



Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University

**School of Computing
RESEARCH ETHICS COMMITTEE**

**APPLICATION FORM FOR ETHICAL REVIEW OF A
RESEARCH PROJECT INVOLVING HUMAN PARTICIPANTS
WHICH IS IN THE CATEGORY OF NOTIFICATION ONLY**

There are 3 generally accepted levels of ethical review for projects carried out in a University or similar setting. These are notification only, expedited and full committee.

This notification only level of review is to approve relatively low-risk research involving human participants, primarily using social science methodologies in which any personal information collected is not of a sensitive nature. The School of Computing Research Ethics Committee has been delegated responsibility by the University to approve ethics submissions from undergraduate and taught Masters projects only, which are in the category of notification only.

Examples of projects in this category include:

- Anonymous surveys in which the topic itself is not likely to elicit significant difficulties for the participants, such as: anonymous internet surveys (e.g. Survey Monkey), street questioning.
- Observation (without audio or visual recording) of public settings where privacy would not normally be expected, such as observing people on streets or at sports events.
- Research carrying no risks beyond those of everyday life (as experienced by the intended participant population), such as asking people's opinions about products or services; asking students about educational experiences; monitoring the impact of daily activities.
- Interviews with public figures, professionals or others in their professional capacity regarding their professional activities.
- Analysis of data (e.g. health records) which have had all identifying information removed by the data holder and been provided to the researcher in accordance with data protection legislation.
- Collection of biological samples which are anonymised and do not require invasive techniques (e.g. hair, nails).

If your project is using data from a public repository like Kaggle or is not generating or using any form of personal data then you do not need research ethics approval, you do not need to complete and to submit this form and your project supervisor should indicate this on the project dashboard.

If your project involves collecting or processing [personal data which is of a personal nature](#), you must first complete the DCU online Data Protection training course and review the "[Data Protection – Key Points for DCU Researchers](#)" guidance from the Data Protection Unit to assist you in meeting your legal obligations under GDPR and associated Irish law.

Once you have completed this form (if you need to) you should save it as a PDF file, not WORD, and upload it to the your project dashboard before you start gathering data. It will then be read and assessed by two members of the committee and once two members of the committee approve your submission you will be automatically notified by email and your project can start data gathering.

There are strict deadlines for submitting this form for each class group, undergraduate and taught Masters by which your submission must be made and you will be informed of these deadlines by your course board chair or project co-ordinator. If you do not submit by these deadlines then the research ethics committee is not obliged to approve your submission and when that happens and your project is assessed and graded at the end of the year, you will be awarded 0 for that component of your project.

SECTION 1 – GENERAL DETAILS**1.1 Project Title**

Snap-py

1.2 Applicant Details

Name	Student or Supervisor	E-mail
Andy Vodopi	Student	andy.vodopi2@mail.dcu.ie
Luigi Di Paolo	Student	luigi.dipaolo2@mail.dcu.ie
Stephen Blott	Supervisor	stephen.blott@dcu.ie

Other Investigators: *Including any external to DCU*

Name	School/Unit/External Institution	E-mail

1.3 Key Project Dates

Proposed start date for data collection	Proposed end date for data collection	Proposed project completion date
15/04/2025	30/04/2025	01/05/2025

1.4 Please indicate which academic awardUndergraduate ☒Taught Masters ☐**1.5 Please confirm the location(s) where the research will be carried out**

If research will be carried out abroad, you will need to address the ethical challenges raised by this in Section 3 of your application - consult the Conducting Research Abroad document in the Ethics Resources and Guidelines section of the [DCU Research Ethics webpage](#)).

The research will be carried out in DCU, Glasnevin Campus

1.6 Please state what additional permissions may be required to access participants.

Specify from whom the permission is required (e.g. a school Board of Management), and when their written approval will be obtained

No additional permissions

SECTION 2 – PROJECT DESIGN AND METHODOLOGY

Research Overview - Please respect the indicated word counts in the following sections and explain all acronyms in full text the first time they appear.

2.1 Provide a brief description of the research (max 250 words):

Please use lay language, include the scientific/theoretical background of study and a justification as to why this research project should proceed in that context

This study examines the effectiveness of a novel educational tool that combines block-based programming with Python. Learning to code can be challenging for beginners due to syntax errors and unfamiliar concepts. By allowing users to generate Python code through visual blocks, this tool provides a gradual learning experience, helping them develop computational thinking skills without syntax-related frustration.

