



SOPHia Project School Visits Student Responses 2019-2022

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This readme file was generated on the 18th of November, 2022, by Agata LYNCH

GENERAL INFORMATION

Title of Dataset: **SOPHia Project School Visits Student Responses 2019-2022**
(SOPHia2019_2022_SchoolVisit_StudentFeedback)

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Irish Research Council at the time of publication

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DATE of data collection: 2019 - 2022

GEOGRAPHIC LOCATION of data collection: Data was collected in Ireland.

INFORMATION ABOUT FUNDING SOURCES that supported the collection of the data:

SOPHia Project was funded by Science Foundation Ireland's Discover Programme under grant no 18/DP/5833 and grant no 19/DP/7160.

SHARING/ACCESS INFORMATION

Licenses/restrictions placed on the data: CC-BY 4.0

In this Creative commons license the public is granted permission to reuse, distribute and build upon the licensed work and the original authors must be attributed to any reuse of the original work.

Links to publications that cite or use the data: N/A

Links to other publicly accessible locations of the data: N/A

Links/relationships to ancillary data sets: N/A

Was data derived from another source? No

If yes, list source(s): N/A

Recommended citation for this dataset:

Lynch, Agata; Cauchi, Michael; Bochet, Marie; Walshe, Gráinne (2022): SOPHia Project School Visits Student Responses 2019-2022. University of Limerick Dataset.
<https://doi.org/10.34961/researchrepository-ul.21550908>

DATA & FILE OVERVIEW

File List:

Files with data:

SOPHia2019_2020_DATA_SchoolVisit_StudentFeedback.csv;
SOPHia2021_DATA_SchoolVisit_StudentFeedbackQualtrics.csv;
SOPHia2022_DATA_SchoolVisit_StudentFeedback.csv

Files with key:

SOPHia2019_2020_KEY_SchoolVisit_StudentFeedback.csv;
SOPHia2021_KEY_SchoolVisit_StudentFeedbackQualtrics.csv;
SOPHia2022_KEY_SchoolVisit_StudentFeedback.csv

Readme (copy of this file) in pdf:

Readme_SOPHia2019_2022_SchoolVisit_StudentFeedback.pdf

RELATIONSHIP BETWEEN FILES:

The three DATA files contain answers to a pre-/post-workshop questionnaire, which was similar but not identical throughout the project's life / across the three sub datasets. The KEY files contain the key to each respective data file.

ADDITIONAL RELATED DATA COLLECTED THAT WAS NOT INCLUDED IN THE CURRENT DATA PACKAGE:

The SOPHia Project offers school visit workshops to students in upper primary schools in Ireland (5th and 6th class) and to those in secondary schools (2nd, 3rd, and Transition Year).

This data package includes only answers collected from secondary school students.

Are there multiple versions of the dataset? No

If yes, name of file(s) that was updated: N/A

Why was the file updated? N/A

When was the file updated? N/A

METHODOLOGICAL INFORMATION

Description of methods used for collection/generation of data:

All data was collected as part of the SOPHia Project: Science Outreach to Promote Physics to Female Students, run at the University of Limerick (UL) with support from the Department of Physics and Science Learning Centre at UL, the Institute of Physics and in years 2020-2022 Institute of Technology Carlow (IT Carlow) and Tait House Community Enterprise.

This project aims to encourage more students, especially females, to take up physics as a Leaving Certificate subject through a mix of interventions. The interventions include the school visit programme delivered by undergraduate university facilitators, a student competition for projects researching physics from diverse angles, such as: famous physicists/important physics discoveries, showcase events to inform teachers of the issues with regards to gender in physics, an interactive website for parents, teachers and students, to supplement the school visit programme, with curriculum-linked activities. Some archived and all up-to-date information about the project can be found at <http://sophiaphysics.ie/>

This dataset comes from the school visit programme and consists of answers provided only by students in secondary schools with a signed consent form from their parent/guardian that was informed about the possibility of the publication of the data and its analysis. An approval from relevant Ethics Committee at UL was obtained.

