

School of Education

Locked Bag 1307
Launceston, 7250

Calculus for Kids

Dear primary school Principal

We would like your school to participate in this research project, and seek your approval for involvement. An Information Sheet for Students is attached which explains the project.

The project will train and pay the costs of a Facilitator (who may be one of your teachers) to work over 14 lessons with a final year class where each student has a computer. The project will also provide specialist mathematics software for all the students (and the teacher) of this class.

In the last scheduled lesson, students will be asked to undertake a test based on a first year undergraduate assessment of problem solving using integral calculus. Students will be asked for estimated solutions, more precise working carried out on their personal computer, and a reflection on any differences. In addition, participating students will also be asked to complete two surveys, the Mathematics Self-Efficacy Scale and the Mathematics and Technology Attitude Scale to measure changes in mathematics self-efficacy, mathematics and technology attitudes of participants. NAPLAN numeracy results for project students for the year prior to and following participation will also be accessed to analyse and monitor skills and knowledge improvement of respondents.

Project reporting will provide you with feedback on the progress of your students through this unique learning experience, and indicate whether significant curriculum transformation through the personal use of ICT is possible.

At this stage we only ask if your school is willing to be involved in the project. If you wish your school to take part, please sign the attached consent form, and return it to us. If the project will require approval from any other authority, could you please forward details so we can commence the process?

If the school wishes to be involved, we will send you consent forms for the students early next year, and ask for your recommendation of a Facilitator (who could also be someone from the community with suitable aptitude and ability). All Facilitators will be flown (at our cost) to Launceston for a full day of training. One of the research team would visit the school to observe a project lesson and consult with the Facilitator.

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote H10959.

All of us are very willing to answer questions about the project if you require more detail.

Yours sincerely

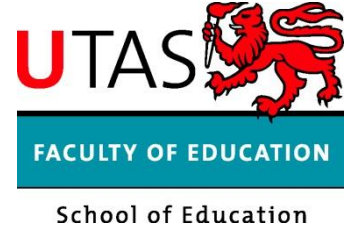
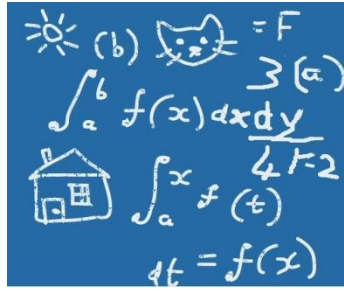
Dr. Andrew Fluck
ph (03) 6324 3284
e-mail Andrew.Fluck@utas.edu.au

Dr Christopher Chin
ph (03) 6324 9337
e-mail: c.chin@amc.edu.au

Mr Asim Ghous
ph 1300 72 1250
e-mail: Asim.ghous@ases-au.com

Professor Dev Ranmuthugala
ph (03) 6335 4474
e-mail D.Ranmuthugala@amc.edu.au

Dr Irene Penesis
ph (03) 6324 9770
e-mail: i.penesis@amc.edu.au



Calculus for Kids

Principal consent form

1. I have read and understood the 'Information Sheet' for this project.
2. The nature and possible effects of the study have been explained to me.
3. I understand that the study involves pupil participation in 13 lessons conducted by a teacher trained in calculus and calculus software, followed by a test using the software which will take about 45 minutes.
4. I understand that participation involves the risk(s) that pupils may encounter difficult mathematical problems or become more interested in professions such as Engineering.
5. I understand that all research data will be securely stored on the University of Tasmania premises for at least five years, and will be destroyed when no longer required.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree that research data including NAPLAN numeracy results gathered from my school for the study may be published provided that they cannot be identified as a participant unless I give explicit permission.
8. I understand that the researchers will maintain the identity of my school confidential and that any information supplied to the researchers will be used only for the purposes of the research.
9. I agree my school will participate in this investigation and understand that I may withdraw at any time without any effect, and if I so wish may request that any data the school has supplied to date be withdrawn from the research.

Name and address of school:

Name of Principal:

Signature:

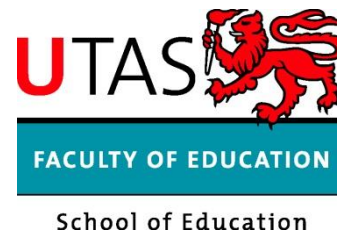
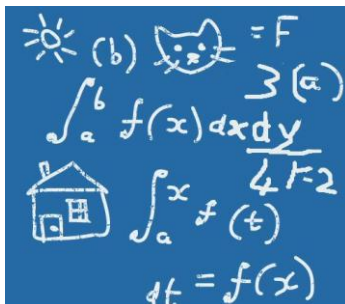
Date:

Statement by Investigator

- The participant has received the Information Sheet where my details have been provided so participants have the opportunity to contact me prior to consenting to participate in this project.

Name of Investigator

Signature of Investigator



Calculus for Kids

Information Sheet for Students

Invitation

You are invited to participate in a research study about using your laptop for learning some specialist mathematics. The study is being conducted by Andrew Fluck and Dev Ranmuthugala from the University of Tasmania.

1. The study is looking at how your personal computer (netbook or laptop) can help you solve everyday problems using special mathematics software. We will give you the software and show you how it works.
2. You are eligible to participate in this study because your school has a program where every student in your class has a computer.
3. Participation in this study will consist of involvement in 13 lessons conducted by a teacher we have trained in the special mathematics and software. You will have a chance to learn about calculus, a very powerful way of solving everyday problems. The software will do most of the complicated work for you, but you will need to tell it exactly what to do! At the end of the lessons, we will ask you to solve some problems using your new skills and software – this will take about 45 minutes.

It is important that you understand that your involvement in this study is voluntary. While we would be pleased to have you participate, we respect your right to decline. There will be no consequences to you if you decide not to participate, and this will not affect your schooling. If you decide to discontinue participation at any time, you may do so without providing an explanation. All information will be treated in a confidential manner, and your name will not be used in any publication arising out of the research. All the research data will be kept in a locked cabinet in the office of Dr. Andrew Fluck.

4. It is possible that you will become more interested in professions such as Engineering through participation. We would be keen to hear from you or your parents/guardians if anything like this happens. Also, we would like to track your mathematical skills in the future by accessing your NAPLAN numeracy results.

5. There are no specific risks anticipated with participation in this study. However, if you find that you are becoming distressed you will be advised to receive support from your regular teacher.
6. If you would like to discuss any aspect of this study please feel free to contact either Dr. Fluck on ph (03) 6324 3284 (e-mail Andrew.Fluck@utas.edu.au) or Professor Ranmuthugala on ph (03) 6324 9474 (e-mail D.Ranmuthugala@amc.edu.au). Either of us would be happy to discuss any aspect of the research with you. Once we have analysed the information we will be mailing / emailing you a summary of our findings. You are welcome to contact us at that time to discuss any issue relating to the research study.

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote H10959.

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form.
This information sheet is for you to keep.

Dr. Andrew Fluck
ph (03) 6324 3284
e-mail Andrew.Fluck@utas.edu.au

Associate Professor Dev Ranmuthugala
ph (03) 6335 4474
e-mail D.Ranmuthugala@amc.edu.au

Dr Christopher Chin
ph (03) 6324 9337
e-mail: c.chin@amc.edu.au

Dr Irene Penesis
ph (03) 6324 9770
e-mail: i.penesis@amc.edu.au

Mr Asim Ghous
ph 1300 72 1250
e-mail: Asim.ghous@ases-au.com