



Dublin City University
School of Computing
ETHICS COMMITTEE

NOTIFICATION FORM FOR LOW-RISK
PROJECTS AT UNDERGRADUATE OR
TAUGHT MASTERS LEVELS

Application Number:			
<p><u>Please read the following information carefully before completing your application. Failure to adhere to these guidelines will make your submission ineligible for review.</u></p>			
<ul style="list-style-type: none">➤ Download this form➤ Completed applications must be uploaded to your School of Computing GitLab repo, and must be located in "docs/ethics.pdf".➤ Your supervisor will be notified automatically and must approve your approach initially.➤ The application should consist of <u>one electronic file (PDF) only</u>. The completed application must include this form and also must incorporate all supplementary documentation, especially that being given to the proposed participants e.g consent forms, plain English language statement. It must be proofread and spell-checked before submission.➤ All sections of the application form must be answered as instructed and within the word limits given. <p>Applications which do not adhere to all of these requirements will not be accepted for review and will require resubmission</p> <p>Applications must be completed on this form; answers in the form of attachments will not be accepted, except where indicated. No hard copy applications will be accepted. The project <u>must not</u> commence until written approval has been received from the School of Computing Ethics Committee.</p>			

PROJECT TITLE	AR-T – Augmented Reality application for technical graphics
PRINCIPAL INVESTIGATOR(S) <i>The named Principal Investigator is the person with primary responsibility for the research project. In the case of Taught Masters projects and undergraduate projects the supervisor is the Principal Investigator.</i>	Monica Ward

START AND END DATE	March 2019 – May 2019
LEVEL OF RISK <i>Please indicate whether this project requires more than a notification Justification for your choice is required under section 3.1</i>	Expedited (testing with teacher and students in secondary school classroom)

Please confirm that all supplementary information is included in your application (in electronic copy). If questionnaire or interview questions are submitted in draft form, please indicate this by putting (draft) after YES. A copy of the final documentation must be submitted for final approval when available.

My application has been collated as one electronic file which includes the following documentation:	INCLUDED (mark as YES)	NOT APPLICABLE (mark as N/A)
Bibliography	YES	
Recruitment advertisement		N/A
Plain language statement/Information statement	YES	
Informed consent form	YES	
Personal Data Security Schedule https://www.dcu.ie/sites/default/files/info/3_blank_data_security_schedule.xls		N/A
Evidence of external approvals related to the research		N/A
Questionnaire/Survey	YES	
Interview/Focus Group Questions		N/A
Debriefing material		N/A
Other (e.g. local government approval)		N/A

Please note:

- Any amendments to the original approved proposal must receive prior SCEC approval.
- As a condition of approval investigators are required to document and report immediately to SCEC any adverse events, any issues which might negatively impact on the conduct of the research and/or any complaint from a participant relating to their participation in the study

1. ADMINISTRATIVE DETAILS

Project Type (select one): Undergraduate Project – Final Year

1.1 INVESTIGATOR CONTACT DETAILS

PRINCIPAL INVESTIGATOR(S): *Your supervisor and other academic staff who are assisting, it should be clear who is the person who is carrying out the research procedures.*

NAME	SCHOOL/UNIT	EMAIL
Monica Ward	Computing	monica.ward@dcu.ie

OTHER INVESTIGATORS (STUDENT(S):

NAME	SCHOOL/UNIT	EMAIL
Russell Brady	Computing	russell.brady29@mail.dcu.ie

1.2 WILL THE RESEARCH BE UNDERTAKEN ON-SITE AT A Dublin City University CAMPUS?

YES or NO
No

(If NO, state details of the off-campus location – provide details of the approval to gain access to that location in section

2.7.)

The research will take place in a technical graphics class in Cnoc Mhuire Granard secondary with the supervision of the technical graphics teacher.

