## Unit Outline

### SMED6003 Science and Mathematics Education Project 1

#### Semester 1, 2016

<table>
<thead>
<tr>
<th><strong>Unit study package code:</strong></th>
<th>SMED6003</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode of study:</strong></td>
<td>Internal</td>
</tr>
<tr>
<td><strong>Tuition pattern summary:</strong></td>
<td>This unit does not have a fieldwork component.</td>
</tr>
<tr>
<td><strong>Credit Value:</strong></td>
<td>25.0</td>
</tr>
</tbody>
</table>
| **Pre-requisite units:**      | 306506 (v.0) Science and Mathematics Education Research Methods 627 or any previous version  
                              | OR       |
|                              | SMED6002 (v.0) Science and Mathematics Education Research Methods or any previous version |

| **Co-requisite units:**       | Nil      |
| **Anti-requisite units:**     | Nil      |

| **Result type:**              | Grade/Mark |

| **Approved incidental fees:** | Information about approved incidental fees can be obtained from our website. Visit [fees.curtin.edu.au/incidental_fees.cfm](fees.curtin.edu.au/incidental_fees.cfm) for details. |

| **Unit coordinator:**         | Title: Professor  
                             | Name: Rob Cavanagh  
                             | Phone: 08 9266 2162  
                             | Email: R.Cavanagh@exchange.curtin.edu.au  
                             | Location: Building: 501 - Room: Level  
                             | Consultation times: By email appointment |

| **Teaching Staff:**           | Name: Professor Rob Cavanagh  
                             | Phone: 08 9266 2162  
                             | Email: R.Cavanagh@curtin.edu.au  
                             | Location: Building: 501 - Room: Level 4 |

| **Administrative contact:**   | Name: Kat Minutillo  
                             | Phone: +618 9266 2158  
                             | Email: Kathleen.Minutillo@curtin.edu.au  
                             | Location: Building: 501 - Room: Level |

| **Learning Management System:** | Blackboard ([lms.curtin.edu.au](lms.curtin.edu.au)) |
Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present.

Syllabus

This unit is designed to enable you to (i) develop a research proposal, (ii) implement the research proposal, and (iii) prepare a research report. Develop a research problem and question/s Develop a theoretical perspective Develop a research methodology, including quality standards Produce a research proposal

Introduction

Welcome to SMED6003 Science and Mathematics Education Project 1. This unit (SMED6003) involves: (i) developing a research problem and questions; (ii) designing a research methodology; (iii) developing a scholarly theoretical perspective; (iv) developing an ethical protocol and an application for research ethics approval; and (v) preparing a formal research proposal. Introduction The overall aim of the two Project units (SMEC 691, SMEC 692) is to engage the student in a scholarly process of designing, implementing and reporting a practitioner research study. This advanced form of professional development will enable the student to develop reflective, critical and creative thinking aimed at improving his/her professional practice. The purpose of the SMED6003 unit is to design a study that will provide the student with fresh insight into his/her professional work

Unit Learning Outcomes

All graduates of Curtin University achieve a set of nine graduate attributes during their course of study. These tell an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and attributes which employers say would be useful in a professional setting. Each unit in your course addresses the graduate attributes through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes tell you what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your achievement of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

Your course has been designed so that on graduating we can say you will have achieved all of Curtin's Graduate Attributes through the assurance of learning process in each unit.

<table>
<thead>
<tr>
<th>On successful completion of this unit students can:</th>
<th>Graduate Attributes addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Analyse an issue related to your professional practice and develop research questions; outline the potential significance of the study and develop a provisional title</td>
<td>🗣️📝💡</td>
</tr>
<tr>
<td>2 Design a summary research methodology supported by a brief review of literature</td>
<td>📚💡</td>
</tr>
<tr>
<td>3 Design a summary theoretical perspective on the topic of the study supported by a brief review of literature</td>
<td>📚💡</td>
</tr>
<tr>
<td>4 Design an ethical protocol related to the methodology of the study supported by a brief review of literature</td>
<td>📚💡</td>
</tr>
<tr>
<td>5 Prepare a scholarly research proposal in accordance with appropriate formatting conventions and APA referencing standards</td>
<td>📚💡</td>
</tr>
</tbody>
</table>