Participants will engage with a near-finalized version of the web app, completing a set of tasks provided by us and providing feedback through surveys. The research will evaluate usability, engagement, and learning effectiveness to ensure the tool effectively supports beginners in developing computational thinking skills.

2.2 Please state the aims and objectives of the project (max 200 words)

Our goal is to create a novel educational programming tool that combines the best aspects of block-based programming with Python's accessible syntax and abstraction levels. The tool we are developing will allow users to create Python code by manipulating blocks, offering them the cognitive benefits of a visual programming environment while gradually familiarising them with the structure and syntax of Python code. In this way, beginners can focus on developing logical and computational thinking skills without being burdened by the frustration of syntax errors or unfamiliar constructs.

2.3 Please confirm your methods of data collection:

Tick all relevant check boxes and provide details for each one, including any devices used to collect data, and whether the data will be anonymous, potentially identifiable or identifiable at point of collection

Method	Describe briefly
<input type="checkbox"/> Interviews or focus groups	
<input checked="" type="checkbox"/> Surveys/questionnaires	We will request feedback from participants on usability, engagement, and learning
<input type="checkbox"/> Audio/video recordings	
<input checked="" type="checkbox"/> Public observations	We will observe users interacting with the tool to identify usability issues, assess engagement levels, and understand how effectively they learn and apply computational thinking skills
<input type="checkbox"/> Persons in public office	

<input type="checkbox"/> Using existing data (incl. secondary data)	
<input type="checkbox"/> Using human derived material (biological samples)	
<input type="checkbox"/> Standard tests (educational/personality etc.)	
<input type="checkbox"/> Standard educational practices	
<input type="checkbox"/> Other (please specify)	

2.4 Please confirm who the participants on this study will be, including group size and composition:

Include associated demographic characteristics, and state how your proposed sample size was determined (e.g. power analysis)

<p>The participants in this study will be beginner learners who are new to coding, particularly those with little to no prior experience in programming or computational thinking. The target demographic includes:</p> <p>Age range: 18–35 years old</p> <p>Education level: High school graduates or college students with no formal background in programming</p> <p>Technical experience: Limited or no experience in programming languages (including Python)</p> <p>Geographic location: Participants will primarily be from Dublin, Ireland, though the study may be open to remote participation</p>
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2.5 Please outline your recruitment process, including where you are sourcing participants from and your criteria for inclusion/exclusion:

Where gatekeepers are involved, outline the procedures relating to their involvement

<p>The participants in this study will be beginner learners who are new to coding, particularly those with little to no prior experience in programming or computational thinking. The target demographic includes:</p> <p>Age range: 18–35 years old</p> <p>Education level: High school graduates or college students with no formal background in programming</p> <p>Technical experience: Limited or no experience in programming languages (including Python)</p> <p>Geographic location: Participants will primarily be from Dublin, Ireland, though the study may be open to remote participation</p>
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2.6 Addressing participant vulnerability – if your participants fall into any of the following categories, please check the relevant tick box/boxes and state below what special arrangements will be made to protect them:

If your participants are not in any of these categories, tick N/A

<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Children under 18 years of age
<input type="checkbox"/> Persons in unequal relationships with the researcher (e.g. lecturer-student, therapist-client, employer-employee)
<input type="checkbox"/> People with a recognised or diagnosed intellectual, physical or mental impairment
<input type="checkbox"/> People confined to institutions (e.g. prisoners, residents in 24 hr nursing facilities)
<input type="checkbox"/> People who have undergone traumatic or adverse emotional events

<input type="checkbox"/> People with diminished cognitive ability
<input type="checkbox"/> Marginalised sections of society
<input type="checkbox"/> Other (please specify)
Special arrangements:

2.7 Involvement of children under 18 years of age – if your participants are in this category, please confirm compliance with the following:

If your participants are not in this category, tick N/A

<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> We confirm that we have read and agree to act in accordance with the DCU Child Protection policy and procedures (as per the DCU Child Protection Unit webpage)
<input type="checkbox"/> We confirm that we have put in place safeguards for the children participating in the research
<input type="checkbox"/> We confirm that we have supports in place for children who may disclose current or historical abuse (whether or not this is the focus of the research)
<input type="checkbox"/> We confirm that all requirements will be met prior to commencing the research (e.g. TUSLA Children First Training completed, Garda Vetting in place)

2.8 Please confirm how the results of the research will be disseminated:

Include a statement on whether the participants will be provided with any information as to the findings or outcomes of the project

The participants can be provided with information on the findings or outcomes of the project if they
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SECTION 3 – ETHICAL ISSUES AND RISK MANAGEMENT

3.1 Please identify all issues including ethical issues which may arise in the course of this research. What are the potential risks to participants, and how will those risks be addressed or minimised?