1.3 IS THIS PROTOCOL BEING SUBMITTED TO ANOTHER ETHICS COMMITTEE, OR HAS IT BEEN PREVIOUSLY SUBMITTED TO AN ETHICS COMMITTEE?

YES or NO
No

(If YES, please provide details and attach copies of approval(s) received etc.)

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DECLARATION BY PRINCIPAL INVESTIGATOR(S)

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 SCEC guidelines (<https://www.dcu.ie/researchsupport/researchethics.shtml>), the University's policy on Conflict of Interest, 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.

If there exists any affiliation or financial interest for researcher(s) in this research or its outcomes or any other circumstances which might represent a perceived, potential or actual conflict of interest this should be declared in accordance with Dublin City University policy on Conflicts of Interest.

I and my co-investigators 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.

Electronic Signature(s):

Principal investigator(s): Monica Ward

Print Name(s) here: Monica Ward

Date: 08/03/2019

2. PROJECT OUTLINE

2.1 LAY DESCRIPTION (Max. 300 words)

Please outline, in terms that any non-expert would understand, what your research project is about, including what participants will be required to do. Please explain any technical terms or discipline-specific phrases.

This project is an app which helps technical graphics (TG) students visualize 3-D objects using augmented reality. An app is an application (or computer program) on a computing device (e.g. laptop, tablet or mobile phone). Augmented reality is where computer images are overlaid on the users view of the real world. In Technical Graphics students learn how to represent 3-D objects on paper and on the computer.

The app shows the participants different augmented reality objects related to technical graphics using the devices camera and displays the objects overlaid on the screen. The participants will be asked to log in to accounts which have already been created to allow for anonymity. Once they do this they will explore these AR features in the app. The app has been developed in conjunction with the TG teacher from the secondary school mentioned above and from research outlined in the papers which are included in the bibliography. Participants will be asked to fill out anonymous survey. Only non-personal data will be sought.

2.2 AIMS OF AND JUSTIFICATION FOR THE RESEARCH (Max. 400 words)

State the aims and significance of the project. Where relevant, state the specific hypothesis to be tested. Please provide a brief description of background research, a justification as to why this research project should proceed in that context and an explanation of any expected benefits to the community. NB – all references cited should be listed in an attached bibliography.

Aim

The aim of this project is to evaluate the AR-T app to determine if it is useful and beneficial for students as well as getting feedback on how the app could be improved. The hypothesis is that students will enjoy using the AR-T app to learn TG and will be willing to spend some time using the app. Many students starting off in the subject TG struggle with the concepts of 3-D object representation and how drawing them on paper and using Computer aided design (CAD) maps to the actual 3-D object. The aim of the AR-T app is to make the learning of 3-D object representation more enjoyable and accessible and to encourage learners to interact with the subject.

Justification

The idea for this project, and for this application, stems from the unsatisfied need for better and more immersive resources for teachers in teaching such an abstract and difficult subject. It is the aim of this app to help students gain a greater grasp of the basic concepts and a greater understanding of 3-D object representation.

There is no other TG resource which users interactive content combined with augmented reality. This means that this app would be a forerunner into the area. It is the aim of the app that the inclusion of Augmented Reality will offer a different learning style and allow students to fully understand from basic concepts, 3-D object representation.

Participants will be asked several questions giving their opinion on different aspects of the app. These questions include:

Did you enjoy the AR-T app?

Did you find the app easy to use?

Do you think it helped you to learn 3-D object representation?

Would you like to use the app at home?

2.3 DESCRIBE THE METHODOLOGY BEING USED TO ACHIEVE YOUR STATED AIMS

Provide an outline of the proposed method and state who is doing which task – include details of data collection techniques, the tasks participants will be asked to do, the estimated time commitment involved, and how data will be analysed. If the project includes any procedure which is beyond already established and accepted techniques please include a description of it. There should be enough detail provided to facilitate ethical review, but applicants are encouraged to keep it as succinct as possible.

