5.1.2. Summary of the results

5.1.2.1. Physical activity and sedentary time during school hours

PA during breaks

The frequency and duration of breaks differed between the four countries. Participants spent their breaks being physically active on the schoolyard, going for walks, or socializing with classmates and friends. In Spain and the Netherlands, all students are allowed to use the schoolyards during the breaks. In Greece and United Kingdom, there were specific rules about the classes that can use the schoolyards. In Greece, students are not allowed to play sports or games during breaks, to avoid disturbing other classes. In the Netherlands, students mentioned that boys more often participate in sport activities during breaks than girls.

To become more physically active, the following suggestions were made:

- More time during the break so that they can eat their lunch and also do some activity (SP, GR, NL)
- Make it possible to play sports or games during breaks (GR)
- Supervision when students play on the school yard, to ensure a safe environment (GR)
- Allow students to be able to leave the school yard to go to a nearby park (NL)
- Organise sport activities with a competitive element (NL)
- Organise different activities instead of just football (SP)
- More time between classes so that students can go for a walk and stretch their legs (SP)

Barriers to become more physically active during school time:

- In some countries due to the COVID situation, play areas were made smaller to accommodate physical distancing. Insufficient space was mentioned as a barrier to become more physically active during breaks (UK, GR)
- Lack of places in shadow (GR)
- Tiredness at the end of the school day (GR)
- Related to the COVID situation, some students mentioned that there are rules about where students can move during breaks (SP)

In Greece, the United Kingdom and the Netherlands, students referred to activities after school.

PA during PE classes

In Spain, students mentioned that participation in PE classes is lower among girls. Furthermore, in United Kingdom girls were less inclined to participate in sport and wanted to socialize more. Activities with friends seemed a very important aspect during PE classes. Many participants referred to choosing activities with their friends.

To become more physically active during PE classes, the following suggestions were made:

- Organise different activities that are more dynamic and fun, including dance and drama (SP)

Barriers to become more physically active:

- Duration and frequency of the classes (SP, GR, NL)
- Warm temperature in summer (SP, GR)
- The lack of variation in the activities (SP, GR)
- Lack of clean mattress equipment (GR)
- Students do not want to wear athletic outfits (GR)
- Tiredness at the end of the school day (GR)
- The class has to share the room with a other class, and the lack of space was mentioned as a barrier (NL)
- Girls do not want to compete against boys (NL)
- Students do not like activities in front of the whole class (NL)
- How groups are made during the classes (SP)

Prolonged sedentary time

In all focus groups, the long duration students spent sitting was mentioned. Some mentioned physical discomfort, as this had consequences on their energy levels (UK, SP, NL). All students mentioned that are not given the opportunity to be active during the classes, resulting in non-stop sitting. Some groups mentioned that the only way to interrupt sitting time is to visit the toilet (UK,

GR, NL). In most focus groups, it became clear that students do not feel empowered to change sitting time during class.

To interrupt sitting, the following suggestions were made:

- Become more physically active during regular lessons, and to learn with games that interrupt sitting time (UK, SP)
- Learning outdoor (UK, SP)
- Go more often to the front of the room or make an oral presentation (SP)
- Short breaks in the morning, so that students can go out of the class and stretch their legs (SP)

Barriers to reduce sitting time:

- Teacher inflexibility (SP)
- Some classes last for two hours without break in between (SP)

5.1.2.2. Snacking within and outside school hours

Morning snacks and snack during school hours

The foods students eat varies between the countries and between students. Some students indicated that they had not eaten yet, or mentioned that not all students eat breakfast. In the UK, the Netherlands and Greece, students did not pay attention to what others eat during school hours or after school. In these countries, personal preference seemed more important in deciding what foods to eat than the role of their friends. Spanish students mentioned that the foods they consume are similar as the foods of their friends.

One Spanish group indicated that at their school, it is not allowed to consume sweet or energetic drinks. They also mentioned that they go to the supermarket or candy store when they meet with friends to buy mostly unhealthy snacks and energy beverages. In the Netherlands, students are not allowed to consume energy drinks, but the consumption of sugar-sweetened beverages is allowed. The importance of the school canteen was mentioned in Greece and the Netherlands. In the UK, students mentioned that if they wanted to, they could simply go to the shop and buy healthier snacks. In the Netherlands, students choose what to buy from a shop based on the price and the taste. They also mentioned that some parents restrict the consumption of unhealthy snacks.

In Greece, the UK and the Netherlands, students said that the type of snacks eaten varied from day to day.

To eat healthier snacks, the following suggestions were made:

- Have a wide variety of healthy snacks in the school canteen or vending machines (GR, NL)
- The foods should be easy to consume and store (GR)

- A leaflet with possible choices for healthy snacks (GR)
- Cooking class where students learn how to prepare foods (NL)
- Fruits distributed in schools at some days to all students (SP)
- Create new routines: have one snacking day and the rest of the week healthier foods (SP)
- Bring more fruits to schools through a game (SP)
- Give sandwiches for free to students with few resources (SP)

Barriers to eating healthy foods:

- School canteen offers limited (healthy) choices (GR)
- Breaks are too short to eat and be physically active (NL)

5.1.2.3. Behaviour chosen by the ambassadors

When time allowed, ambassadors had the opportunity to select one extra behaviour that they believe is important to address. Ambassadors received a 15-item list of key behaviours related to obesity prevention, and they were asked to select a third behaviour they want to focus on during the SEEDS project. The two focus groups conducted in Spain and the focus group in the Netherlands asked about this third behaviour.

In the first Spanish focus group, the following behaviours were indicated as important behaviours by the Spanish students:

1. Consumption of fast food
2. Consumption of sugar sweetened beverages
3. Screen time

The students believed that consumption of fast food and energy drinks is high. They mentioned that the consumption of fast food and sweet beverages is related to spending a lot of time in front of the screen and playing video games with friends. They eat and drink more to keep awake. Social environment seems very important in these habits.

The following suggestions were made to address these behaviours:

- Provide information to students on the possible effects of unhealthy drinks
- Provide information to parents and propose to not give money to their children to buy unhealthy drinks
- Give examples of healthy alternatives and recipes
- Have a rule in school that you cannot bring energy drinks from home or buy them in the canteen

In the second Spanish focus group, the following behaviours were picked by the Spanish students:

1. Consumption of sugar sweetened beverages

2. Screen time

Students drink sweet beverages in the afternoon, after school, with their friends in the park. It is not allowed to consume these drinks in school, but some classmates do bring sweet beverages. Students mentioned that their classmates spent a lot of time on social media in the afternoon in the park and during the night. This has an impact on their sleeping time. One student mentioned that sweetened beverages were promoted on TV and at social media.

