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, expediated 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.

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SECTION 1 – GENERAL DETAILS

1.1 Project Title

Trace 'N Learn

1.2 Applicant Details

Name	Student or Supervisor	E-mail
Dzastina Laukaityte	Student	Dzastina.laukaityte2@mail.dcu.ie
Malavika Shanker	Student	Malavika.shanker2@mail.dcu.ie
Hyowon Lee	Supervisor	Hyowon.lee@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
12th of February 2024	18th of February 2024	30th of February 2024

1.4 Please indicate which academic award

Undergraduate ☒	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 at the participant's home.

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

N/A

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

The research is being done to further improve the development of a digital letter tracing app for children. This interactive educational application enables children to practice English letter formation by tracing them on a touchscreen device, while also offering sensory feedback, such as vibrations, to enhance the learning experience. The primary objective is to evaluate the app's effectiveness in facilitating letter recognition and tracing proficiency. Usability testing will be conducted strictly **on parents who have children (not the children themselves)**. Data will be generated based on the use of the tracing application such as swipe accuracy which will then be used to populate a learning profile for the user. The data generated will be anonymous as the parent must enter a username to use the application which does not identify themselves e.g. chair, spoon, lemon. Feedback we are interested in collecting is only from the parent who will have tested the application. The parent will fill out a google form to assess their experience using the application and give feedback whether they think that the application is suitable for the use of children. Additionally, the parents will help to determine the finer details of the application such a good stroke size, parameters, and find a perfect balance for the tracing algorithm. All communications (agreement to participate, reading participant information sheet and signing the consent form, post-task survey, etc.) will be only through the parents.

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

The goal of this project is to develop a digital letter-tracing app for children to learn the English alphabet. This application aims to:

1. Create a user-friendly, non-triggering, visually appealing app that allows children to trace letters using a touch screen while receiving sensory feedback vibrations, audio and visual feedback.

2. Create a formula to analyse swipe accuracy data and make learner profiles allowing to track the users progress and identify areas for improvement.

3. Collect feedback from the parent about their experience using the application to continuously refine application features, content, and usability.

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 <u>at point of collection</u>

Method	Describe briefly
☐ Interviews or focus groups	

☒ Surveys/questionnaires	The parent/guardian will be asked to fill out a questionnaire a google form at the end of the testing process regarding the their experience using the "Trace 'N Learn" application.
☐ Audio/video recordings	
☐ Public observations	
☐ Persons in public office	
☐ Using existing data (incl. secondary data)	
☐ Using human derived material (biological samples)	
☐ Standard tests (educational/personality etc.)	
☐ Standard educational practices	
☐ 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)

The participants in this study will be strictly parents. The group will be diverse representing various socio-economic backgrounds and geographic locations to ensure a well-rounded sample. Since it is the qualitative aspects of the usability that we are interested in capturing and analysis, only a small number of participants are planned (3 - 5 parents) to see each interaction carefully in order to gain insights for how the system could be improved.

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

The participants will be parents sourced from family and friends. The criteria for the parent/guardian is that they have a child/children who is in the age range of 3 to 11 years old and is learning the English alphabets so that they can answer questions based on their known behaviour of their child.

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

☒ N/A
☐ Children under 18 years of age

☐ Persons in unequal relationships with the researcher *(e.g. lecturer-student, therapist-client, employer-employee)*
☐ People with a recognised or diagnosed intellectual, physical or mental impairment
☐ People confined to institutions *(e.g. prisoners, residents in 24 hr nursing facilities)*
☐ People who have undergone traumatic or adverse emotional events
☐ People with diminished cognitive ability
☐ Marginalised sections of society
☐ 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

☒ N/A
☐ 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)*
☐ We confirm that we have put in place safeguards for the children participating in the research
☐ 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)
☐ 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 results will be disseminated by making a relevant chart with the responses.

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

The risks are on the lower side as we just need a phone number to make an account without any other personal information. A potential risk from the little user data we collect is a possible case of a data breach where phone numbers are leaked – but we ensure to logout of the database, limit access to database and conduct regular audits as well as delete all user information after a time frame of 30th April 2024. The user must make a username which does not identify themselves e.g. lemon, tree, spoon are stored on a secure database. Any data that is generated using the application is used to create a learning dashboard which will display all of the data we have collected from their tracing habits. It does not store any personal names unless the parent chooses to, as the user has enter a username to use the application (that is, the name could be their actual name or arbitrary). The dashboard displays the username and a few results such as the letters correctly traced.

Participants may worry about potential phone number/personal data leak- we will try out best to ensure this does not happen by limiting access to the database and conducting regular audits. In case this does happen before deletion of user data we will inform the participant straight away. We will also offer them the flexibility to remove any user data (phone number, accuracy of letters etc) at any point.