Several set tasks will be set up for the teacher and students to carry out. (e.g. log into the app, access the learning content, spend some time interacting with the content and then log out of the app). The teacher and students will be asked to give their opinion on the app using an anonymous survey. The usage of the app will take place during a normal TG lesson and the survey should take no more than 5 minutes to fill out. The data from the anonymous surveys will be analyzed using accepted techniques (e.g. using MS Excel) to see what the participants thought of the app. The researcher will be in the classroom to ensure that things run smoothly.

2.4 PARTICIPANT PROFILE

Provide the number, age range and source of participants. Please provide a justification of your proposed sample size. Please provide a justification for selecting a specific gender, age, or any other group if this is done in your project.

The participants will be students in 1st year TG and will range in age from 13-15 years approx.

2.4(a) PARTICIPANT VULNERABILITY

Are some or all of participants vulnerable in any way? (e.g by virtue of the group they belong to, people who have undergone traumatic or adverse emotional events, people with diminished cognitive ability, power relations between researchers and participants etc.)? If they are, state what this vulnerability (or vulnerabilities) is and justify why this research is being done with such participants.

The participants are students of a mainstream secondary school so there is the possibility of a huge diversity of students in the class. Because of this there is a chance some may be vulnerable in some way but no more vulnerable than any student in any mainstream secondary school.

2.4(b) CHILD PARTICIPANTS (anyone under 18 years old)

*If your participants include children, you **must** confirm that you are in compliance with the research specific guidelines as detailed in "Keeping Children Safe - Policies and Procedures supporting Child Protection at DCU" - available at: https://www4.dcu.ie/sites/default/files/policy/157%20-%20child%20protection%20handbook_rev1%282%29%281%29.pdf*

Please indicate your compliance with the following guidelines:	Mark here
We confirm that we have read and agree to act in accordance with the DCU Child	YES

Protection policy and procedures	
We confirm that we have put in place safeguards for the children participating in the research	YES
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)	YES

2.5 EXPLAIN HOW PARTICIPANTS ARE TO BE RECRUITED

Please provide specific details as to how you will be recruiting participants. How will people be informed that you are doing this research? How will they be approached and asked if they are willing to participate? If you are mailing or phoning people, please explain how you have obtained their names and contact details. If a recruitment advertisement is to be used, please ensure you attach a copy to this application.

The participants will be students of the Cnoc Mhuire secondary school. The school head and TG teacher will be contacted to re-ensure they are willing to participate in the study. I have already been in contact with the TG teacher via phone and email. The teacher will issue consent forms before my arrival to find out which students wish to partake.

2.6 PLEASE EXPLAIN WHEN, HOW, WHERE, AND TO WHOM RESULTS WILL BE DISSEMINATED, INCLUDING WHETHER PARTICIPANTS WILL BE PROVIDED WITH ANY INFORMATION AS TO THE FINDINGS OR OUTCOMES OF THE PROJECT?

The results of the project will be used by the researcher in end user testing to give feedback on the app and find out where the app can be improved. The participants and their teachers will also be given information about the findings of the project.

2.7 ARE OTHER APPROVALS REQUIRED TO GAIN ACCESS TO ANOTHER LOCATION, ORGANISATION ETC.?

YES or NO

No

(If YES, please specify from whom and attach a copy of the approval documentation. If this is not yet available, please explain when this will be obtained.)

2.8 HAS A SIMILAR PROPOSAL BEEN PREVIOUSLY APPROVED BY THE DCU SCEC?

YES or NO

No

(If YES, please state both the REC Application Number and Project Title)

3. RISK AND RISK MANAGEMENT

3.1 JUSTIFICATION OF STATED LEVEL OF RISK TO RESEARCH PARTICIPANTS

You must provide a justification for the stated level of risk, as indicated on the cover page of your application. Note that the level of risk may be influenced by the vulnerability of the research group, the methods employed and the nature of the research itself. For further information on risk levels, please refer to the Levels of Review information on the website: <https://www.dcu.ie/researchsupport/researchethics.shtml>

The participants are the teacher and secondary school students who will be evaluating a learning resource in a classroom environment. An anonymous survey will be used to collect non-personal data.