The following suggestion was made:

- Students mentioned that it's important that students leave the house and spent time outdoors with friends and family

In the Netherlands, the students did not feel the need to add another behaviour. They mentioned that they spent limited time on screens during school days, and they did not want to change the amount of screen time during the weekend. They also mentioned sleep, as they sometimes are tired. However, they did not feel the need to consider sleep as a behaviour to change.

5.1.2.4. Behaviours to address during an intervention

We asked the students to reflect on what behaviour to address during an intervention as part of the SEEDS project. They also specified the location where the intervention should happen, and listed important stakeholders to invite.

Table 5. Behaviours listed by the students

Country	Behaviour	Location of intervention	Important stakeholders to invite
Greece	Not asked *		<ul style="list-style-type: none"> • Canteen owner of the schools • PE teacher • Security guard
The Netherlands	Increase physical activity and reduce sitting time	In school, during school time	<ul style="list-style-type: none"> • PE teacher • Siblings who are in the same school • Teacher from their school • Someone external
Spain	Reduce screen time	At home and in school	<ul style="list-style-type: none"> • High school teachers • Parents • Youth associations
	Reduce screen time	At home, during the afternoon and night	<ul style="list-style-type: none"> • Members of the city council • Youth associations

The United Kingdom Eating healthier Increase physical activity In school, lunchtime during • Mentor at school

* In Greece, students brainstormed about possible interventions for several behaviours, but did not reflect on which behaviour to address. These interventions are listed under the items 2.1 and 2.2.

5.1.2.5. The role of science and technology

We asked the students about the role of science and technology in changing healthy behaviours, and the following items were mentioned:

- Having lessons within school that focus on the role of diet and exercise (UK, SP)
- Use a watch or a timer (NL)
- An app to reward healthy behaviours (NL)
- Involving social media (UK)

5.1.2.6. Student engagement

The following suggestions were made to engage students throughout the SEEDs project:

- Organise dynamic activities that are fast paced (SP, UK)
- Activities should not cost any free-time, and therefore should take place during school hours (NL)
- Price of food would motivate students to participate (NL)
- Have a free afternoon in return for participating (NL)
- Fridays would not be a good day for activities (NL)
- The delivery of information should be entertaining and fun, for example by means of a game (SP)
- Organise meetings in small groups so that everyone has an opportunity to speak and to be heard (UK)
- Activities with their friends (UK)

5.2. Focus group with stakeholders

5.2.1. Description of focus groups

Within the SEEDS project we conducted focus groups with ambassadors and stakeholders. The aim of the focus group with stakeholders is to reflect on the barriers and facilitators that ambassadors have specified, to identify ways stakeholders can help overcoming those barriers, to indicate the feasibility of changing those behaviours during a 6-month intervention, and to reflect on how science and technology could help changing these behaviours. All focus groups were audio recorded, and based on the transcriptions a summary was made.

From July to September 2021, six focus groups have been conducted with stakeholders in the four countries. In Table 1, the characteristics of the participants is presented per focus group. In Spain and the Netherlands, summaries of two focus groups were provided. In the other countries, we used the input from one focus groups with stakeholders.

Table 6. Description of the focus groups with stakeholders.

Country	Number of participants	Job description	Mode of delivery	Duration (min)
Greece (GR)	5	Head of the school PE teacher Teacher Teacher Schools' canteen owner	In person	40
The Netherlands (NL)	5	Local policy advisor Youth PE teacher Local youth and welfare organisation City-wide organisation facilitating sport activities City-wide organisation supporting local sport clubs	Online	63
The Netherlands (NL)	6	Project leader city of Rotterdam Policy advisor city of Rotterdam Youth worker Youth worker Youth nurse Strategic advisor sport	Online	75
Spain (SP)	6	PE teacher Local policymaker health promotion School social worker Local youth association National charity organisation Representative local food hall	Online	90
Spain (SP)	4	Local policymaker education Pedagogue and health promotion expert Council of Youth and Citizen Participation Teacher	Online	90
The United Kingdom (UK)	2	Head of Science department STEM charity organisation	Online	53

Annex F presents more information on the participants

5.2.2. Summary of the results

5.2.2.1. Physical activity and sedentary time during school hours

In all focus groups, increasing physical activity of the students was considered important. Benefits included the prevention of obesity and sedentary lifestyle, emotional well-being, social interaction and group relationships, happiness, concentration, disconnecting from stressors at school, and improving learning outcomes. Some mentioned that the sport participation among girls is low. Stakeholders were not aligned on the feasibility of changing behaviours during a six month intervention. Some mentioned that small changes in attitude or behaviour may occur within four to six months, but big reforms take more time. Others mentioned that more time is needed. Furthermore, some referred to the COVID-19 pandemic and the possibility of closing schools during the winter time, making it difficult to implement activities.

Barriers to become more physically active:

- Lack of a spacious and fun environment supporting activities (NL, UK, GR, SP)
- Classrooms are not designed for active learning (SP, UK, NL)
- The negative role of peers (SP, NL)
- Schools lack resources to organise activities and equipment (SP, GR)
- Teachers prioritise to keep pupils safe, discouraging them from running and playing games (GR)
- Specific rules of the ministry do not allow for changing the duration of breaks, or allowing movement breaks during class (GR)
- The negative role of parents (NL)
- There is no trigger to be active during breaks (NL)
- Use of mobile phones, especially during breaks (NL)
- Street culture: nice clothes/shoes are not always good to be active in (NL)
- Signing up for a sports club is a big step (NL)
- The importance of homework, therefore students drop out of other activities (NL)
- Create a safe environment where (especially girls) can sport without people observing their activities (NL)
- Students are not encouraged to think of activities (SP)
- Lack of interest by students for extracurricular activities that were organised in the past (SP)
- Drug use among students (SP)
- Vulnerable position of some students (SP)
- The different school schedules that make it difficult to organise activities after school hours (SP)
- Activities during breaks are not well structured (UK)
- The school is not designed to be physically active or learn outside (UK)

Facilitators to become more physically active:

- A positive peer leader (SP, NL)
- Incentives that fit the goals of the project and the students interest (NL)
- Make the behaviour part of the school culture (NL)
- Organise events that focus on social interaction and physical activities (NL)
- Supporting ideas that come from the students (SP)
- Students choose to engage in sport activities with their friends (GR)