The use of our application should not pose a greater risk than any platform where a user is required to make an account.

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

The participant(parent) gets to input their opinion on the U.I of the application and even provide suggestions to customise it for their children based on the parents' usage of the app.

The participant(parent) will get early access to the Trace 'N Learn application and ensure it is safe for their kids to use. Additionally, the application will help in create mental peace in case their child does get a chance to use the app sometime in the future.

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:

In the case of any unexpected outcomes we ensure to take prompt action to assist the participant and minimise the effects that may occur.

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

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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 <u>or</u> 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 ☐	No ☒

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)

The research will be monitored through various forms ensuring that it is standardised when being collected. Feedback we are interested in collecting is from the parents who will have tested the application. They will be asked to fill out a google form to assess their experience using the application.

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 <u>not</u> personal data.

Yes ☒	No ☐

If Yes, please confirm your compliance with the following by ticking the checkboxes:

☒ We confirm that we have completed the DCU Data Protection training module on Loop.
☒ We confirm that we have read the <u>"Data Protection – Key Points for DCU Researchers"</u> guidance on the DCU Data Protection Unit (DPU) website and agree to protect and manage our data in accordance with same.
☒ 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 ☒	No ☐

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.

4.3 Data storage – please confirm compliance with the following:

☒ Data collected on mobile devices will be protected with a strong password/passphrase at a minimum, and/or encrypted if the device supports it
☒ 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)
☒ Paper based data will be held securely in locked cabinets in DCU, with access restricted to the named researchers
Specific arrangements in relation to biological samples should be stated here:
Any exemptions to the above compliance statements should be justified here:

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

Dzastina Laukaityte Malavika Shanker

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

The data will be held for 3 months and destroyed on the 30th of April 2024.

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 ☐	Destroyed ☒	Other ☐

4.6.1 Archived data
Please provide the following details:

Name the DCU staff member responsible for archival and future use of data	
Confirm whether the data will be made available to other researchers, and if so, how?	
Confirm how the data will be prepared for archive (e.g. will datasets be anonymised)	
Confirm where the data will be archived and who will be allowed to access it	

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	The data itself will not be needed but more the average calculated figures at the end of the collection process.
Name the DCU researcher responsible for destruction of data	Malavika Shanker
Confirm when the data will be destroyed (specify date)	30th April 2024
Confirm compliance with the following destruction methods (tick relevant boxes)	☒ Electronic data will be overwritten/securely deleted ☐ Paper based data will be confidentially shredded ☐ 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:

_____

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)	☒	☐
What is this research about?	☒	☐
Why is this research being conducted?	☒	☐
Why have you been invited to take part?	☒	☐
What will happen if you decide to take part in this research study?	☒	☐
How will your data be used?	☒	☐
How will your privacy be protected (including any legal limits to confidentiality)?	☒	☐
What are the benefits of taking part in this research study?	☒	☐
What are the risks of taking part in this research study?	☒	☐
Can you change your mind at any stage and withdraw from this study?	☒	☐
How will you find out what happens with this project?	☒	☐
Contact details for further information	☒	☐

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 ☒	No ☐

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.

Written consent will be obtained from the participants by filling out informed consent form and a participant information sheet.

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

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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	☒	
Informed Consent Form/s	☒	☐
Informed Assent Form/s	☐	☐
Recruitment Advertisement	☐	☐
Questionnaire/Survey	☒	☐
Interview/Focus Group Questions	☐	☐
Debriefing Material	☐	☐
Bibliography	☐	☐
Approval from another Research Ethics Committee	☐	☐
Evidence of other external approvals (e.g. Board of Management letter)	☐	☐
Evidence of internal approvals (e.g. BSC approval review letter)	☐	☐
Other – provide details here:	☐	☐

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: _____

Print Name here:_ Hyowon Lee _____

Date: __7 February 2024_____

Student(s) signature(s): _____ Dzastina Laukaityte_____Malavika Shanker_____

Print Name(s) here: _____Dzastina Laukaityte_____Malavika Shanker_____

Date: __7 February 2024___

SECTION 7 – SUPPLEMENTARY DOCUMENTATION

Trace 'N Learn Questionnaire

Trace 'N Learn is an interactive educational application that enables children to practice English letter formation by tracing them on a touchscreen device, while also offering sensory feedback, such as vibrations, to enhance the learning experience. The primary objective is to evaluate the app's effectiveness in facilitating letter recognition and tracing proficiency among children.

Sign in to Google to save your progress. Learn more

* Indicates required 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 the opportunity to ask questions and discuss this study. *

◯ Yes

◯ No

Trace 'N Learn Questionnaire

Sign in to Google to save your progress. Learn more

Personal Experience using the Trace 'N Learn Application

You will be asked to answer questions regarding your personal experience using the Trace 'N Learn application. Be as honest as possible with your answers.