Potential risks can be physical, psychological, social, legal, etc. Please include details of any additional support being provided for participants during/after the study

No physical, psychological, social, legal or any other type of risks to the participants.

3.2 Please identify the potential benefits (direct and/or indirect) to those participating in this research:

Potential benefits should outweigh the potential risks to participants

Participants may gain introductory experience with programming and computational thinking.

3.3 Please describe what measures/protocols you have put in place in the event that there are any unexpected outcomes or adverse effects to participants arising from involvement in the research:

If any unexpected outcomes or adverse effects occur, participants can withdraw at any time without any type of penalty. We will provide immediate support and ensure confidentiality. Any necessary adjustments to the study will be made to ensure participant well-being.

3.4 Do you intend to provide payment or incentives to participants?

Yes ☐

No ☒

If Yes, please consult the REC Guidelines on the Use of Compensation and Incentives (in the Ethics Resources and Guidelines section of the [DCU Research Ethics webpage](#)) before providing additional details below

3.5 Does this research raise any potential risks for the researchers themselves?

Please consider the location/environment where the research is being conducted, exposure to distressing data content etc.

Yes ☐

No ☒

If Yes, please describe further and explain what risk management procedures will be put in place to minimise these risks to researchers:

3.6 Does this research raise any potential conflict of interest?

Please consider any potential real or perceived conflicts of interest that might influence the integrity of the research, or give rise to bias in conducting and reporting the research, or affecting publication (consult the [DCU Conflict of Interest Policy](#) for assistance)

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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If Yes, please identify and explain the steps being taken to address that conflict:

3.7 Please describe how the conduct of the research will be monitored:

Regular oversight by the PI is required to ensure the project conforms to the procedures set out in this application (especially where several people are involved in carrying out the research procedures)

We will have regular check-ins with our supervisor and between each to ensure that the research is conducted according to the outlined procedures and ethical standards.
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SECTION 4 – CONFIDENTIALITY AND DATA MANAGEMENT

4.1 Considering your previous response in section 2.3 of the form on data collection, please confirm whether you are collecting or processing personal data in this research project:

Personal data is any information about a living person, where that person is either identified, or could be identified from the data itself, or when it is combined with other data. This includes paper based, electronic and biological samples data. If your data is fully and completely anonymous, it is not personal data.

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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If Yes, please confirm your compliance with the following by ticking the checkboxes:

<input checked="" type="checkbox"/> We confirm that we have completed the DCU Data Protection training module on Loop.
<input checked="" type="checkbox"/> We confirm that we have read the “Data Protection – Key Points for DCU Researchers” guidance on the DCU Data Protection Unit (DPU) website and agree to protect and manage our data in accordance with same.
<input checked="" type="checkbox"/> We have assessed the degree of risk inherent in the personal data being used in the research project, and confirm that all DPU GDPR requirements have been met prior to submitting this application (e.g. completion of Data Protection questionnaire, confirmation that any survey tool being used is GDPR compliant, that required Data Processing or Sharing Agreements will be in place, etc.)

4.2 Data access – please confirm whether access to participant data is confined to the investigators named on this application:

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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If No, please name who the other individuals are and why they need access. Any proposed transfer of data (including outside of the EU) should be detailed here.

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4.3 Data storage – please confirm compliance with the following:

<input checked="" type="checkbox"/> Data collected on mobile devices will be protected with a strong password/passphrase at a minimum, and/or encrypted if the device supports it
<input checked="" type="checkbox"/> Data will be removed from mobile devices as soon as is practicable and stored in a secured location in DCU (on server or institutional Google Drive)
<input checked="" type="checkbox"/> Paper based data will be held securely in locked cabinets in DCU, with access restricted to the named researchers
<u>Specific arrangements in relation to biological samples should be stated here:</u>
<u>Any exemptions to the above compliance statements should be justified here:</u>

4.4 Please confirm who will be responsible for the secure storage of data generated by the research:*Name the relevant DCU investigator/s*

Luigi Di Paolo and Andy Vodopi

4.5 Please confirm how long the data will be held for:*For personal data, consult section 15: Retention of Personal Data in the [“Data Protection – Key Points for DCU Researchers”](#) guidance on the DCU Data Protection Unit (DPU) website*