The following aspects were mentioned as the potential role of stakeholders when aiming to improve the lifestyle of students:

- Work more closely with families (SP, NL)
- Restructure the school day to allow for activity (SP, UK)
- Make long term investments to change the school culture (NL)
- Outdoor or activity components as part of your homework or during a lesson (NL)
- Sport coaches in school yards can promote activities in breaks (NL)
- Frequently organise physical activities out of school (SP)
- Generate plans for healthy high schools (SP)
- Create plans tailored to individual needs to engage adolescents (SP)
- Create a network of activity spaces (SP)
- Engage with clubs and city council (SP)
- Consider the time outside PE classes as opportunities for more physical activity (SP)
- Create the environment where students can be physically active (UK)

5.2.2.2. Snacking within and outside school hours

All stakeholders acknowledged the importance of a healthy diet. The harmful effects of specifically energy drinks were mentioned by some stakeholders. Some mentioned that adolescents do not think about the immediate impact on their health and the future health consequences. The role of friends in unhealthy diets is large. Unhealthy snacks were considered to have an impact on academic performance. Some stakeholders also expressed their concern about students not eating anything during the day.

Barriers to eat and drink healthy:

- Costs of healthy foods (NL, GR, SP)
- Availability of unhealthy snacks in their environment (NL, UK, SP)
- The food habits they learn at home (NL, UK, GR)
- The commercial interest of companies and canteens (NL, GR)
- Limited time availability by students, therefore they eat snacks that are mostly unhealthy (SP, NL)

- Lack of interest by students for healthy foods that were available in the past (GR)
- Lack of time and expertise to teach lifestyle courses (GR)
- Students choose tasty options, not for healthy options (GR)
- The negative role of peers (SP)
- Advertisement for unhealthy snacks (SP)
- Student health is not an important aspect for schools (SP)
- Little variation in the dining hall of school (UK)
- Money available in the family (UK).

Facilitators to eat and drink more healthy:

- Healthy foods should be fun and attractive (NL, SP)
- Create healthy habits during childhood (SP)
- Plan meals throughout the day (SP)
- Remove vending machines in high schools (SP)
- Rules that do not allow children to snack (NL)
- A role model, someone they can relate to (NL).

The following aspects were mentioned as the potential role of stakeholders when aiming to improve the eating and drinking habits of students:

- Campaigns inside schools to inform students and their families about healthy foods (SP, NL, GR, UK)
- Generate plans for healthy snacks for high schools at the national or state level (GR, SP)
- Cooking workshops where students learn how to prepare food (SP, NL)
- Avoid that students are hungry at school and start snacking (NL)
- Have more permanent funding for healthy initiatives (NL)
- Collaborate together with supermarkets for free healthy options for children in need (NL)
- Create projects and health education courses (SP)
- A permanent position for nutritionist or health specialist in education (SP)

5.2.2.3 The role of science and technology

None of the focus groups with stakeholders specifically addressed the role of science and technology in changing healthy behaviours, other than the suggestions already mentioned under 2.1 and 2.2.

5.2.2.4. Student engagement

The following suggestions were made to engage students throughout the SEEDs project:

- Use role models that they can affiliate with. For example, older students (NL)
- Integrate social activities within the healthy initiatives (NL)

- Incentives that are part of the programme (NL)
- A competitive element between classes, positive stimulation (NL)
- Students are always on their phone, make use of that and reach them also online (NL)
- An intervention should focus on four domains: home, school, outside, online (NL)
- Attention is needed about communication: teachers need to help students and ambassadors to communicate to others (UK)

ANNEX A. LEADERSHIP SKILLS AMBASSADORS

A good leader will be one who has the most leadership skills in the scale below. First, you can select the students who you believe are the most potential leaders in the class. However, it is important that the selection be based on the identification of adolescent leadership skills, but not on the potential to demonstrate superior academic qualifications or athletic achievement.

Then, completed the checklist and put a tick in the box if the student meets the skill. Finally, you must choose 4 ambassadors (leaders), 2 girls and 2 boys.

Checklist for selecting ambassadors

Compulsory items

- | | |
|--|--------------------------|
| a) Adolescent between 13-15 years old | <input type="checkbox"/> |
| b) She/he is be able to communicate with English | <input type="checkbox"/> |

Optional items about leadership characteristics to accomplish

(0= LOW LEADERSHIP to 8= HIGHER LEADERSHIP):

- | | |
|--|--------------------------|
| 1. Always keep her/his promises and commitments to others | <input type="checkbox"/> |
| 2. She/he has the courage to do things that are morally right,
even this might hurt him/her and makes personal sacrifices to serve others | <input type="checkbox"/> |
| 3. Not seek recognition or rewards when she/he serving others
and prefers serve others rather than be served | <input type="checkbox"/> |
| 4. She/he actively and responsively listen to what others have to say | <input type="checkbox"/> |
| 5. She/he sets realistic and clear goals | <input type="checkbox"/> |
| 6. Help others to develop their skills gives him/her great satisfaction | <input type="checkbox"/> |
| 7. She/he has ideas that others accept as useful and effective,
but she/he is willing for his/her ideas to be questioned by others too. | <input type="checkbox"/> |
| 8. When she/he is working in group, she/he values the opinions of
all members of the group and looks for a way to make people's differences
serve a purpose. | <input type="checkbox"/> |

**TOTAL PUNTUATION ON LEADERSHIP
(NUMBER OF TICKS)**

ANNEX B. LIST OF BEHAVIOURS

List of behaviors related to healthy and active living (obesity prevention)

Eating habits:

1. Consumption of non-caloric beverages
2. Consumption sugar sweetened beverages
3. Consumption of sugar and sweets
4. Consumption of fruit and vegetables
5. Breakfast consumption
6. Fast food consumption during school time
7. Fast food consumption outside school hours

Physical activity and sports:

1. Active recess time
2. Physical education classes
3. Active transportation
4. Physical activity during leisure time
5. Sport participation

Sedentary behaviors:

1. Sedentary leisure time
2. Screen time

Media consumption:

1. (Social) media consumption

Given the expertise within our consortium, we focused on the key behaviours related to obesity prevention in adolescence. Smoking behaviours and alcohol consumption were not included.

We used the following paper to structure the list of behaviours:

Current Guidelines for Obesity Prevention in Childhood and Adolescence

Obes Facts. 2018 Jul; 11(3): 263–276. Published online 2018 Jul 4. doi: 10.1159/000486512

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6103347/>

ANNEX C. Preparation material for focus groups

A school day in my life

Name: _____ Date: _____

Color the box according to the moment during the day you **snack**, **move** and **sit** during a regular school day!