3.2 DOES THE RESEARCH INVOLVE:

	YES or NO
• use of a questionnaire? (attach copy)?	YES
• interviews (attach interview questions)?	NO
• observation of participants without their knowledge?	NO
• participant observation (provide details in section 2)?	YES
• audio- or video-taping interviewees or events?	NO
• access to personal and/or confidential data (including student, patient or client data) without the participant's specific consent?	NO
• administration of any stimuli, tasks, investigations or procedures which may be experienced by participants as physically or mentally painful, stressful or unpleasant during or after the research process?	NO
• performance of any acts which might diminish the self-esteem of participants or cause them to experience embarrassment, regret or depression?	NO
• investigation of participants involved in illegal activities?	NO
• procedures that involve deception of participants?	NO
• administration of any substance or agent?	NO
• use of non-treatment of placebo control conditions?	NO
• collection of body tissues or fluid samples?	NO
• collection and/or testing of DNA samples?	NO
• participation in a clinical trial?	NO
• administration of ionising radiation to participants?	NO

3.3 POTENTIAL RISKS TO PARTICIPANTS AND RISK MANAGEMENT PROCEDURES

Identify, as far as possible, all potential risks to participants (physical, psychological, social, legal, economic, etc.), associated with the proposed research. Please explain what risk management procedures will be put in place to minimise these risks.

There is a slight risk that some students will be not be able to use the app, but the teacher will always be in the classroom and will be able to manage the situation. There is no additional psychological risk to the students by using this app.

3.4 ARE THERE LIKELY TO BE ANY BENEFITS (DIRECT OR INDIRECT) TO PARTICIPANTS FROM THIS RESEARCH?

YES or NO

Yes

(If YES, provide details.)

If the students and teacher enjoy using the app and find it helps learning, then there is a pedagogical benefit from using the app. The app is non-commercial and could be provided to learners as an extra learning resource for the subject.

3.5 ARE THERE ANY SPECIFIC RISKS TO RESEARCHERS?

Examples include use of dangerous materials, asking certain types of questions, research being undertaken in certain locations, researchers working alone in isolated areas, etc.

YES or NO

No

(If YES, please describe and explain what risk management procedures will be put in place to minimise these risks.)

3.6 DEALING WITH ADVERSE/UNEXPECTED OUTCOMES

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 project.

If there are any unexpected outcomes or adverse effects to participants, the class teacher will deal with them immediately. If this is unsatisfactory, the Head will deal with any issues.

3.7 HOW WILL THE CONDUCT OF THE PROJECT BE MONITORED?

Please explain how the principal investigator will monitor the conduct of the project (especially where several people are involved in recruiting or interviewing, administering procedures, etc.) to ensure that it conforms with the procedures set out in this application. In the case of student projects please give details of how the supervisor(s) will monitor the conduct of the project.

The other investigator (Russell) will carry out the research at the school and will report back to the principal investigator with the results of the research.

3.8 SUPPORT FOR PARTICIPANTS

Depending on risks to participants you may need to consider having additional support for participants during/after the study. Consider whether your project would require additional support, e.g., external counselling available to participants. Please advise what support will be available.

The project will not require additional support as the students and teacher will be given specific tasks when using the app and will be offered guidance through a specific set of steps and from the sole researcher when carrying out tasks.

3.9 DO YOU PROPOSE TO OFFER PAYMENTS OR INCENTIVES TO PARTICIPANTS?

YES or NO

No

(If YES, please provide further details.)