Data was collected with the use of pre-and post-intervention type questionnaires. In 2019-2021 and again in 2022 it was a classic pen-and-paper method, with the project team present in the room where the workshop was delivered. Data from 2021 was collected from students witnessing the school visit workshop online and answering the questions on their devices. Questions from all three questionnaires are part of the dataset.

Each questionnaire / set of data consists of four parts: part A asks basic personal questions about the respondent, part B and C ask questions about respondent's attitudes to physics with part B answered before and part C after the workshop. Question D asks about the usefulness of the intervention.

Methods for processing the data:

Data collected via pen-and-paper method was transcribed into digital format was collected during years 2019-2020 into Excel files and during 2022 into SPSS files. Data collected through Qualtrics was exported into Excel. Filters were then applied to remove data for which no

consent was given and to anonymise data, *i.e.* to remove any identifiers such as name of school or GPS location of device from which data was collected. Variables describing the time of data collection were added to files with data collected during a single period (coded as Spring 2021 and Spring 2022). Case numbers were applied to harmonise the datasets. Pen-and-paper answers to open ended questions were not transcribed but the questions remain in the datasets, with empty fields instead of answers. When collated and harmonised, data and keys were saved as CSV files.

Instrument- or software-specific information needed to interpret the data:

CSV files can be run with any spreadsheet program.

Standards and calibration information, if appropriate: N/A

Environmental/experimental conditions:

SOPHia2019_2020_DATA_SchoolVisit_StudentFeedback.csv and SOPHia2022_DATA_SchoolVisit_StudentFeedback.csv consist of answers collected with a pen and paper method in the classroom where the school visit workshop was delivered.

The SOPHia2021_DATA_SchoolVisit_StudentFeedbackQualtrics.csv dataset consists of answers collected through a digital survey platform (Qualtrics) from students using their own electronic devices while attending the workshop either in a classroom or remotely from home.

Describe any quality-assurance procedures performed on the data:

Data transcribed into the digital files was randomly checked *vs* the paper survey forms. Individual numbers of respondents as well as school numbers were harmonised to allow for easier comparison between datasets from different periods.

PEOPLE INVOLVED WITH SAMPLE COLLECTION, PROCESSING, ANALYSIS AND/OR SUBMISSION:

The SOPHia Project is a result of hard work put in by all the undergraduate students facilitating the school visit workshops, teachers who are passionate about their students learning about physics and, last but not least, the students in schools who participate in the workshops.

The authors would like to express their gratitude to those who helped with the organization and running of the SOPHia Project, since its start:

Elora McFall, whose dedication to the issue of girls in physics (or lack thereof) was the seed from which the SOPHia Project grew and whose help throughout helped make it the success it has been;

Dr Vincent Casey[†], whose help and creative contribution to the SOPHia Project, especially the investigation into the physics of the life of bees, is irreplaceable. Dr Casey died on the 26th of July 2022. *Ar dheis dé go raibh a anam (dílís);*

Dr Dave Corcoran, whose support and encouragement resulted in the SOPHia Project receiving its first round of SFI funding;

Dr Yvonne Kavanagh, whose expertise and enthusiasm was essential to the running of the project;

Maria Quinn, who provided ongoing help with the organisation of workshops: taking care of facilitators, materials and spaces when space was needed;

John Sweeney, who helped with the facilitation of online workshops during the COVID-19 related restrictions;

Sadhbh Ryan; Niamh Hickey; and Tara Ryan all three not only facilitated the workshops but also helped shape the project;

The first round of data collection

[SOPHia2019_2020_DATA_SchoolVisit_StudentFeedback.csv and

SOPHia2019_2020_KEY_SchoolVisit_StudentFeedback.csv] could not have happened without the support from:

Aaron Cusack,

Dr Cian McKeown,

and **Dr Ian Clancy.**

The SOPHia Project managed to run through the COVID-19 emergency and thus allowing the Team to collect data published in

[SOPHia2021_DATA_SchoolVisit_StudentFeedbackQualtrics.csv

SOPHia2021_KEY_SchoolVisit_StudentFeedbackQualtricscsv.] due to help and advise offered by:

Prof. Merrilyn Goos,

Dr Robert Lynch,

Dr Stephen Comiskey, and

Nancy Serrano.