Faculty of Humanities
School of Education
Curtin’s Graduate Attributes

<table>
<thead>
<tr>
<th></th>
<th>Apply discipline knowledge</th>
<th>Thinking skills</th>
<th>Information skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(use analytical skills to solve problems)</td>
<td>(confidence to investigate new ideas)</td>
</tr>
<tr>
<td></td>
<td>Communication skills</td>
<td>Technology skills</td>
<td>Learning how to learn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(apply principles learnt to new situations)</td>
</tr>
<tr>
<td></td>
<td>International perspective</td>
<td>Cultural understanding</td>
<td>Professional Skills</td>
</tr>
<tr>
<td></td>
<td>(value the perspectives of others)</td>
<td>(value the perspectives of others)</td>
<td>(work independently and as a team)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(plan own work)</td>
</tr>
</tbody>
</table>

Find out more about Curtin’s Graduate attributes at the Office of Teaching & Learning website: ctl.curtin.edu.au

Learning Activities

1. Outline a significant issue related to their professional practice and develop related research questions. 2. Develop a research methodology supported by a brief review of related literature. 3. Develop a theoretical perspective on the topic of the study supported by a brief review of related literature. 4. Develop an ethical protocol and prepare an application for ethics approval supported by a brief review of related literature. 5. Prepare a scholarly research proposal in accordance with APA formatting and referencing conventions.

The unit comprises 3 modules linked to specific unit learning outcomes and requires submission of 3 written assignments. Students studying via Open Universities Australia work independently and are expected to make good use of the resources provided including the key references listed and supplementary readings, links to other websites and e-journals. Students are expected also to use Curtin’s e-library to search for relevant research literature. Completed assignments are to be submitted via email. Unit tutors will provide diagnostic and summative assessment on assignments and are contactable by email. The assignments are cumulative in as much as the final research proposal (assignment 3) will contain work from assignments 1 and 2. Thus it is very important that the student responds constructively to the tutor’s ongoing assessments. If work is continuously re-defined, re-worked and reformulated it will help to improve and focus the emerging study, which will be implemented in the subsequent SMED6004 unit.
Learning Resources

Recommended texts

You do not have to purchase the following textbooks but you may like to refer to them.

- There is no required textbook for the Project units. There are generalist books that cover a comprehensive range of research approaches and methods, and there are specialist books that focus on various research methods. Indeed there is a vast range of specialist research literature (books, journals, web-sites), and only a few are listed below. It is advisable not to stick with the same generalist book you used for 627; a different book will help to expand your horizons.

Other resources

Recommended Readings The following readings can be ordered online from the Curtin Bookshop: http://www.bookshop.curtin.edu.au/#linkid=hp_popular Highly Recommended ·

Willis, J. (2007). Foundations of qualitative research: Interpretive and critical approaches. Thousand Oaks, CA: Sage. Despite the term 'qualitative' in the title, the first half of this book presents a relatively user-friendly account (compared to most other research methods books) of the general field of educational research, with historical and philosophical accounts of the major paradigms, from positivism to postmodernism. ·

Taylor, P. C., & Wallace, J. (2007). Contemporary qualitative research: Exemplars for science and mathematics educators. Dordrecht, The Netherlands: Springer. This book is a compilation of new paradigm research studies conducted by doctoral and master students at the Science and Mathematics Education Centre, supervised by the editors. There is a wide range of new paradigm studies summarised succinctly, ranging from interpretivism to postmodernism.