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3.10 DO ANY OF THE RESEARCHERS ON THIS PROJECT HAVE A PERSONAL, PHILOSOPHICAL, FINANCIAL OR COMMERCIAL INTEREST IN ITS OUTCOME THAT MIGHT INFLUENCE THE INTEGRITY OF THE RESEARCH, OR BIAS THE CONDUCT OR REPORTING OF THE RESEARCH, OR UNDULY DELAY OR OTHERWISE AFFECT THEIR PUBLICATION?

YES or NO
No

(If YES, please specify how this conflict of interest will be addressed.)

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4. INVESTIGATORS' QUALIFICATIONS, EXPERIENCE AND SKILLS (Approx. 200 words)

List the academic qualifications and outline the experience and skills relevant to this project that the PI, other researchers and any supporting staff have in carrying out the research and in dealing with any emergencies, unexpected outcomes, or contingencies that may arise. State specifically who will be carrying out the research procedures

Dr. Monica Ward is a researcher in the School of Computing. She has experience of researching computer resources with young learners, as well as adults, both literate and nonliterate. She has worked with young learners on topics including Computer Assisted Learning (CAL) for Irish, mathematics, English.

Russell Brady is a final year student in Computer applications. Russell undertook TG in junior cycle in secondary school and subsequently the subject DCG (Design & Communication Graphics) in senior cycle which is a follow-on subject. He has seen first hand the struggles the students have with object representation in the subject and that is where the inspiration for this research came from.

The classroom teacher is an experienced teacher who has dealt with emergencies and unexpected outcomes on previous occasions during his teaching career.

Russell will carry out the research in the school along with the help of the teacher. Russell will report to Monica with the results of the research.

5. CONFIDENTIALITY/ANONYMITY

5.1 WILL THE IDENTITY OF THE PARTICIPANTS BE PROTECTED?

YES or NO

Yes

(If NO, please explain why.)

IF YOU ANSWERED YES TO 5.1, PLEASE ANSWER THE FOLLOWING QUESTIONS:

5.2 HOW WILL THE ANONYMITY OF THE PARTICIPANTS BE RESPECTED?

Please bear in mind that where the sample size is very small, it may be impossible to guarantee anonymity/confidentiality of participant identity. Participants involved in such projects need to be advised of this limitation in the Plain Language Statement/Information Sheet. If you intend to fully anonymize the data, please provide details

No identifying data will be collected – all data will be anonymous. No names or ids will be used on the questionnaire

5.3 LEGAL LIMITATIONS TO DATA CONFIDENTIALITY

Participants need to be made aware that confidentiality of information provided cannot always be guaranteed by researchers and 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. This information should be included in your Plain Language Statement and Informed Consent Form. Depending on the research proposal and academic discipline, you may need to state additional specific limitations.

State how and where participants will be informed of these limitations

The participants will be informed about this in the Plain Language Statement.



6. PERSONAL DATA - COMPLIANCE WITH THE GENERAL DATA PROTECTION REGULATION

Personal data is data relating to a living individual (i.e. the 'Data Subject') who is, or can be, identified either from the data itself or from the data in conjunction with other information that is in, or is likely to come into, the possession of the 'Data Controller' (i.e. DCU and its constituent units e.g. research teams etc.). Further information on personal data is available from the DCU Data Protection Unit at <https://www.dcu.ie/ocoo/dp/guides.shtml>

6.1 IS PERSONAL DATA BEING PROCESSED AS PART OF THIS PROJECT?

YES or NO
No

<i>If YES, Please indicate your compliance with the following guidelines:</i>	Mark here
We confirm that we have read and agree to act in accordance with DCU Data Protection Unit guidance and procedures regarding personal data	
We confirm that we have put in place a Personal Data Security Schedule (PDSS) for the project and have attached it to this application	

Please see the GDPR and the Research Ethics Process section of the [SCEC main webpage](#) for guidance

IF YOU ANSWERED YES TO 6.1, PLEASE ANSWER THE FOLLOWING QUESTIONS:

6.2 WHAT KIND OF PERSONAL DATA IS BEING PROCESSED?

Note special categories of personal data include health data, genetic data and/or data relating to ethnicity/race of participants, their sex lives and/or sexual orientation

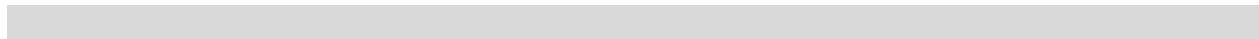
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6.3 WILL ANONYMISATION/PSEUDONYMISATION OF THE PERSONAL DATA BE UNDERTAKEN?