The continuation of the SOPHia Project was facilitated by the support of the Department of Physics at UL, in particular the support of the Head of Department, **Prof. Tofail Syed**, and **Dr Sarah Guerin**, who took over the supervision of the Project in 2022. Thus allowing the Team to collect data published in

[SOPHia2022_DATA_SchoolVisit_StudentFeedback.csv and

SOPHia2022_KEY_SchoolVisit_StudentFeedback.csv]

The authors acknowledge the help of **Ruairí Walshe Kelly, Arash Soheyli and Zohreh Eshghimanesh** with transcription of results from the paper surveys into digital files.

DATA-SPECIFIC INFORMATION FOR:

SOPHia2019_2020_DATA_SchoolVisit_StudentFeedback.csv

Number of variables: 24

Number of cases/rows: 668

Variable List: (also available in SOPHia2019_2020_KEY_SchoolVisit_StudentFeedback.csv)

Case Number

School, 4-18 Note: Some Schools were visited twice but each school visit was given a different number

Date: 0 = No Date, 1= Spring 2019, 2 = Autumn 2019, 3 = Spring 2020, 4 = Autumn 2020, 5 = Spring 2021, 6 = Autumn 2021, 7 = Spring 2022, 9 = Error

AQ1 Have you studied physics as part of Junior Certificate Science?
0 = No answer, 1 = No, 2 = Yes

AQ2 Have you studied physics during Transition Year?
0 = No answer, 1 = No, 2 = Yes,

AQ3 Please select your gender
1 = Male, 2 = Female, 0 = Not Entered (Other),

AQ4 What year are you in?
1 = 1st, 2 = 2nd, 3 = 3rd, 4 = TY (4th), 5 = 5th,etc...

BQ1 Do you think you know much about what physics is about?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot,

BQ2 Do you enjoy studying physics related topics?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot,

BQ3 Do you feel confident about doing and learning about physics in school?
0 = No answer, 1 = Not Confident at all, 2 = Not confident, 3 = Average, 4 = Confident, 5 = Very (much) confident,

BQ4 Do you feel like there are good physics role models for you?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot

BQ5 Do you think physics is important/interesting in your life?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot

BQ6 Do you think you would likely take physics at leaving cert?
0 = No answer, 1 = No, 2 = Maybe, 3 = Yes

BQ7 Can you describe or draw a typical physicist?

BQ8 What kinds of jobs could someone who studied physics end up doing?

CQ1 Do you think you know much about what physics is about?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot,

CQ2 Do you enjoy studying physics related topics?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot

CQ3 Do you feel confident about doing and learning about physics in school?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot

- CQ4 Do you feel like there are good physics role models for you?
0 = No answer, 1 = Not Confident at all, 2 = Not confident, 3 = Average, 4 = Confident, 5 = Very (much) confident
- CQ5 Do you think physics is important/interesting in your life?
0 = No answer, 1 = Not much, 2 = Below average, 3 = Average, 4 = Above average, 5 = A lot
- CQ6 Do you think you will study physics at leaving cert?
0 = No answer, 1 = No, 2 = Maybe, 3 = Yes
- CQ7 Have your ideas changed from before the workshop as to what a typical physicist is like?
0 = No answer, 1 = No, 2 = Yes, 3 = Yes, with details
- CQ8 What kind of jobs could someone who studied physics end up doing?
- DQ1 Was our SOPHia talk helpful to you in terms of learning more about physics?
0 = No answer, 1 = Not at all helpful, 2 = A little helpful, 3 = Helpful, 4 = Very Helpful

Missing data codes: Fields where no answers were provided were left empty. Answers to open ended questions and descriptive tasks (e.g. "Draw a physicist") were not transcribed and are not included in the dataset.

Specialized formats or other abbreviations used: N/A

DATA-SPECIFIC INFORMATION FOR:

SOPHia2021_DATA_SchoolVisit_StudentFeedbackQualtrics.csv

Number of variables: 26

Number of cases/rows: 177

Variable List: (also available in
SOPHia2021_KEY_SchoolVisit_StudentFeedbackQualtrics.csv)

Case number

DATE 0 = No Date, 1 = Spring 2019, 2 = Autumn 2019, 3 = Spring 2020, 4 = Autumn 2020, 5 = Spring 2021, 6 = Autumn 2021, 7 = Spring 2022, 9 = Error

Q1 Please indicate what county (for example, Limerick, Cork, Kilkenny) you live in?
answers were removed to additionally protect the anonymity of participants.