	Weekday																							
Time (hour)	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
Snacks																								
Vegetables / Fruit																								
Sweet snack																								
Savory snack																								
Other																								
Physical activity																								
At home																								
At school																								
Transport																								
Sports club																								
In the neighbourhood																								
Other																								
Sedentary time																								
At school																								
Playing (video)games																								
Reading																								
Watching TV																								
On the computer																								
Smartphone																								
Other																								

Fill in and tick the box what applies to you!

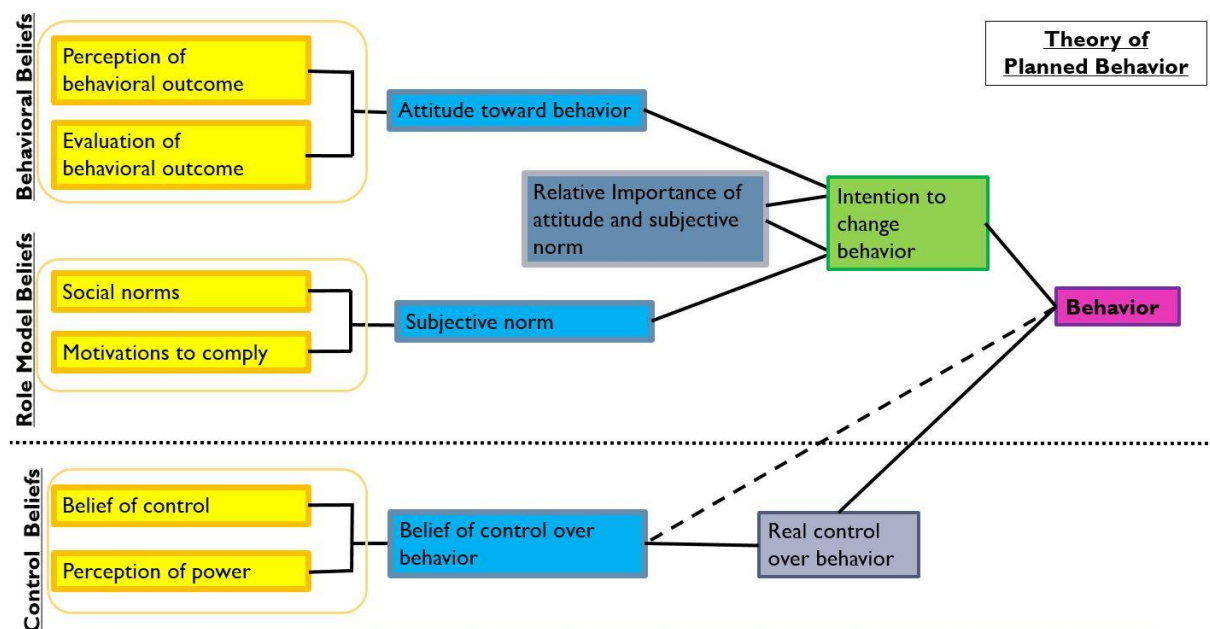
Snacking	Physical activity	Sedentary time
I eat on average ... snacks a day.	I am on average ... minutes / hours a day physically active.	I sit on average ... minutes / hours a day.
I snack <u>more</u> ... <input type="radio"/> ... in and around school <input type="radio"/> ... at home	I am <u>more</u> physically active ... <input type="radio"/> ... in and around school <input type="radio"/> ... at home	I sit <u>more</u> ... <input type="radio"/> ... in and around school <input type="radio"/> ... at home
I snack <u>the most</u> ... <input type="radio"/> ... on my own <input type="radio"/> ... with family <input type="radio"/> ... with friends	I am <u>the most</u> physically active ... <input type="radio"/> ... on my own <input type="radio"/> ... with family <input type="radio"/> ... with friends	I sit <u>the most</u> ... <input type="radio"/> ... on my own <input type="radio"/> ... with family <input type="radio"/> ... with friends
I snack ... my classmates and friends <input type="radio"/> ... more than ... <input type="radio"/> ... the same as ... <input type="radio"/> ... less than ...	I am ... physically active as/than my classmates and friends <input type="radio"/> ... more ... <input type="radio"/> ... the same ... <input type="radio"/> ... less ...	I sit ... my classmates and friends <input type="radio"/> ... more than ... <input type="radio"/> ... the same as ... <input type="radio"/> ... less than ...

ANNEX D. METHODOLOGY FRAMEWORK FOR THE FOCUS GROUPS

The model that will be applied in order to assess the barriers and facilitators for each of the behaviors addressed in the focus group with the adolescents will be the model of Theory of Planned Behavior.

This specific model is structured around three basic fundamental pillars: 1) the attitude of the person toward the behavior performed (linked to her/his individual beliefs around the perceived outcome by the behavior), 2) the subjective norm (linked to the social environment of the subject) and 3) the perceived control over the behavior conducted (linked to each individual's weighted power of intentional behavior performance). The theory is demonstrated as a whole in the following figure. (1-5)

Figure 1. Theory of Planned Behavior



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ANNEX E. Question route focus group ambassadors

Questioning route for adolescents

In the questioning route a distinction is made between key questions (numbered questions) that represent the central themes and optional questions (grey questions) that are only included to help the moderator if the discussion does not start up or continues spontaneously. There will be insufficient time to ask all questions. Given the time constraints and to allow for flexibility during the group discussion, not all questions will be addressed in the focus group. However, the highlighted yellow questions are considered the most important questions that should be answered during the focus group.

Purpose:

To gain insights in the barriers and facilitators of key behaviours related to a healthy and active living and to identify the behaviour ambassadors want to address during makeathon and intervention phase. Furthermore, the focus groups will provide input on how science and technology could help changing these behaviours and how to engage teenagers in all phases of the project. Behaviours that will be discussed include 1) increasing physical activity and reducing prolonged sedentary time during school hours, and 2) healthy snacking during the day (inside and outside school). Optional, countries may decide to also ask for a third behaviour 3) a health-related behaviour chosen by the ambassadors.