Until the day before the submission of the project on the 1/5/2025

4.6 Please confirm what will happen to the data collected at the end of the study:*Please tick the relevant checkbox and complete the associated follow-up section for that category*

Archived <input type="checkbox"/>	Destroyed <input checked="" type="checkbox"/>	Other <input type="checkbox"/>
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4.6.1 Archived data*Please provide the following details:*

Name the DCU staff member responsible for archival and future use of data	N/A
Confirm whether the data will be made available to other researchers, and if so, how?	The data will not be made available to other researchers
Confirm <u>how</u> the data will be prepared for archive (e.g. will datasets be anonymised)	N/A
Confirm <u>where</u> the data will be archived and who will be allowed to access it	N/A

4.6.2 Destroyed data*Please provide the following details – Note: for student projects, the supervisor must take responsibility for data destruction if there is no guarantee the student will have access to the data at the time of destruction*

Please justify why the data will be destroyed	We have no need/reason to keep user data after the submission of the project
Name the DCU researcher responsible for destruction of data	N/A
Confirm when the data will be destroyed (specify date)	01/05/2025
Confirm compliance with the following destruction methods (tick relevant boxes)	<input checked="" type="checkbox"/> Electronic data will be overwritten/securely deleted <input checked="" type="checkbox"/> Paper based data will be confidentially shredded <input checked="" type="checkbox"/> Medical samples will be disposed in accordance with the relevant DCU approved SOP

4.6.2 Other - Please explain what will happen to the data if not being archived or destroyed:

The data will be destroyed

SECTION 5 – PARTICIPANT INFORMATION AND INFORMED CONSENT PROCEDURES

In addition to completing this form you are required to attach, within the single PDF that you submit, a copy of (1) the Participation Information Sheet which you share with your participants and (2) a copy of the Informed Consent Form which your participants sign.

5.1 Please confirm that the following items have been addressed in your Participant Information Sheet which should be shared with all participants whether it involves online or in-person data gathering:

The items below should be used as headings in your information sheet. Note the language used under each item must reflect the participant age group and corresponding comprehension level– if your participants have different comprehension levels (e.g. both adult and child participants) then separate sheets must be prepared for each set. Templates are available via the [REC Forms - Applications, Templates and Amendments section](#) of the Research Ethics website.

Checklist – tick the relevant check box for each item	Yes	No
Introductory Statement (Researcher names and titles, school, title of the research study)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What is this research about?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Why is this research being conducted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Why have you been invited to take part?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What will happen if you decide to take part in this research study?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
How will your data be used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
How will your privacy be protected (including any legal limits to confidentiality)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What are the benefits of taking part in this research study?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
What are the risks of taking part in this research study?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Can you change your mind at any stage and withdraw from this study?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
How will you find out what happens with this project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contact details for further information	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If you marked any item as No, please explain and justify why:

5.2 Informed Consent Procedures – please confirm whether written consent is to be obtained:

Please tick the relevant checkbox

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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If Yes, describe the procedures by which written consent will be obtained. If you are involving child participants, you will also need to obtain their written assent. Templates are available via the [REC Forms - Applications, Templates and Amendments section](#) of the Research Ethics website.

The participants will have to accept the required fields in the Informed Consent Form.

If No, describe the procedures regarding how consent/assent will be obtained:

If you are gathering data from an online process such as Google Form or SurveyMonkey then you should use a page such as the one below, to capture participants' informed consent and your data gathering should not proceed until participants have completed this form with the appropriate answers.

Participant – please complete the following (by clicking Yes/No for each question)

I have read the Plain Language Statement (or had it read to me) *

- ☒ Yes
☐ No

I understand the information provided *

- ☐ Yes
☐ No

I have had an opportunity to ask questions and discuss this study *

- ☐ Yes
☐ No

I understand the information provided in relation to data protection *

- ☐ Yes
☐ No

I have received satisfactory answers to all my questions *

- ☐ Yes
☐ No

I understand I may withdraw from the Research Study at any point *

- ☐ Yes
☐ No

I have read and understand the arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations *

- ☐ Yes
☐ No

I have read and understand confirmations relating to any other relevant information as indicated in the PLS *