Q2 Are you in
1 = Primary school, 2 = Secondary school

Q3 Have you learned about physics in school?
1 = Yes, 2 = No, 3 = Not sure

Q4 If you have learned about physics in school, when did you learn about it?
1 = In primary school, 2 = During junior cycle (1st year, 2nd year or 3rd year), 3 = In Transition Year

Q5 Please select your gender
1=Male, 2=Female, 3=Other, 4=Prefer Not to Say

Q6 What class or year are you in?
1=1st, 2=2nd, 3=3rd, 4=TY, 5=5th, 6=6th

“PLEASE ANSWER QUESTIONS 7 TO 14 BEFORE THE WORKSHOP”

Q7 Do you think you know much about what physics is about? Tick the option that best applies.
1=Not at all!, 2=Below Average, 3=Average, 4=Above Average, 5=I do very much

Q8 Do you enjoy learning about physics and physics-related topics (e.g. astronomy, electricity, the weather)?
1=Not at all!, 2=A little bit, 3=Some, 4=Most, 5=Very much

Q9 Do you feel confident about doing and learning about physics in school?
1=Not much!, 2=A little bit, 3=Average, 4=Confident, 5=Very Confident

Q10 Do you feel like there are good physics role models for someone like you? (e.g. if you are a girl, do you know any women who are physicists, or would you know of anyone from your area or town who does physics)?
1=None at all!, 2=A fair few, 3=A good few, 4=A very good few, 5=A lot!

Q11 Do you think physics is interesting and important in your life?
1=Very boring and very unimportant!, 2=2, 3=3, 4=4, 5=Very interesting and very important!

Q12 Do you think you will study Physics as Leaving Certificate subject?
1=No, 2=Maybe, 3=Yes

Q13 Can you describe a typical physicist? Tick all that you feel apply
1=Male, 2=Female, 3=Sporty, 4=White lab coat, 5= Outgoing, 6=Silly, 7=Bearded, 8=Boring, 9=Clever, 10=Long hair, 11=Glasses, 12=Musical, 13=Loud, 14=Quiet, 15=Sheldon Cooper, 16=Shy, 17=Messy hair, 18=Sociable, 19=Cool, 20=Geeky

Q14 What kinds of jobs could someone who studied physics end up doing?
open question

“PLEASE ANSWER QUESTIONS 15 TO 22 AFTER THE WORKSHOP HAS ENDED”

Q15 Do you think you know much about what physics is about? Tick the option that best applies
1=Not at all!, 2=Below Average, 3=Average, 4=Above Average, 5=I do very much

Q16 Do you enjoy learning about physics and physics-related topics (e.g. astronomy, electricity, the weather)?
1=Not at all!, 2=A little bit, 3=Some, 4=Most, 5=Very much

Q17 Do you feel confident about doing and learning about physics in school?
1=Not much! 2=A little bit, 3=Average, 4=Confident, 5=Very Confident

- Q18 Do you feel like there are good physics role models for someone like you?
(e.g. if you are a girl, do you know any women who are physicists, or would you know of anyone from your area or town who does physics)?
1=None at all! 2=A fair few, 3=A good few, 4=A very good few, 5=A lot!
- Q19 Do you think physics is interesting and important in your life?
1=Very boring and very unimportant!, 2= 2, 3=3, 4=4, 5=Very interesting and very important!
- Q20 Do you think you will study Physics as Leaving Certificate subject?
1=No, 2=Maybe, 3=Yes
- Q21 Have your ideas changed since before the workshop of what a typical physicist is like?
1=Yes, for the better, 2=Yes, for worse, 3=No change
- Q22 If your ideas of what a physicist is like have changed, can you explain how they have changed?
open question
- Q23 Has the workshop given you ideas about more jobs that someone who studies physics could end up doing?
open question
- Q24 Was being part of the SOPHia Workshop helpful to you for learning more about physics?
1=Very helpful, 2=Helpful, 3=Not helpful at all

Missing data codes: Questions with no answers provided were left empty.