Timeline:

10 minutes	Introduction and getting to know each other
20 minutes	Physical activity and sedentary behaviour during school hours
20 minutes	Snacking behaviour during the day (inside and outside school)
===== 10 minutes break =====	
20 minutes	Behaviour chosen by ambassadors
15 minutes	Ending question (role of science and technology, engagement of peers)
5 minutes	Concluding remarks and closing focus group

Introduction:

Good morning and welcome to our session. Thank you for taking the time to joins us to talk about nutrition, physical activity and sedentary behaviour in adolescence. My name and is assisting me. We're both working at With this session we would like to get more insight into why adolescents eat the foods they eat, why they do (or do not) participate in physical activity, and on sitting time. Furthermore, you will be given the opportunity to add a third behaviour that is important to you, and that you would like to discuss. We would want to get a

view on how adolescents' eating habits, physical and sedentary behaviour are influenced, and you are the most appropriate group to do so.

During the discussion there are no wrong or right answers or opinions. Please feel free to share your point of view even if it differs from what others have said. Keep in mind that we're just as interested in negative comments as in positive comments, and at times the negative comments are even the most helpful.

You have probably noticed that we are audio recording this session. This is because we don't want to miss any of your comments. People often say very helpful things during the discussion and we can't write fast enough to get them all down. Your names will only be used to facilitate the discussion, we will not use any of your names in our reports. Complete confidentiality is assured. The reports will go back to the University to help people guide adolescents into designing and implementing an intervention program for themselves.

Well, let's get started. Let's find out some more about each other first.

OPENING QUESTION

Tell us your name, where you live and; you can ask a couple of questions (e.g. participants can make their own customer day-journal before the focus group to start reflecting on their own behaviours) to create an informal discussion before the actual start of the session.

Examples of opening questions related to their day-journal (Choose a couple of questions, you do not need to ask them all. It is also possible to ask some of these questions before the start of a certain behaviour.)

- What did you think of the day-journal? Was it a difficult exercise?
- Do you think what the day you selected is an average day for you?
- Did you notice something special for your habits?
- What are your hobbies?
- What is your favourite snack?
- What is your favourite physical activity?

KEY QUESTIONS FOR PHYSICAL ACTIVITY/SEDENTARY BEHAVIOUR

Today, we would like to start to talk about physical activity and sedentary behaviour. Let us describe first what you think that is defined as physical activity and sedentary behaviour (wait for answers and then inform).

Physical activity is any activity that involves body movement, such as walking, running, playing sports, etc.

Sedentary behaviour is any activity during which you are sitting or lying down, such as reading, using a computer / tablet, sitting at your desk, etc.

There are many opportunities of physical activity during school hours. What opportunities do you think of (wait for answers).

We will in-depth discuss opportunities of physical activity during physical education (P.E.) classes and during school breaks (recess time). At the end we will also briefly ask you for [*other opportunities mentioned by the ambassadors*]. Ambassadors may list other options such as energizers during the class or other possibilities that we may not be aware of.

Physical activity and sedentary time during school hours

1.1 Physical activity during school breaks

Behaviour and attitudes

1. How many times do you have breaks during school? What is their duration?
2. How do you usually spend your school breaks? e.g. sitting, stretching, talking, moving, playing, etc.
 - Why are you choosing these activities?
 - Alone or with friends?
 - Do you think there is sufficient time during breaks to be physically active?
3. Among the different activities you can do during school breaks, do you think there is any difference among them? E.g. being active, sitting etc.
 - Do you prefer sitting or moving during breaks? Why?
 - Do you think there are specific benefits/hazards related to any of those?

Subjective Norm

4. What do your friends prefer doing during school breaks?
 - Do you think they are sitting more than you?
 - How important it is for you to do the same activities as your friends during school breaks?
 - What influence do your friends have on your activities during school breaks?
5. Are there any important others that motivate you to participate in physical activities during school breaks?

Perceived behavioural control

6. Are there any rules at school for breaks that influence your physical activity or sitting time?
 - Do you follow them?

- Would you like something to change about the rules?
- 7. What space is available at your school during breaks?
 - What do you think about this?
 - Is it enough?
- 8. Have you ever tried to be more physically active during school breaks?

Did you succeed in that? How did you do that? What were the barriers?

9. If you would like to be more physically active during school breaks, do you think you are able to do it?

What would you do? What are the barriers?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

1.2 Physical activity during P.E. classes

Behaviour and attitudes

1. How many times do you have P.E. classes during the week? How many hours per lesson?
 - Do you think are they enough?
2. Do you think P.E. classes are good for you?
3. Do you actively participate in P.E. classes?
 - Why or why not?
 - What do you like / don't like the most about P.E. classes?
 - How do you feel about participating in these classes? E.g. comfortable, discouraged etc.

Subjective Norm

4. Do your friends participate in P.E. classes?
 - Do you think they participate more than you?
 - How important it is for you to do the same activities as your friends during P.E. classes?
5. Are there any important others that motivate you to participate in P.E. classes?

Perceived behavioural control

6. Are you obliged by the school rules to participate in P.E. classes?
 - Do you follow them?
 - Would you like something to change about the rules?

7. What space and equipment are available at your school for P.E. classes?

- What do you think about them?
- Are they enough?

8. Have you ever tried to participate more or more actively in P.E. classes?

Did you succeed in that? How did you do that? What were the barriers?

9. If you would like to participate more or more actively in P.E. classes, do you think you are able to do it?

What would you do? What are the barriers?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

1.3 Other opportunity mentioned by the ambassadors

Do you see other opportunities to be physically active during school hours besides during breaks and PE class? (wait for answers).

Behaviour and attitudes

1. When do you [...] ?
2. With whom do you [...] ?

Subjective norm

3. What role do peers play in [...]?
4. Are there any important others in [...]?

Perceived behavioural control

5. Are there any rules related to [...]?
6. Have you ever tried to increase/decrease [...]?

Did you succeed in that? How did you do that? What were the barriers?

- Why?
- Did you succeed in that?
- How did you do that?
- What were the barriers?

7. If you would like to [...], do you think you are able to do it?

What would you do? What are the barriers?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

Prolonged sedentary time during school hours

Behaviour and attitudes

1. How many hours do you consecutively sit during school lessons?
 - Do you think they are a lot?
2. Do you think sitting consecutively for many hours is good for you?

Subjective Norm

3. Do your friends sit a lot of hours consecutively during school?
4. Do your friends have the need to interrupt consecutive sitting during school?
5. Do you have any important others that influence your chances of sitting more or sitting less during school?

Perceived behavioural control

6. Are there any rules at school that make you sit for many hours consecutively?
 - How do you feel about this? Would you like this to change?
7. What does influence the total time you spend sitting in class e.g. seasonal weather, school facilities?
8. Have you ever tried to interrupt consecutively sitting?
 - Did you succeed in that? How did you do that? What were the barriers?