Online Resources · Some of these are: o TED Talks http://www.ted.com/ o ABCTV Big Ideas http://www.abc.net.au/tv/bigideas/ o RSA Animate http://www.thersa.org/home o AfterEd TV http://aftered.tv/ o Media Education Foundation http://mediaed.org/ · The Curtin Library e-search facility enables you to search e-journals worldwide. Go to 'my library' tab in your Oasis account
Assessment

Assessment schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Value %</th>
<th>Date Due</th>
<th>Unit Learning Outcome(s) Assessed</th>
</tr>
</thead>
</table>
| Summary Research Plan                           | 30 percent | **Week:** Week 5  
|                                                 |         | **Day:** Friday April 1   | 1,2                              |
|                                                 |         | **Time:** 12.00PM         |                                  |
| Summary Research Methodology and Theoretical     | 30 percent | **Week:** Week 8  
| Perspective                                     |         | **Day:** Friday April 22  | 3,4                              |
|                                                 |         | **Time:** 12.00PM         |                                  |
| Full Research Proposal                           | 40 percent | **Week:** Week 14  
|                                                 |         | **Day:** Friday June 3    | 5                                |
|                                                 |         | **Time:** 12.00PM         |                                  |

Detailed information on assessment tasks

1. Assignment 1: Preliminary Research Plan This assignment involves describing a significant issue associated with one’s professional practice and outlining a research methodology for investigating it. The assignment should provide evidence of: (i) an ability to conceptualise a professionally significant issue for investigation; (ii) an ability to formulate a suitable statement of purpose for the study and well-focused research questions; (ii) an ability to outline a research methodology, drawing on appropriate research paradigms, for addressing the research questions, and (iv) an ability to outline a feasible research procedure for conducting the study.

2. Assignment 2: Preliminary Theoretical Perspective This assignment involves reviewing the research literature and developing a scholarly theoretical perspective for shaping the study. The assignment should provide evidence of: (i) an ability to conceptualise the topic of the study in relation to a related field of research; and (ii) sound understanding of the epistemology and related quality standards governing the research methods of the study.

3. Assignment 3: Full Project Proposal The final assignment of this unit involves drawing together and extending assignments 1 and 2 to prepare a scholarly research proposal. In addition to fulfilling all the criteria for assignments 1 and 2, this assignment should provide evidence of: (i) an ability to design an ethically sound and adequately resourced study that is feasible to conduct in the available time, and (ii) an ability to present a concise and coherent proposal in accordance with APA conventions of formatting and referencing.

Pass requirements

In order to pass this unit, all assessment tasks must be submitted and an overall mark of 50% or more must be achieved. Assessments are not considered as submitted if any required sections are incomplete, or if the electronic file is unreadable. It is a student’s responsibility to ensure that assessments are complete and have been successfully uploaded in a readable format.

A student who has received a Fail Grade (less than 50%) for an assessment, but achieves at least 40% of the possible mark for an assessment that was handed in on time, will be offered the opportunity to resubmit. The maximum a resubmission can be awarded is 50% of the possible mark and only one assessment resubmission per unit is possible. The resubmitted work must be received by the due date.

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessment are described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/policies/teachingandlearning.cfm
Late assessment policy

This ensures that the requirements for submission of assignments and other work to be assessed are fair, transparent, equitable, and that penalties are consistently applied.

1. All assessments students are required to submit will have a due date and time specified on this Unit Outline.
2. Students will be penalised by a deduction of ten percent per calendar day for a late assessment submission (eg a mark equivalent to 10% of the total allocated for the assessment will be deducted from the marked value for every day that the assessment is late). This means that an assessment worth 20 marks will have two marks deducted per calendar day late. Hence if it was handed in three calendar days late and given a mark of 16/20, the student would receive 10/20. An assessment more than seven calendar days overdue will not be marked and will receive a mark of 0.

Assessment extension

A student unable to complete an assessment task by/on the original published date/time (eg examinations, tests) or due date/time (eg assignments) must apply for an assessment extension using the Assessment Extension form (available from the Forms page at students.curtin.edu.au/administration/) as prescribed by the Academic Registrar. It is the responsibility of the student to demonstrate and provide evidence for exceptional circumstances beyond the student’s control that prevent them from completing/submitting the assessment task.

The student will be expected to lodge the form and supporting documentation with the unit coordinator before the assessment date/time or due date/time. An application may be accepted up to five working days after the date or due date of the assessment task where the student is able to provide an acceptable explanation as to why he or she was not able to submit the application prior to the assessment date. An application for an assessment extension will not be accepted after the date of the Board of Examiners’ meeting.