YES or NO
...

(If NO, please explain why.)

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7. DATA/SAMPLE STORAGE, SECURITY AND DISPOSAL

For the purpose of this section, "Data" includes that in a raw or processed state (e.g. interview audiotape, transcript or analysis). "Samples" include body fluids or tissue samples.

7.1 HOW AND WHERE WILL THE DATA/SAMPLES BE STORED?

Note that the SCEC recommends that all data be stored on campus – please justify any off-site storage.

The data will be kept in paper format with the student researcher (Russell). There won't be an electronic copy made of the questionnaires and all copies of the questionnaire will be shredded once the project is finished in May.

7.2 WHO WILL HAVE ACCESS TO DATA/SAMPLES?

If people other than the main researchers have access, please name who they are and explain for what purpose.

Nobody else will have access to the samples

7.3 HOW LONG IS THE DATA TO BE HELD/RETAINED FOR?

Note that with very few exceptions **personal data** may not be retained indefinitely. It is up to the unit or research team to establish an upper retention limit for each category of personal data under its control.

The data will be held until the project is completed in May. Once this is done the data will be disposed of by shredding it.

7.4 IF DATA/SAMPLES ARE TO BE DISPOSED OF, PLEASE EXPLAIN HOW, WHEN AND BY WHOM THIS WILL BE DONE?

Note that simply deleting files is not sufficiently secure. The additional steps to be taken to maintain data security should be given. **Personal data** must be disposed of in a safe and secure manner at the end of its retention period. If the data is stored in a: a) paper based format then shredding or disposal via a secure bin is recommended; or b) if it is stored in an electronic based format then deletion of the record or full anonymization of the data is recommended. If data/samples are NOT being disposed of, please justify this decision.

The survey sheets and Consent forms along with the questionnaires will be disposed of by shredding once the research has been completed.

8. FUNDING OF THE RESEARCH

8.1 HOW IS THIS WORK BEING FUNDED, IF IT IS EXTERNALLY FUNDED?

Self-funded

8.2 PROJECT GRANT NUMBER *(If relevant and/or known – otherwise mark as N/A)*

8.3 DOES THE PROJECT REQUIRE APPROVAL BEFORE CONSIDERATION FOR FUNDING BY A GRANTING BODY?

YES or NO

No

8.4.1 HOW WILL PARTICIPANTS BE INFORMED OF THE SOURCE OF THE FUNDING? *(e.g. included in the Plain Language Statement)*

N/A

8.5 DO THE FUNDERS OF THIS PROJECT HAVE A PERSONAL, FINANCIAL OR COMMERCIAL INTEREST IN ITS OUTCOME THAT MIGHT COMPROMISE THE INDEPENDENCE AND INTEGRITY OF THE RESEARCH, OR BIAS THE CONDUCT OR REPORTING OF THE RESEARCH, OR UNDULY DELAY OR OTHERWISE AFFECT THEIR PUBLICATION?

YES or NO

No

(If YES, please specify how this conflict of interest will be addressed.)