9. If you would like to interrupt consecutive sitting during school, do you think you are able to do it?

What would you do? What are the barriers?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

KEY QUESTIONS FOR EATING HABITS

Another aspect that we would like to discuss is diet. Diet is the sum of your eating habits, characterised by your food choices. It can be broken into multiple habits according to the food group you wish to focus on.

Let's talk about the snacks you usually consume. Snacking is when you consume food or beverages between your regular main meals. There are good and less good options e.g. healthy and unhealthy snacks. What do you consider as healthy or unhealthy snacks? (wait for their answers and then inform them)

Unhealthy snacks are food or beverages rich in salt, sugar or fat and poor in vitamins and other nutrients good for your health and development e.g. salty snacks, such as potato chips, pizza, dough-based snacks, sweets, biscuits, pastries, ice-creams, fizzy drinks, sugar-sweetened fruit juices etc.

1. Snacking within or outside school hours

2.1 Morning snacks/during school hours

Behaviour and attitudes

1. What kind of snacks do you usually eat before or during school?

- Do you like them?
 - What influences your choices in snacks?
 - Hunger
 - Appeal of snack/taste
 - Time, convenience
 - Health benefits
 - Advertisement/promotion
 - Availability and cost
 - Where do your snacks come from? e.g. prepared at home, school canteen etc. Why?
 - Do you think this is a good choice? Why or why not?
2. With whom do you usually eat or drink these snacks and in which occasions?
- Friends/Alone?
 - On your way to school, school break, school canteen, etc.?
3. Among the different snacks you are consuming or those available in the school canteen or supermarket, do you think there is any difference among them?
4. Do you think there are specific benefits/hazards related to the consumption of any of those?

Subjective Norm

5. Do your friends consume snacks before or during school?

- Do they differ from yours?
 - Do you think they consume more healthy snacks than you?
 - How important it is for you to consume the same snacks as your friends?
6. Are there any important others that motivate you to snack before or during school?
7. Are you rewarded with unhealthy morning snacks for completing a certain behaviour e.g. finishing homework, achieving high grades?
- Which behaviour?
 - How often?

- How do you feel when this happens?

Perceived behavioural control

- What facilities does your school environment have for snacking?
 - Inside school, e.g. canteen or vending machines?
 - Surrounding of the school?
- What type of snacks are available at your school canteen or shops nearby?
- Are there at your school any rules snacking
 - About what type of snacks are available at your school?
 - About eating fried stuff at the school property?
 - About delivery of ready-to-eat meals at the school property?
- Who decides which snacks you buy at the school canteen/bring from home?
 - Do you have any influence in the snacks that are bought/brought to school?
 - If yes, what influence?
- Have you ever tried to change your snacking habits, eat or drink more healthy snacks at school?
 - Why?
 - Did you succeed in that?
 - How did you do that?
 - What were the barriers?

13. If you would like to change your snacking habits, consume less unhealthy snacks at school, do you think you are able to do it?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

2.2 After school hours

Behaviour and attitudes

1. What kind of snacks do you usually eat after school hours?

- Do you like them?
- What influences you choices in these snacks?
 - Hunger
 - Appeal of snack/taste
 - Time, convenience
 - Health benefits
 - Advertisement/promotion
 - Availability and cost
- Do you think this is a good choice? Why or why not?

- Is there a difference between weekdays and weekend days?
- 2. With whom do you usually eat or drink these snacks and in which occasions?
 - Friends/Family/Alone?
 - At home, on the way, etc.?
- 3. Among the different snacks you are consuming or those available, do you think there is any difference among them?
- 4. Do you think there are specific benefits/hazards related to the consumption of any of those?
- 5. Do you usually pair your snacking with another activity (e.g. watching TV/social media, gaming, short walk, chatting with friends, while using your phone, some other activity)?
 - What is that activity?
 - How does this influence your consumption? E.g. eating more quantities, more unhealthy choices etc.

Subjective Norm

- 6. Do your friends consume snacks after school?
 - Do they differ from yours?
 - Do you think they consume more healthy snacks than you?
 - How important it is for you to consume the same snacks as your friends?
- 7. Are there any important others that motivate you to snack after school hours?
- 8. Are you rewarded with unhealthy afternoon snacks for completing a certain behaviour e.g. finishing homework, achieving high grades
 - Which behaviour?
 - How often?
 - How do you feel when this happens?

Perceived behavioural control

- 9. What type of snacks are available outside school (e.g. at home, sport canteens or on the way home)?
- 10. Are there at your home/outside school any rules about what type of snacks and how much you may consume either at school or at home?
- 11. Who decides which snacks are bought in the supermarket?
 - Do you have any influence in the snacks that are bought?
 - If yes, what influence?
- 12. Have you ever tried to change your snacking habits, eat or drink more healthy snacks at home?
 - Why?
 - Did you succeed in that?

- How did you do that?
- What were the barriers?

13. If you would like to change your snacking habits, consume less unhealthy snacks outside school hours, do you think you are able to do it?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

KEY QUESTIONS FOR THE THIRD BEHAVIOR CHOSEN BY THE AMBASSADORS

We have discussed physical activity, sitting time and diet. In preparation of today's meeting, we have send you a list of 15 behaviours. We also have the list here. Please have a careful look at the document. Is there any behaviour from this list that you think is very important for you, and that we could make new programs to improve the lifestyle of adolescents at your school? (wait for answers)

(This behaviour is more broadening and less in-depth compared to the other behaviours which are chosen beforehand. However, it is important to let the ambassadors give their opinions about another behaviour that is important for them next to increasing physical activity and reducing sedentary time during school and snacking behaviour during the day.)

3.1 Key behaviour listed by the ambassadors

Behaviour and attitudes

1. When do you [...] ?
2. With whom do you [...] ?

Subjective norm

3. What role do peers play in [...]?
4. Are there any important others in [...]?

Perceived behavioural control

5. Are there any rules related to [...]?
6. Have you ever tried to increase/decrease [...]?

Did you succeed in that? How did you do that? What were the barriers?

- Why?
- Did you succeed in that?
- How did you do that?
- What were the barriers?

7. If you would like to [...], do you think you are able to do it?

What would you do? What are the barriers?

- Would this be difficult?
- What makes it possible or not?
- What could motivate you and your peers?
- What are the benefits?

ENDING QUESTION

Our aim is to collaborate with you and help you, as much as we can, in creating a program to promote STEM engagement for healthy snacking and physical activity and decrease sedentary behaviour among adolescents in your community.