Deferred assessments

If your results show that you have been granted a deferred assessment you should immediately check your OASIS email for details.

Supplementary assessments

Supplementary assessments are not available in this unit.

Referencing style

The referencing style for this unit is APA 6th Ed.

More information can be found on this style from the Library web site: http://libguides.library.curtin.edu.au/referencing.

Copyright

© Curtin University. The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites.

Academic Integrity (including plagiarism and cheating)

Any conduct by a student that is dishonest or unfair in connection with any academic work is considered to be academic misconduct. Plagiarism and cheating are serious offences that will be investigated and may result in penalties such as reduced or zero grades, annulled units or even termination from the course.

Plagiarism occurs when work or property of another person is presented as one's own, without appropriate acknowledgement or referencing. Submitting work which has been produced by someone else (e.g. allowing or contracting another person to do the work for which you claim authorship) is also plagiarism. Submitted work is subjected to a plagiarism detection process, which may include the use of text matching systems or interviews with students to determine authorship.

Cheating includes (but is not limited to) asking or paying someone to complete an assessment task for you or any
use of unauthorised materials or assistance during an examination or test.

From Semester 1, 2016, all incoming coursework students are required to complete Curtin’s Academic Integrity Program (AIP). If a student does not pass the program by the end of their first study period of enrolment at Curtin, their marks will be withheld until they pass. More information about the AIP can be found at:

https://academicintegrity.curtin.edu.au/students/AIP.cfm

Refer to the Academic Integrity tab in Blackboard or academicintegrity.curtin.edu.au for more information, including student guidelines for avoiding plagiarism.

Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

For general ICT assistance, in the first instance please contact OASIS Student Support:
oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre:
life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel
Additional information

Curtin School of Education Assessment Extension

The Unit Coordinator is responsible for ensuring that the guidelines contained in the Curtin University Student Assessment and Progression policy are adhered to in their unit/s. The onus is on students to provide evidence that their inability to complete an assessment task by the due date can be accepted as being due to exceptional circumstances beyond the student’s control. Such exceptional circumstances that may warrant approval of an assessment extension include, but are not limited to:

* Injury, illness or medical condition
* Family issues
* Commitments to participate in elite sport
* Commitments to assist with emergency service activities
* Unavoidable and unexpected work commitments

These guidelines can be found in Curtin University’s Assessment and Student Progression manual.

Students must apply for an Assessment Extension using the Assessment Extension form located at: http://students.curtin.edu.au/administration/forms.cfm. The form and any supporting documentation must be submitted to the Unit Coordinator or delegate (i.e., lecturer or tutor) before the assessment date/time or due/time. An application may be accepted up to five working days after the due date of the assessment task where the student is able to provide an acceptable explanation as to why he/she was unable to submit the application prior to the assessment date.

Students will be notified of the outcome of their application for Assessment Extension within five working days of the application.

For assignments or other submitted work, an extension will normally be granted up to seven days after the initial due date/time, unless the circumstances warrant a longer delay.

If an application for Assessment Extension is rejected, the Unit Coordinator must provide reasons for her/his decision. Students have the right of appeal (to the Head of School).

Assessment Appeals

Any student who genuinely believes that assessed work has been unfairly or inaccurately marked or that their final unit grade is inappropriate, has the right to request a review of the mark or final result. If this review process is unable to resolve the issue, a formal assessment appeal may be lodged.

It is expected that most situations will be able to be resolved without the need for a formal appeal.

* Step 1 – Initial Request for Review by marker or unit co-ordinator. This informal review will be to check that marking was accurate and complete. The work is not completely re-assessed. Marks cannot be reviewed downwards as a result of this informal process.

* Step 2 – Formal Appeal. If the appeal is upheld and the work re-assessed, this can then result in a mark that is...
higher, lower or the same as the original assessment.

Corrupted or Unreadable Files

Assessments are not considered as submitted if the electronic file is not readable. It is a student’s responsibility to ensure that assessments have been successfully uploaded in a readable format.

It is strongly recommended that students check all uploaded assessments by re-accessing Blackboard and attempting to open and read the uploaded file.

