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# DEVELOPMENT OF A TRANSFERABLE RESEARCH PORTAL - CREATING AN ON CAMPUS EQUIVALENT FULLY ONLINE RESEARCH COURSE COMPONENT

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## Abstract

Monash University's Graduate Diploma in Psychology – Advanced – (GDP-A) is an innovative fully online accredited Fourth Year Psychology course which enables its students to undertake further specialised professional postgraduate training in psychology. The GDP-A commenced in March 2016 and consists of four course units and four research units presented in alternating six week teaching periods.

Many challenges are arising in the development of the GDP-A which are also opportunities, including the translation of a traditional on campus research project into a fully online mode, the ability to scale from a starting number of 80 students to several hundred students, and the development of clinical and research skills through virtual means. The scale and scope of the GDP-A and its challenges/opportunities are unprecedented.

A particularly great challenge and opportunity for the successful development and implementation of the GDP-A is the need for a fully online research project that is fully equivalent to an on campus research project. This will consist of a research thesis based on the conducting of experiments, surveys, access to or creation of a database and associated statistical analyses. To meet this challenge/opportunity we are developing and implementing a Research Portal.

The Research Portal is a unified research environment that is accessible to GDP-A students, and potentially to others users, and is presented in the *Moodle* online Learning Management System (LMS). The components of the Research Portal are:

- Presentation and selection of innovative and online friendly research topics,
- Access of and contribution to a course specific and a general research participants base,
- Access to online experiments, surveys, tests and databases in a *Virtual Lab* environment,
- Allocation and tracking of students' supervisor resource use in student-supervisor shared electronic notebook/ data workbook space.

The Research Portal will provide the GDP-A course with an unprecedented online research project conducting capacity that can be successfully transferred across Monash University courses and beyond.

Keywords:

## 1 INTRODUCTION

### Aim

The aim of the Monash University GDP-A Research Portal project is to develop an integrated online research capacity for research students and researchers to conduct all aspects of a research project online, including research topic selection, collaboration with supervisors and/ or other researchers, research literature review, data accumulation, data analysis, results writing and discussion. The Research Portal is being developed to meet the research project needs of a particular course, however it will be able to be used for many online courses, and for many online research activities.

## Background

Monash University's Graduate Diploma of Psychology – Advanced (GDP-A) - is a large new fully online Psychology Fourth Year course. The course is equivalent to the On Campus Psychology Fourth Year course, including being fully accredited by the national psychology course accreditation body. The GDP-A consists of four course units and four research units, which are being presented to students in alternating six week teaching periods over a 16 month period. The four GDP-A research units include three research project units, which are equivalent to the On Campus Monash Psychology Fourth Year research project. In Australia a Fourth Year course such as this is typically a bridge between an undergraduate degree and a higher degree, and is a pathway to registration as a psychologist, or to other psychology related employment opportunities.

The GDP-A online course is presented to its students via the *Moodle* online Learning Management System (LMS). There is a Moodle site for each of the course's eight units, an Orientation site, and a staff site, which will include Research Portal descriptions and instructions for the course's staff. The first GDP-A research unit (Statistics and Research Design) commenced in early May 2016, the first research project unit (thesis literature review/ introduction) commences in early September 2016.

The most challenging and rewarding aspect of the development of the GDP-A online course has been the development of an online research capacity that is equivalent to a non-online research capacity. This challenge has also been an opportunity to develop an online research capacity for the GDP-A course which is transferable to many other online research course and online research applications.

The driving force behind the development of the GDP-A Research Portal is the need to create an integrated online research environment which is user friendly and is perceived by the students as fully equivalent to a non-online research environment. The online Research Portal can offer a virtual research environment that actually has advantages over a non-online research environment, including instant and integrated accessibility to a wide range of research functions. The Research Portal may even potentially be used by research students and researchers who have access to traditional research capacities such as laboratories, as well as by online research students and researchers.

## Project

This paper describes the need for and the potential uses of a transferable online Research Portal, the method used to develop it, the results of this development presented as descriptions of its components, and a description of its initial operationalization as an integrated research environment website, and next steps to the Portal's completion, initial utilization and dissemination.

## Project Benefits

- Students and potentially other researchers will be able to conduct research within a centralised integrated online environment,
- Ease of access and use, which will lead to positive online research experiences and perceptions,
- Centralised management of installation/ licenses/ troubleshooting technical issues, with usage efficiently supported by University IT staff who could ensure smooth running of software and be available to fix issues experienced by students/staff users,
- Cost benefits such as reduced license fees associated with multiple access of a single license,
- Meeting ethics requirements that data be stored centrally rather than on students' own computers,
- Centralised supervision and collaboration records,
- Easier access to research participant pools, research data repositories, and measurement tools,
- Creation of online research participant pools, research data repositories, and measurement tools,
- A transferable and universal online research capacity.