1. If you would like to change the behaviour of your peers towards a healthier lifestyle, how you would do it?

- How would you overcome the barriers?

2. The next phase of the project will be that we actually start thinking about novel interventions. What behaviours do you want to address?

• What behaviour?

- What is the specific behaviour you want to change the coming school year?

• Where does the behaviour take place?

- Where can we make a change? At home, at school, in the neighbourhood?

• At which time during the day should the intervention focus?

- When does it take place? In the morning, during school, or after school time?
- At school (in class, in recess time)
- Weekdays or weekend days

3. Are there any important persons that can help changing these behaviours?

- Would you like the idea of teachers participating in this action?
- How do you think that stakeholders from the neighbourhoods can help in overcoming barriers?

4. How can science and technology be used to achieve these behaviour changes?

5. How do you think we could engage you and your peers throughout the SEEDS project?

- How can we get a high response rate on the questionnaires?
- How can we get as much adolescents actively participating in the interventions?
- What is crucial that the SEEDS project will be a success?

Note

Use stimulating questions if participants are answering vague on items that are really important for the intervention development.

Examples are:

- Would you explain further?
- Can you give an example?
- Is there anything else? Please describe what you mean.

ANNEX F. QUESTION ROUTE FOCUS GROUP STAKEHOLDERS

Questioning route for stakeholders:

In the questioning route a distinction is made between key questions (numbered questions) that represent the central themes and optional questions (grey questions) that are only included to help the moderator if the discussion does not start up or continues spontaneously. There will be insufficient time to ask all questions. Given the time constraints and to allow for flexibility during the group discussion, not all questions will be addressed in the focus group. However, the highlighted yellow questions are considered the most important questions that should be answered during the focus group.

Purpose:

To reflect on the barriers and facilitators that ambassadors have specified, to identify ways stakeholders can help overcoming those barriers, to indicate the feasibility of changing those behaviours during a 6-month intervention, and to reflect on how science and technology could help o changing these behaviours.

Timeline:

10 minutes	Introduction and getting to know each other
20 minutes	Physical activity and sedentary behaviour during school hours
20 minutes	Snacking behaviour during the day
=====	10 minutes break =====
20 minutes	Behaviour chosen by ambassadors
15 minutes	Closing questions (role of science and technology, engagement of adolescents)
5 minutes	Concluding remarks and closing focus group

Introduction:

Good morning and welcome to our session.

My name is and is assisting me. We're both working at

In this session we would like to get insight from you about two main issues in adolescent's lives – physical activity in conjunction with sedentary behaviour during school, as well as healthy snacking choices in and out of school. Furthermore, we asked the adolescents for a third self-chosen issue in healthy and active living to address and therefore we would also like to get insight inWe have asked you to participate because you are key people in adolescents lives and our

hope is that, once the focus groups have been analysed, we can all come together and develop an intervention that will address the issues raised here today.

During the discussion there are no wrong or right answers or opinions. Please feel free to share your point of view even if it differs from what others have said. Keep in mind that we are just as interested in negative comments as in positive comments, and at times the negative comments are even the most helpful.

You have probably noticed that we are audio recording this session. This is because we don't want to miss any of your comments. People often say very helpful things during the discussion and we can't write fast enough to get them all down. Your names will only be used to facilitate the discussion, we will not use any of your names in our reports. Complete confidentiality is assured. The reports will go back to the University to help people guide adolescents into designing and implementing an intervention program for themselves.

If you want, you can withdraw from the research at any time, even in the middle of this focus group interviews, and you do not have to provide a reason for it.

Ensure that everyone participating had provided the research team with signed information/consent form. Do not proceed until this has been secured.

SUGGESTED OPENING QUESTION - These should really be simple opportunity for introduction so everyone can begin to get settled into the focus group and feel comfortable with proceedings.

- Please can you tell everyone here your name, the company/institute/school/etc. you work at and how you are linked to the research project or to the youth population? (Most relevant)

KEY QUESTIONS FOR INCREASING PHYSICAL ACTIVITY AND REDUCE PROLONGED SEDENTARY TIME DURING SCHOOL HOURS.

"Today we want to begin by talking about physically activity and sedentary time during school hours. For the purposes of this I think it is important to clarify exactly what we mean - physical activity is something organised or unorganised that the students engage in, like physical education practical classes or physical activity in breaks. Sedentary behaviour is any activity during which students are sitting or lying down, such as watching TV, reading, using a computer / tablet, sitting at your desk, etc."

2. Physical activity and sedentary time during school hours

Behaviour and attitudes

1. How important is physical activity for adolescents at school?
 - What behaviour do students most often engage in?
2. How important are sedentary activities for adolescents at school?
 - What behaviour do students most often engage in?

3. Can you identify any benefits/hazards for physical activity/sedentary time?

- What factors do you feel influence these behaviours the most?
- What kind of people influence these behaviours the most?
- The ambassadors have listed ... as influencing factor, what do you think about that?

Subjective Norm

4. What is the potential role of a school environment when choosing to engage in physical activity or sedentary behaviour?

- What role does the school curriculum or PE teacher play?
- Can adolescents play/sit as much as they want in the school breaks?

5. What is the potential role of pupil peer groups when choosing to engage in physical activity or sedentary activities?

6. What is the potential role of stakeholders when choosing to engage in physical activity or sedentary behaviours?

- What role do e.g. local sport suppliers play?
- Can you play a role in this?
- Teachers: Think back about physical activity during school weeks. Do you usually do any efforts to promote physical activity in the classroom (e.g. active breaks)?
 - How did you do this?
 - Do you give active prompts to adolescents during outdoor play? Why or why not?

Perceived behavioural control

7. What are the main facilitators and barriers in increasing physical activity/reducing sedentary behaviour during school time?

- To what extent are adolescents active during their break times?
- Do they have time to be active during their breaks?
- The ambassadors have listed ... as a barrier/facilitator, what do you think about that?

8. What are pupil's main opportunities for increasing physical activity and reducing sedentary activities in school time?

- What are the main contributing factors towards students exhibiting sedentary behaviours during school hours?
- What are the main contributing factors towards students physical activity during school time?

9. If you would like to help increase physical activity and reduce sedentary time, would you be able to?

- Why or why not?
- How would you do it? What are the barriers?
- Teachers: Could you use other spaces to increase PA?

10. Do you think it is reasonable to change (some factors) in this behaviour during a 6-month intervention?

- Do you want to and can you contribute in the design of such an intervention?
- Are there any important factors/stakeholders we did not address related to this behaviour?