Specialized formats or other abbreviations used: N/A

**DATA-SPECIFIC INFORMATION FOR:
SOPHia2022_DATA_SchoolVisit_StudentFeedback.csv**

Number of variables: 27

Number of cases/rows: 103

Variable List: (also available in SOPHia2022_KEY_SchoolVisit_StudentFeedback.csv)

Case number

School 1-3

Date 0 = No Date, 1= Spring 2019, 2 = Autumn 2019, 3 = Spring 2020, 4 = Autumn 2020, 5 = Spring 2021, 6 = Autumn 2021, 7 = Spring 2022,, 9 = Error

AQ1 Have you studied physics as part of (Junior Cycle) JC?
0=No answer, 1=No, 2=Yes

AQ2 Have you studied physics during (Transition Year) TY?
0=No answer, 1 = No, 2=Yes, 3=N/A

AQ3 Please select your gender
0=Not Entered, 1=Male, 2=Female, 3=Other

- AQ4 What year are you in?
1 = 1st, 2=2nd, 3=3rd, 4=TY (4th), 5=5th,etc...
- BQ1 Do you know what physics is about?
0=No answer, 1=Not at all, 2=Kind of, 3=Yes, I do
- BQ2 Do you enjoy learning physics and physics topics?
0=No answer, 1=Not at all, 2=some of them, 3=Yes, I like PH a lot
- BQ3 How confident are you about doing physics in school?
0=No answer, 1=Not confident at all, 2=I don't mind, 3=Very confident
- BQ4 Do you know anyone from your area or town who does physics?
0=No answer, 1=Not a single person, 2=A good few people, 3=A lot of people
- BQ5 Do you think physics is interesting? It is...
0=No answer, 1=Very boring, 2=Rather boring, 3=sometimes boring
sometimes interesting, 4=Quite interesting, 5=Very interesting
- BQ6 Is physics important in your life?
0=No answer, 1=Not important at all, 2=A little bit important, 3=Neither
important or not, 4=Quite important, 5=Very important
- BQ7 Do you think you are likely to take physics as a subject for your LC?
0=No answer, 1=No, 2=maybe, 3 = Yes
- BQ8 Can you describe or draw a typical physicist?
Open Question
- BQ9 Please list some careers/ professions that studying physics can lead to (if you
can)
Open Question
- CQ1 Do you know what physics is about?
0=No answer, 1=Not at all, 2=Kind of, 3=Yes, I do
- CQ2 Do you enjoy learning physics and physics topics?
0=No answer, 1=Not at all, 2=some of them, 3=Yes, I like PH a lot
- CQ3 How confident are you about doing physics in school
0=No answer, 1=Not confident at all, 2=I don't mind, 3=Very confident
- CQ4 Do you know anyone from your area or town who does physics?
0=No answer, 1=Not a single person, 2=A good few people, 3=A lot of people
- CQ5 Do you think physics is interesting? It is...
0=No answer, 1=Very boring, 2=Rather boring, 3=sometimes boring
sometimes interesting, 4=Quite interesting, 5=Very interesting
- CQ6 Is physics important in your life?
0=No answer, 1=Not important at all, 2=A little bit important, 3=Neither
important or not, 4=Quite important, 5=Very important
- CQ7 Do you think you are likely to take physics as a subject for your LC?
0=No answer, 1=No 2=maybe, 3=Yes

- CQ8 Have your ideas changed since before the workshop of what a typical physicist is like?
0=No answer, 1=Yes, 2=No
- CQ9 Can you explained how your ideas have changed?
Open Question
- CQ10 Please list some careers/ professions that studying physics can lead to (if you can)
Open Question
- DQ1 Was our SOPHia workshop helpful to you in terms of learning more about physics?
0 = No answer, 1 = Not at all helpful, 2 = Somewhat helpful, 3 = Very helpful

Missing data codes: Questions with no answers provided were left empty. Open ended questions and descriptive tasks ("Draw a physicist") were not transcribed and are not included in the dataset.

Specialized formats or other abbreviations used: N/A