If a lecturer encounters a problem with a submitted file the student will be notified and must provide a readable file within 48 hours of this notification, after which it is considered as a late submission.

Students should check their Curtin student email daily during the assessment marking period.

Student Support

Learning Centre

* Comprehensive support for many aspects of students’ learning is offered through face to face and online resources via the Learning Centre http://unilife.curtin.edu.au/learning_support/learning_centre.htm

Uni English

* This website has been designed to support students whose first language is not English. The Curtin University UniEnglish website contains English language resources, activities, support information, and links to diagnostic assessment tests. http://unilife.curtin.edu.au/learning_support/UniEnglish.htm

Counselling

* All Curtin students are entitled to access Curtin Counseling for free, confidential and professional services. This includes online students who may require individual counselling for personal, psychological, or study-related issues (although please note that the counselling service is not the appropriate avenue for pursuing assessment queries or debates). http://unilife.curtin.edu.au/health_wellbeing/counselling_services.htm

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.
Student Rights and Responsibilities

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- the University’s Guiding Ethical Principles
- the University’s policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University’s policies on appropriate use of software and computer facilities

Information on all these things is available through the University’s “Student Rights and Responsibilities” website at: students.curtin.edu.au/rights.

Student Equity

There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant family responsibilities, pregnancy, religious practices, living in a remote location or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact Student Equity at eesi@curtin.edu.au or go to http://eesi.curtin.edu.au/student_equity/index.cfm for more information.

You can also contact Counselling and Disability services: http://www.disability.curtin.edu.au or the Multi-faith services: http://life.curtin.edu.au/health-and-wellbeing/about_multifaith_services.htm for further information.

It is important to note that the staff of the university may not be able to meet your needs if they are not informed of your individual circumstances so please get in touch with the appropriate service if you require assistance. For general wellbeing concerns or advice please contact Curtin's Student Wellbeing Advisory Service at: http://life.curtin.edu.au/health-and-wellbeing/student_wellbeing_service.htm

Recent unit changes

Students are encouraged to provide unit feedback through eVALUate, Curtin’s online student feedback system. For more information about eVALUate, please refer to evaluate.curtin.edu.au/info/.

To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See https://evaluate.curtin.edu.au/info/dates.cfm to find out when you can eVALUate this unit.

Recent changes to this unit include:

Unit transferred to School of Education
## Program calendar

<table>
<thead>
<tr>
<th>Sem week</th>
<th>Teach week</th>
<th>Begin Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
<td>29 Feb</td>
<td>Deciding What &amp; How to Investigate</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
<td>7 March</td>
<td>Identifying the Issue 1</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
<td>14 March</td>
<td>Identifying the Issue 2</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
<td>21 March</td>
<td>How to Conduct the Study</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
<td>28 March</td>
<td>Class Free Week</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assignment 1 due</td>
</tr>
<tr>
<td>6.</td>
<td>5.</td>
<td>4 April</td>
<td>Paradigms &amp; Methods</td>
</tr>
<tr>
<td>7.</td>
<td>6.</td>
<td>11 April</td>
<td>Context &amp; Process</td>
</tr>
<tr>
<td>8.</td>
<td>6.</td>
<td>18 April</td>
<td>Class Free Week</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assignment 2 due</td>
</tr>
<tr>
<td>9.</td>
<td>7.</td>
<td>25 April</td>
<td>Theorising the What 1</td>
</tr>
<tr>
<td>10.</td>
<td>8.</td>
<td>2 May</td>
<td>Theorising the What 2</td>
</tr>
<tr>
<td>11.</td>
<td>9.</td>
<td>9 May</td>
<td>Theorising the How 1</td>
</tr>
<tr>
<td>12.</td>
<td>10.</td>
<td>16 May</td>
<td>Theorising the How 2</td>
</tr>
<tr>
<td>13.</td>
<td>11.</td>
<td>23 May</td>
<td>13 Ethical Research</td>
</tr>
<tr>
<td>14.</td>
<td>12.</td>
<td>30 May</td>
<td>14 Preparing the Research Proposal Assignment 3 Due</td>
</tr>
</tbody>
</table>