- ☐ Yes
☐ No

I consent to participate in this research study *

- ☐ Yes
☐ No

SECTION 6 – SUBMISSION CHECKLIST AND RESEARCHER DECLARATION

6.1 Please confirm all required supplementary documentation to be included in this application within Section 7:

Checklist – tick the relevant check box for each item	Yes	N/A
Participant Information Sheet/s	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Informed Consent Form/s	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Informed Assent Form/s	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Recruitment Advertisement	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Questionnaire/Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interview/Focus Group Questions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Debriefing Material	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bibliography	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Approval from another Research Ethics Committee	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Evidence of other external approvals (e.g. Board of Management letter)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Evidence of internal approvals (e.g. BSC approval review letter)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other – provide details here:	<input type="checkbox"/>	<input checked="" type="checkbox"/>

6.2 Signed Declaration

By submitting this form, the applicant (and supervisor) agree to the following:

The information contained herein is, to the best of my knowledge and belief, accurate. I have read the University's current research ethics guidelines, and accept responsibility for the conduct of the procedures set out in the attached application in accordance with the form guidelines, the [REC guidance and resources](#), the University's [Conflict of Interest Policy](#), its [Code of Good Research Practice](#) and any other condition laid down by the Dublin City University Research Ethics Committee. I have attempted to identify all risks related to the research that may arise in conducting this research and acknowledge my obligations and the rights of the participants.

I also acknowledge my requirement to be informed as to other duties and legal obligations applying to my research, and to comply with these duties and obligations – this includes being informed about DCU Data Protection guidelines for researchers, DCU Child Protection policy and procedures (where relevant) and DCU Insurance requirements.

I and my co-investigators and/or supporting staff have the appropriate qualifications, experience and facilities to conduct the research set out in the attached application and to deal with any emergencies and contingencies related to the research that may arise. Research will not commence until required consents and approvals are in place.

Electronic Signature(s):

Supervisor: p.p. Stephen Blott

Print Name here: Stephen Blott

Date: 13/3/2025

Student(s) signature(s): Andy Vodopi Luigi Di Paolo

Print Name(s) here: Andy Vodopi Luigi Di Paolo

Date: 13/03/2025

SECTION 7 – SUPPLEMENTARY DOCUMENTATION

Please attach all required documentation as confirmed by you in the previous section. The application should then be saved as one file in PDF format before submission via the project dashboard.

Participant Information Sheet

Introductory Statement

Luigi Di Paolo, Andy Vodopi

School of Computing

Dublin City University

Snap-Py - Evaluation of a Novel Block-Based Python Programming Educational Tool

What is this research about?

This research evaluates a new educational programming tool that combines block-based programming with Python. The study examines how effective this tool is in helping beginners learn to code by allowing them to create Python code through manipulating visual blocks. We're interested in understanding how this approach supports the development of computational thinking skills while reducing syntax-related frustrations.

Why is this research being conducted?

This research is being conducted to improve educational tools for programming beginners. Learning to code can be challenging due to syntax errors and unfamiliar concepts. Our tool aims to provide a gradual learning experience by combining the cognitive benefits of visual programming with Python's accessible syntax. The findings will contribute to the development of more effective educational programming tools and potentially help more people learn coding skills successfully.

Why have you been invited to take part?

You have been invited to participate because you are between 18 and 35 years old and do not have prior coding experience. We specifically want to understand how individuals with no programming background interact with and learn from this educational tool. Your perspective will help us evaluate how effective our tool is for complete beginners.

What will happen if you decide to take part in this research study?

If you decide to take part, you will be asked to:

1. Try out a near-finalized version of our web application
2. Complete a set of programming tasks using the tool (taking approximately 30 minutes)
3. Provide feedback through a survey (approximately 10 minutes)

The session will take place in person. You may be asked to think aloud while completing the tasks.

How will your data be used?

The information gathered during this research will include the results of your interactions with the tool and your survey responses. This data will be anonymized and will be used to gather insights about the effectiveness of our tool, as well as to identify possible areas of improvement.

How will your privacy be protected (including any legal limits to confidentiality)?

All information collected will be kept confidential and stored securely. Your identity will be anonymized. All data collected will be destroyed on the first of May 2025.

Please note that confidentiality of information can only be protected within the limitations of the law - i.e., it is possible for data to be subject to subpoena, freedom of information claim or mandated reporting by some professions.

What are the benefits of taking part in this research study?

By participating in this study, you will have early access to an innovative educational programming tool and the opportunity to influence its development. Your feedback will directly contribute to improving tools for teaching programming. The broader benefits include advancing educational technology in computing education and potentially making programming more accessible to beginners.

What are the risks of taking part in this research study?

The risks associated with participating in this study are minimal and include potential frustration if you encounter difficulties with the programming tasks. To minimize these risks, we will provide clear instructions and support throughout the session, and you are free to take breaks or stop at any time.