9. PLAIN LANGUAGE STATEMENT *(Attach to this document. Approx. 400 words)*

A Plain Language Statement (PLS) should be used in all cases. This is written information in plain language that you will be providing to participants, outlining the nature of their involvement in the project and inviting their participation. The PLS should specifically describe what will be expected of participants, the risks and inconveniences for them, and other information relevant to their involvement. Please note that the language used must reflect the participant age group and corresponding comprehension level – if your participants have different comprehension levels (e.g. both adults and children) then separate forms should be prepared for each group. The PLS can be embedded in an email to which an online survey is attached, or handed/sent to individuals in advance of their consent being sought. See link to sample templates on the website: <https://www.dcu.ie/researchsupport/ethicsapproval.shtml>

PLEASE CONFIRM WHETHER THE FOLLOWING ISSUES HAVE BEEN ADDRESSED IN YOUR PLAIN LANGUAGE STATEMENT/ INFORMATION SHEET FOR PARTICIPANTS:

	YES or NO
Introductory Statement (PI and researcher names, school, title of the research)	YES
What is this research about?	YES
Why is this research being conducted?	YES
What will happen if the person decides to participate in the research study?	YES
How will their privacy be protected?	YES
How will the data be used and subsequently disposed of?	YES
What are the legal limitations to data confidentiality?	YES
What are the benefits of taking part in the research study (if any)?	YES
What are the risks of taking part in the research study?	YES
Confirmation that participants can change their mind at any stage and withdraw from the study	YES
How will participants find out what happens with the project?	YES
Contact details for further information (including Scec contact details)	YES
Details relating to GDPR Compliance if Personal Data is being sought	YES

If any of these issues are marked NO, please justify their exclusion:

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DUBLIN CITY UNIVERSITY Plain Language Statement - Students

My name is Russell Brady and I am a 4th year student in computer applications in Dublin City University. I am in the process of creating an app for my 4th year project called AR-T. The app is an augmented reality application for technical graphics.

You can use this app along with your teacher and interact with the various features of the app. I will ask you to fill out a brief survey after the lesson to give your feedback of what you think of the app.

Please do NOT put your name on the survey – it is anonymous. Your survey data will be deleted once the research is finished. I will tell you about the results when I have finished the project.

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
Plain Language Statement – Teacher

My name is Russell Brady and I am a 4th year student in computer applications in Dublin City University. I am in the process of creating an app for my 4th year project called AR-T. The app is an augmented reality application for technical graphics.

You can use this app along with your students and interact with the various features of the app. I will ask the students to fill out a brief survey after the lesson to give their feedback of what they thought of the app.

The children will NOT put their name on the survey – it is anonymous. The responses are confidential (subject to legal limitations). The children do not have to fill out the survey, but if they do it will help me make the app better. The survey data will be completely anonymized, and the children's responses will not be identifiable. The signed consent form will be shredded once the research is complete.

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
Plain Language Statement – Parent

My name is Russell Brady and I am a 4th year student in computer applications in Dublin City University. I am in the process of creating an app for my 4th year project called AR-T. The app is an augmented reality application for technical graphics.

Your child will use the app during class along with the teacher to try and aid in the learning of the subject. I will ask your child to fill out a brief survey after the lesson, so s/he can tell me what s/he thinks of the app.

Your child will NOT put his/her name on the survey – it is anonymous. The responses are confidential (subject to legal limitations). Your child does not have to fill out the survey, but if s/he does it will help me make the app better. Your survey data will be completely anonymized, and your child's responses will not be identifiable. The signed consent form will be shredded once the research is complete.

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
Plain Language Statement – Principal

My name is Russell Brady and I am a 4th year student in computer applications in Dublin City University. I am in the process of creating an app for my 4th year project called AR-T. The app is an augmented reality application for technical graphics.

The teacher will use this app along with the students and interact with the various features of the app. I will ask the students to fill out a brief survey after the lesson to give their feedback of what they thought of the app.

The children will NOT put their name on the survey – it is anonymous. The responses are confidential (subject to legal limitations). The children do not have to fill out the survey, but if they do it will help me make the app better. The survey data will be completely anonymized, and the children's responses will not be identifiable. The signed consent form will be shredded once the research is complete.