## METHOD

The Monash University GDP-A's transferable Research Portal is being developed and refined via an ongoing process of collaboration between the Course-Coordination/ developers of the GDP-A course (SM and FG), and various Monash University IT research, development and support personnel including eResearch, a Monash IT team which specializes in the development of innovative and potentially transferable IT applications. Additionally there is a Research Portal project manager (AK) who is overseeing the development of the Research Portal and interfacing between GDP-A course needs and the development of a platform that meets these needs, and potentially other research needs.

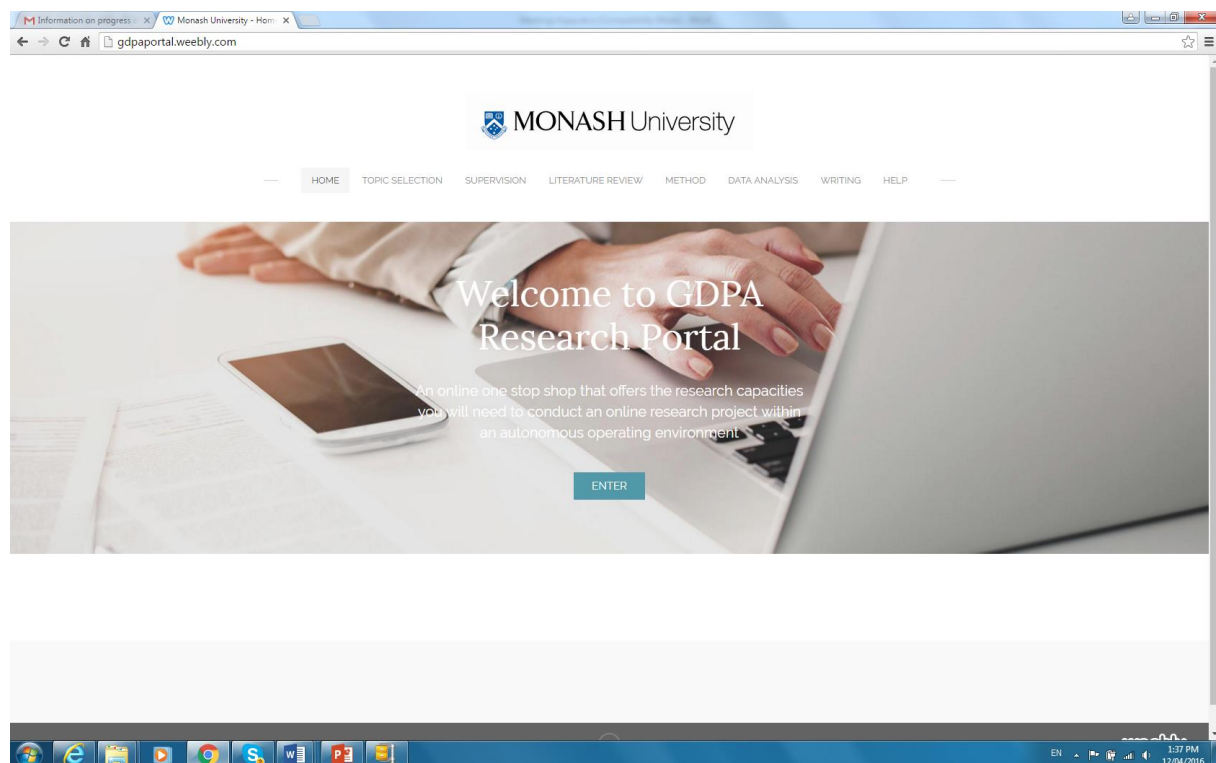
Key principles underlying the development and refinement of the GDP-A Research Portal are:

- Pragmatism, which includes responding to development timelines by identifying and developing shorter term non optimal component solutions, as well as identifying and developing longer term optimal solutions,
- Flexibility, which includes identifying and testing a wide range of possible component solutions, and implementing whichever solutions work best.

The development of the Monash University GDP-A Research Portal commenced with a plan, produced as a working text document, which specified the needs which the Research Portal needed to meet and the components that would be necessary to meet these needs. This plan was disseminated to various Monash IT and IT related groups, who have contributed to the operationalization of the Research Portal plan. The Research Portal plan has been operationalized as an integrated operating environment, created as a prototype website. The prototype website is being further developed and refined, and when completed will be the Research Portal front end, initially accessed from links in all of the GDP-A course's units, including its four research units, and capable of linking students to all the capacities they need to successfully and rewardingly conduct an online research project.

## RESULTS

### Overview



The Monash University GDPA Research Portal will a) lead students through each step of their research project: identification of topic, literature review, method (selection of participants and measures), data analysis and writing, and b) assist their instructors in the supervision process: schedule, conduct, store data and paper drafts, and record meetings.