Can you change your mind at any stage and withdraw from this study?

Your participation is entirely voluntary. You are free to withdraw from the study at any time without giving a reason and without penalty. If you decide to withdraw, all data collected about your participation will be deleted.

How will you find out what happens with this project?

Upon completion of the study, we can provide you with a summary of the research findings if you are interested. If you would like to receive information about the results, you can contact us at the email addresses below.

Contact details for further information

If participants have concerns about this study and wish to contact an independent person, please contact: The Secretary, Dublin City University Research Ethics Committee, c/o Research and Innovation Support, Dublin City University, Dublin 9. Tel 01-7008000, e-mail rec@dcu.ie

Informed Consent Form

Participants - please complete the following (by clicking Yes/No for each question)

I have read the Plain Language Statement (or had it read to me) Yes ☐ No ☐

I understand the information provided Yes ☐ No ☐

I have had an opportunity to ask questions and discuss this study Yes ☐ No ☐

I understand the information provided in relation to data protection Yes ☐ No ☐

I have received satisfactory answers to all my questions Yes ☐ No ☐

I understand I may withdraw from the Research Study at any point Yes ☐ No ☐

I have read and understood the arrangements to be made to protect confidentiality of data. Including that confidentiality of Information provided is subject to legal limitations Yes ☐ No ☐

I have read and understood confirmations relating to any other relevant information as indicated in the PLS Yes ☐ No ☐

I consent to participate in this research study Yes ☐ No ☐

Questionnaire

Demographic Information

1. Age: _____
2. Gender: ☐ Male ☐ Female ☐ Non-binary ☐ Prefer not to say ☐ Other: _____
3. Highest level of education completed: ☐ High school ☐ Some college ☐ Bachelor's degree ☐ Master's degree ☐ PhD ☐ Other: _____
4. Prior exposure to programming (before this study): ☐ None at all ☐ Heard about it but never tried ☐ Attempted once or twice ☐ Other: _____

Usability Assessment

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree):

Interface Navigation

5. I found the interface easy to navigate. 1 2 3 4 5
6. I could easily find the blocks I needed for the tasks. 1 2 3 4 5

Task Completion

8. I was able to complete the assigned tasks successfully. 1 2 3 4 5
9. When I made mistakes, I could easily identify and fix them. 1 2 3 4 5
10. The feedback from the system helped me understand what was happening in my code. 1 2 3 4 5

Visual Design

11. The colors and visual elements helped me understand the different types of blocks. 1 2 3 4 5
12. The visualization of the Python code alongside the blocks was helpful. 1 2 3 4 5
13. The overall layout of the screen was clear and not overwhelming. 1 2 3 4 5

Learning Experience

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree):

14. Using this tool helped me understand programming concepts. 1 2 3 4 5
15. I could see the connection between the blocks and the Python code they generated. 1 2 3 4 5
16. I feel more confident about learning Python after using this tool. 1 2 3 4 5
17. The tool made programming feel less intimidating. 1 2 3 4 5
18. I feel I learned something about computational thinking. 1 2 3 4 5

Cognitive Load and Frustration

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree):

19. I felt mentally overwhelmed while using the tool. 1 2 3 4 5
20. I was frustrated by syntax errors. 1 2 3 4 5
21. I understood why my code wasn't working when I made mistakes. 1 2 3 4 5
22. I felt in control of the programming process. 1 2 3 4 5

Engagement

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree):

- 23. I enjoyed using the tool. 1 2 3 4 5
- 24. The time passed quickly while I was using the tool. 1 2 3 4 5
- 25. I would like to use this tool again to learn more programming concepts. 1 2 3 4 5
- 26. I would recommend this tool to others who want to learn programming. 1 2 3 4 5

Transition to Text-Based Programming

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree):

- 27. Seeing the Python code helped me understand Python syntax. 1 2 3 4 5
- 28. I feel more prepared to transition to writing Python code directly after using this tool. 1 2 3 4 5
- 29. I understand the relationship between the blocks and traditional Python code. 1 2 3 4 5

Open-Ended Questions

30. What did you find most helpful about using this programming tool?

31. What did you find most confusing or challenging about using this tool?

32. What features would you like to see added or improved?

33. How do you think this tool compares to other ways you might learn programming? (Even if you haven't tried other methods, what are your impressions?)

34. Did you notice any specific moments when you felt you understood a programming concept better? Please describe.

35. Any additional comments or feedback?