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

10. INFORMED CONSENT FORM (Attach to this document. Approx. 300 words)

In most cases where interviews or focus groups are taking place, an Informed Consent Form is required. This is an important document requiring participants to indicate their consent to participate in the study, and give their signature. If your participants are minors (under 18), it is best practice to provide them with an assent form, while their parents/guardians will be given the Informed Consent Form. In cases where an anonymous questionnaire is being used, it is enough to include a tick box in the questionnaire (underneath the information section for participant), where participants can indicate their consent.

See link to sample templates on the website: <https://www.dcu.ie/researchsupport/ethicsapproval.shtml>

NB – IF AN INFORMED CONSENT FORM IS NOT BEING USED, THE REASON FOR THIS MUST BE JUSTIFIED HERE.

DUBLIN CITY UNIVERSITY

AR-T Consent Form - Parent

Project title: AR-T Augmented Reality App for Technical Graphics

Researcher: Russell Brady

The purpose of this research is to find out if the app can help in the process of learning TG. The Plain Language Statement (separate page) explains more about the project.

Do you understand the information provided?

Yes/No

Participants may withdraw from the Research Study at any point. There will be no penalty for withdrawing before all stages of the Research Study have been completed.

The data will be stored anonymously. Note that the confidentiality of information provided is subject to legal limitations.

I have read and understood the information in this form. My questions and concerns have been answered by the researcher, and I have a copy of this consent form. Therefore, I consent that (child's name) _____ takes part in this research project.

Parent's/Guardian's Signature: _____

Name in Block Capitals: _____

Date: _____

DUBLIN CITY UNIVERSITY

AR-T Consent Form - Teacher

Project title: AR-T Augmented Reality App for Technical Graphics

Researcher: Russell Brady

The purpose of this research is to find out if the app can help in the process of learning TG. The Plain Language Statement (separate page) explains more about the project.

Do you understand the information provided? Yes/No

Participants may withdraw from the Research Study at any point. There will be no penalty for withdrawing before all stages of the Research Study have been completed.

The data will be stored anonymously. Note that the confidentiality of information provided is subject to legal limitations.

I have read and understood the information in this form. My questions and concerns have been answered by the researcher, and I have a copy of this consent form. Therefore, I consent that (child's name) _____ takes part in this research project.

Parent's/Guardian's Signature: _____

Name in Block Capitals: _____

Date: _____

DUBLIN CITY UNIVERSITY

AR-T Consent Form - Principal

Project title: AR-T Augmented Reality App for Technical Graphics

Researcher: Russell Brady

The purpose of this research is to find out if the app can help in the process of learning TG. The Plain Language Statement (separate page) explains more about the project.

Do you understand the information provided?

Yes/No

Participants may withdraw from the Research Study at any point. There will be no penalty for withdrawing before all stages of the Research Study have been completed.

The data will be stored anonymously. Note that the confidentiality of information provided is subject to legal limitations.

I have read and understood the information in this form. My questions and concerns have been answered by the researcher, and I have a copy of this consent form. Therefore, I consent that (child's name) _____ takes part in this research project.

Parent's/Guardian's Signature: _____

Name in Block Capitals: _____

Date: _____

11. QUESTIONNAIRE

DUBLIN CITY UNIVERSITY

AR-T Survey

Project title: AR-T Augmented Reality Learning App for Technical Graphics

Researcher: Russell Brady

Are you happy to fill out this form?

YES

NO

Did you enjoy the AR-T app?

YES

NO

Did you find the app easy to use?

YES

NO

Do you think it helped you to better understand
3-D object representation?

YES

NO

Would you like to use the app at home?

YES

NO

Please let me know if there are any other features you would like to have in the AR-T app.

Please let me know if you have any ideas for any changes to the AR-T app

Please write any other comments about the AR-T app here

12. BIBLIOGRAPHY

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