Were you able to easily create/draw the strokes?

◯ Yes

◯ No

◯ Maybe

Were the outputs(letter traced correctly/incorrectly) in your opinion accurate to your strokes?

◯ Yes

◯ No

◯ Somewhat

Do you think a child would be able to easily create/draw the strokes?

◯ Yes

◯ No

◯ Maybe

Do you think the U.I. of the Trace 'N Learn application was distracting?

◯ Yes

◯ No

◯ Maybe

Do you think the U.I. of the Trace 'N Learn application would be distracting for a child?

◯ Yes

◯ No

Do you think a child would seem interested in the content of the Trace 'N Learn application?

◯ Yes

◯ No

◯ Maybe

Were you stressed when using the Trace 'N Learn application?

◯ Yes

◯ No

◯ Maybe

Do you think a child would be stressed when using the Trace 'N Learn application?

◯ Yes

◯ No

◯ Maybe

Did you have fun using the Trace 'N Learn application?

◯ Yes

◯ No

◯ Maybe

Do think a child would have fun using the Trace 'N Learn application?

◯ Yes

◯ No

◯ Maybe

Do you understand how to use the Trace 'N Learn application without much explanation?

◯ Yes

◯ No

◯ Maybe

Do you think a child would understand how to use the Trace 'N Learn application without much explanation?

○ Yes

○ No

Do you think that the Trace 'N Learn application would be effective at improving the child's ability to learn the alphabets?

○ Yes

○ No

○ Maybe

Would you give the Trace 'N Learn application to your child to use?

○ Yes

○ No

○ Maybe

Would you recommend the Trace 'N Learn application to others whether that be parents or children?

○ Yes

○ No

○ Maybe

Was there anything that stood out to you when interacting with the Trace 'N Learn application?

Your answer

Any other comments about the Trace 'N Learn application? (Improvements, likes, dislikes)

Your answer

DCU Research Ethics Committee
Participant Information Sheet

Introductory Statement
Researchers Dzastina Laukaityte and Malavika Shanker, faculty student members at the School of Computing in Dublin City University (DCU) are conducting a research study on an application titled "Trace 'N Learn". The goal of the application is to improve a child's recognition and tracing of the alphabet letters.

What is this research about?
This research is about conducting user testing via parents who have children in the age range of 3 to 11 who are learning the English alphabets to gain insights on the Trace 'N Learn application to determine whether the parents think the application is suitable and will functions well with their children. In addition, measuring if the application increases the child's knowledge of the alphabets as well as better coordination and learning abilities while simultaneously having fun.

Why is this research being conducted?
The research is being done to further improve the development of a digital letter tracing app for children. This interactive educational application enables children to practice English letter formation by tracing them on a touchscreen device, while also offering sensory feedback, such as vibrations, to enhance the learning experience. The primary objective is to evaluate the app's effectiveness in facilitating letter recognition and tracing proficiency. Usability testing will be conducted strictly on parents who have children (not the children themselves). Data will be generated based on their use of the tracing app - populating a learning profile for the user. The data generated will be anonymous as the parent must enter a username to use the application which does not identify themselves e.g. chair, spoon, lemon. Feedback we are interested in collecting is only from the parent who will have tested the application. The parent will fill out a google form to assess their experience using the application and give feedback whether they think that the application is suitable for the use of children. All communications and participation (agreement to participate, reading participant information sheet and signing the consent form, post-task survey, etc.) will be only through the parents.

Why have you been invited to take part?
Your role as a parent/guardian is to test the application and help us to determine the finer details such as a good stroke size and perfect the tracing algorithm. In addition, you will be asked to fill out a google form to assess your experience using the application after the testing section has been completed.

What will happen if you decide to take part in this research study?
You will be given a phone with the "Trace 'N Learn" application. You will be prompted to enter your phone number on the application and an OTP will be sent to you. You will enter the OTP code and then will be prompted to enter a username. This username can be anything that may or may not identify yourself, for example, orange, penguin, chair etc. The phone number and username given will be stored on a secure database. The information in the database will be wiped at the end of study. You then will be asked to trace different letters ranging in difficulty. You should monitor any successes or difficulties you may have had during the use of the application. Once you have traced 3 or 4 letters, we will end the testing section. You will be asked to fill out a google form to assess your experience using the Trace 'N Learn application. The complete process of the research study will take roughly 20 – 25 mins.

How will your data be used?
Your data which includes the phone number used for OTP, username, and the learning data from stroke accuracy for the application will be stored on a secure database known as Firebase. OTP and username will only be used to verify and create an account for the application. Any learning data that is generated using the application is used to create a learning dashboard which only you can access. The dashboard will display the username and a few results such as the letters you traced correctly. At the end of the study, the data stored in the data base and the anonymous data collected will be destroyed on 30th of April 2024. You have the right to access their own personal data and if you wish to do so you can contact the Data Controller. Additionally, you have the right to lodge a complaint concerning the use of your personal data with the Irish Data Protection Commission.