KEY QUESTIONS FOR MAKING HEALTHY SNACKING CHOICES (WITHIN AND OUTSIDE SCHOOL TIME).

“Thank you for all your really interesting answers for this first part of the focus group. We are going to move on now to our second point of interest – the snacking choices that pupils make in and out of school times. Specifically, we are interested in factors surrounding making healthy snacking choices – for example – a healthy option might be a pear, or an apple, rather than a bag of jelly babies or a sugary drink.”

3. Snacking within or outside school hours

Behaviour and attitudes

1. In your opinion, how much importance do children in school place on making healthy snacking choices?
2. To what extent do you think students actively consider health priorities and/or issues when choosing a snack?
 - Does this differ, in any way, in and out of school?
 - What influences their healthy choices positively or negatively?

3. Can you identify any benefits/hazards related to the choice of snack consumption?

- What factors do you feel influence these choices the most?
- What kind of people influence these choices the most?
- The ambassadors have listed ... as influencing factor, what do you think about that?

Subjective Norm

4. What role does school play on pupils choosing healthy snacks, both in and out of school?
 - What is the influence of the school environment?
 - Are there any rules or regulations related to healthy snacking, or are they needed?
5. What role do peers play on choosing healthy snacks, both in and out of school?
6. **What role do stakeholders play on choosing healthy snack, both in and out of school?**
 - Does this differ, in any way, in and out of school?
 - What is the influence of different type of shops around the school?
 - Is there any regulation about the type of shops around the school?
7. Which factors encourage/limit you to promote healthy snacks in adolescents?
 - Which factor is the most important?
 - How could the limitations be solved?

Perceived behavioural control

8. What are the main facilitators/barriers in choosing healthy snacks?

- The ambassadors have listed ... as a barrier/facilitator, what do you think about that?

9. Did you make any efforts to promote healthy snacks in adolescents?

- How did you do this?
- What are the reasons for you to promote healthy snacks?
- Which factors would motivate you to promote healthy snacking in adolescents?
- Teachers: Do you provide nutrition education in your class? How?
- Teachers: Do you eat healthy snacks yourself at school?

10. If you would like to increase healthy snacking in adolescents, would you be able to?

- Why or why not?
- How would you do this? What are the barriers?

11. Do you think it is reasonable to change (some factors) in this behaviour during a 6 month intervention?

- Do you want to and can you contribute in the design of such an intervention?
- Are there any important factors/stakeholders we did not address related to this behaviour?

THIRD BEHAVIOUR

Lets now focus on the third behaviour of interest [...].

4. Key behaviour listed by the ambassadors

Behaviour and attitudes

8. How important is [...] in your opinion?

9. Can you identify any benefits/hazards related to [...]?

Subjective norm

10. What role do peers play in [...]?

11. What role do schools/the school environment play in [...]?

12. What role do stakeholders play in [...]?

Perceived behavioural control

13. What are the main facilitators/barriers in [...]?

- The ambassadors have listed ... as a barrier/facilitator, what do you think about that?

14. What are the opportunities for addressing [...]?

15. If you want to change [...] as a stakeholders, are you able to?

- Why or why not?
- What are the main contributing factors for changing [...]?

16. Do you think it is reasonable to change (some factors) in [...] during a 6 month intervention?

- Do you want to and can you contribute in the design of such an intervention?
- Are there any important factors/stakeholders we did not address related to [...]?

SUMMARY/CLOSING QUESTIONS.

“Thank you all for such a stimulating conversation! These are all excellent points and I think this will prove really useful for the project. We are at the end now and I just want to finish with two things. First, the idea behind all of this is to run an event called a ‘Makeathon’ were all of us, that means you guys, as well as the SEEDS ambassadors from this school will develop an intervention that hopefully tackles some of the points raised here today. This leads me to ask...

1. How do you think we could align STEM subjects/teaching along with the issues raised here today?

2. Are there any important others that can help?

- Would you like the idea of participating in this action?
 - Which other partners should be invited?
 - How do you think you as stakeholders can help in overcoming barriers?
3. How can science and technology be used to achieve these behaviour changes?
 4. How do you think we could engage adolescents throughout the SEEDS project?

Participants may require reminding or probing regarding content discussed.

“Finally, are there any questions you would like to ask me about what we have covered today, or any other aspect of the SEEDS project?”

END OF FOCUS GROUP.

ANNEX G. PARTICIPANTS OF FOCUS GROUPS

STAKEHOLDERS

Greece

Highschool Principal	Head of the school
Highschool Canteen Owner	Schools' canteen owner
Physical Activity Teacher	PE teacher
Teacher of Home Economics (this lesson includes nutrition modules)	Teacher
Teacher responsible for daily break-watching for safety reasons	Teacher

The Netherlands

Participants of focus group 1:

Policy advisor youth Charlois, city of Rotterdam	Local policy advisor youth
Sportbedrijf Rotterdam	City-wide organisation supporting local sport clubs
Physical Education teacher Lekker Fit school, projectleader	PE teacher
Youth worker in the south of Rotterdam	Local youth and welfare organisation
Rotterdam Sportsupport	City-wide organisation facilitating sport activities

Participants of focus group 2:

Project leader city of Rotterdam (fitness program for kids and adolescents)	Project leader city of Rotterdam
Policy advisor city of Rotterdam	Policy advisor city of Rotterdam
Youth worker in the south of Rotterdam	Youth worker
Youth worker in the south of Rotterdam	Youth worker
Youth nurse at a centre for youth and family	Youth nurse
Strategic advisor at Rotterdam Sportsupport (organization to facilitate sport activities)	Strategic advisor: sport support

Spain

Participants of focus group 1:

Physical Activity teacher in high school and sports campus monitor	PE teacher
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Policymaker of the Health Promotion Service in the Public Health Agency of Catalonia	Local policymaker health promotion
Social integrator of the high school	School social worker
Worker in a youth association in Reus	Local youth association
Member of Caritas Tarragona Association (Official confederation of charitable and social action entities of the Catholic Church in Spain) and retired professor of University	National charity organisation
Member of the Central Market of Reus	Representative local food hall

Participants of focus group 2:

Policymaker of Educational Services (Department of Education of Catalonia)	Local policymaker education
Pedagogue and expert in health promotion	Health promotion expert and pedagogue
Council of Youth and Citizen Participation and, of Rural Environment	Council of youth and citizen participation
Teacher at a Unit of Shared Schooling	Teacher

The United Kingdom

Head of science department at intervention school and South West UK	Head of science department
Representative of STEM charity	STEM charity organisation