*Data Controller – Malavika Shanker (*Malavika.shanker2@mail.dcu.ie*) faculty student at the School of Computing in Dublin City University (DCU) will handle any data provided by the user.*

*DCU Protection Officer – Mr. Martin Ward (*data.protection@dcu.ie *Ph.: 7005118 / 7008257) will handle any data protection concerns arising from the research.*

How will your privacy be protected (including any legal limits to confidentiality)?
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?
1. The participant(parent) gets to input their opinion on the U.I of the app and even provide suggestions to customise it for their children based on the parents' usage of the app.

2. The participant(parent) will get early access to the Trace 'N Learn application and ensure it is safe for their kids to use. Additionally, the application will help in create mental peace in case their child does get a chance to use the app sometime in the future.

What are the risks of taking part in this study?
The risks are on the lower side as we just need a phone number to make an account without any other personal information. A potential risk from the little user data we collect from them is in case of a data breach where phone numbers are leaked – but we ensure to logout of the database, limit access to database and conduct regular audits as well as delete all user information after a time frame of 30th April 2024. The user must make a username which does not identify themselves e.g. lemon, tree, spoon are stored on a secure database. Any data that is generated using the application is used to create a learning dashboard which will display all the data we have collected from their tracing habits. It does not store any personal names unless the parent chooses to, as user has to enter a username to use the application(that is, the name could be their actual name or arbitrary). The dashboard displays the username and a few results such as the letters correctly traced.

Can you change your mind at any stage and withdraw from this study?
The participants participation in this study is entirely voluntary, and they have the right to withdraw at any stage without providing a reason. If the participant decides to withdraw, they will not have any negative consequences for them.

Please be aware that once the participant withdraws from the study, data collected up to that point can be removed upon the participants request. The participant has the right to request the removal of their data at any time up to the point of anonymization or publication.

To withdraw consent and request the removal of data, please contact the designated personnel listed in the contact details section of this information sheet. They will guide you through the process and ensure that your decision is respected.

How will you find out what happens with this project?
If the Trace 'N Learn application is successful, it will be released on the Play store under beta testing to further improve the application.

Contact details for further information:
Name – Dzastina Laukaityte
Email: Dzastina.laukaityte2@mail.dcu.ie

Name – Malavika Shanker
Email: Malavika.shanker2@mail.dcu.ie

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

DUBLIN CITY UNIVERSITY
Informed Consent Form – DCU REC

Research Study Title

Researchers Dzastina Laukaityte and Malavika Shanker, faculty student members at the School of Computing in Dublin City University (DCU) are conducting a research study on an application titled "Trace 'N Learn". The goal of the application is to improve a child's recognition and tracing of the alphabet letters while simultaneously having fun.

Clarification of the purpose of the research

Usability testing will be conducted strictly on parents who have children (not the children themselves). The primary objective is to evaluate the app's effectiveness in letter recognition and tracing proficiency among children by testing on the parents who will give us feedback on how they think their children might like it/use it. The research is being done to further improve the development of a digital letter tracing app for children. This interactive educational application enables children to practice English letter formation by tracing them on a touchscreen device, while also offering sensory feedback, such as vibrations, to enhance the learning experience. A phone number and username (e.g., chair, spoon, lemon) will be collected to create a user learning profile. Feedback will be gathered from parents through a google form about their experience using the application.

Confirmation of particular requirements as highlighted in the Plain Language Statement

Participant – please complete the following (Circle Yes or No for each question)

I have read the Participant Information Sheet (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 have received satisfactory answers to all my questions	*Yes/No*
I have understood that my data will be deleted after the study has ended	*Yes/No*

Confirmation that involvement in the Research Study is voluntary

Participants can voluntarily withdraw from the study at any point without providing a reason, with no negative consequences. Upon withdrawal, the participant can request the removal of their data collected up to that point. This request can be made until the data is anonymized or published. To withdraw consent and request data removal, participants can contact the designated personnel listed in the contact details section for guidance and to ensure their decision is respected.

Confirmation of arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations

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.

Confirmation of arrangements regarding archiving/destruction of data

The data which includes the phone number used for OTP and username for the application will be stored on a secure database. This data will only be used to verify and create an account for the application. Any data that is generated using the application is used to create a learning dashboard. The dashboard will display the username and a few results such as the accuracy percentage of a swipe. At the end of the study, the data stored in the data base and the anonymous data collected will be destroyed on 30th of April 2024.

<u>Signature:</u>

I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project.

Participants Signature: _____

Name in Block Capitals: _____

Witness: _____

Date: _____