## **Key Functions of the Research Portal**

The Monash University GDPA Research Portal provides:

1. Generic information on research in general and research at Monash University,
2. Guidance to students on research topic selection and recordings of their preferences,
3. A capacity for students and their supervisors to schedule, conduct, and record project meetings,
4. A secure data and drafts storage capacity,
5. Guidelines and information links to students and other researchers on:
  - how to conduct a literature review,
  - how to conduct statistical analyses
  - how to write and reference a thesis
6. A capacity for finding research participants,
7. A capacity to select a measurement tool, and conduct an online experiment, survey, or database analysis,
8. Access to an online and general psychology test banks,
9. A capacity to manage and analyse data.

## **Key Components of the Research Portal**

### ***3.3.1 Research topic selection***

The Research Portal offers GDP-A students and potentially other research students and researchers the opportunity to select one of over twenty interesting, innovative and online friendly psychology research topics, and then stores the results of the selections. Supervisors will then be assigned to students doing particular research topics, and specific research questions will be devised in consultation between supervisors and their students, and the ethics approval process commenced.

### ***3.3.2 Allocation and Tracking of students' supervisor resources***

The Research Portal includes an automated mechanism for providing online supervisor resources, including allocating direct contact time within a virtual teaching/ conferencing environment, and it also provides an integrated environment in which to conduct, store and track email conversations and other research communications.

This capacity is provided via a link to the Monash University *LabArchives* electronic notebook, which is being implemented for Monash University higher degree supervision in 2016. *LabArchives* supports off-site research co-supervision and potentially other research collaborations by giving supervisors access to their students data, results and research processes. *LabArchives* also acts as a repository of supervisory and potentially other research collaboration sessions, work plans, manuscripts and other presentation development.

*LabArchives* includes an electronic notebook capacity that provides a shared environment for students and supervisors to interact within, and for supervisors to keep track of their students' work within, as well as an environment for independent work by students. The structure of this shared workspace could consist of each supervisor having a *LabArchive* folder which includes a file for each of their students.

*LabArchives* allows multiple copies of electronic notebooks. These notebooks include folders of files that can be worked on by individual students (users), which can also be accessed by their supervisors (owners). Additional levels of an access structure can be created so that senior supervisors can access the notebooks owned by several individual supervisors.

### **3.3.3 Research participant databases**

#### **a. GDP-A students' online research participants pool**

The GDP-A is potentially a rich source of research participants for GDP-A research projects and also for other Monash Online and Monash Psychology research projects. GDP-A students are being invited to participate in this research – voluntarily – and are advised that they are not inconvenienced by such participation because it is included in their research unit workloads.

#### **b. Other Monash students and public online research participants pool**

Monash Psychology, Monash Online, and other Monash students (including education students), the general public, and members of particular public strata such as members of particular age groups, workplaces, etc. will be invited to join a Monash Psychology and beyond research participants pool. This participants pool will be utilized for research in the GDP-A and beyond. Invitations to students and the public to volunteer to join the broad research participants' pool will be circulated via individual course and broader Monash networks and via social media. Invitations to students to participate in research will be limited to third year students and beyond to ensure that there is full understanding of what they are volunteering for.

#### **c. Publicly available research participants pools**

The Monash GDPA Research Portal will include access to a commercial publicly available online research participant pool, which will supplement the above local participant pools, and also supply a more representative research sample than will samples consisting predominately of students. Commercial research participant pools allow the acquisition of large numbers of research participants relatively quickly and economically.

*Mechanical Turk* is a large, well known and widely used commercial publicly available online research participants' pool that is administered by Amazon, and which will be incorporated in the Research Portal via an external link. There is literature available on the validation of the representativeness of Mechanical Turk research participants, who are typically from the USA and India [1, 2].

### **3.3.4 Online research data acquisition**

The GDP-A will offer a large, diverse, and On Campus equivalent range of research options. These research options will all be available fully online, however students may choose to conduct research in non-online environments such as within their own workplace or educational setting.

GDP-A research will be conducted within a centralised integrated online environment – a Virtual Desktop - accessed from the Research Portal, rather than students being given links to individual online research platforms.

The Research Portal will use a Virtual Desktop capacity created by Monash IT resources and potentially linked to an open online research platform such as the Experiment Factory. This virtual data accumulation capacity will be populated with various platforms for acquiring research data, including the PsiTurk platform for conducting online experiments, the Qualtrics platform for conducting online surveys, and the FigShare platform for sharing data.

### **3.3.5 Test bank**

The Monash GDPA Research Portal will include access to an online psychology test bank consisting of validated regular psychology tests and also online psychology tests. The online test bank will be populated with initial descriptions of and access details for a wide variety of online Psychology tests which are valid and free, and it will be added to as GDP-A students source and use additional tests.

### **3.3.6 Data analysis software**

The Monash GDPA Research Portal will include access to the SPSS (Statistical Program for the Social Sciences) data analysis program.

## **4 CONCLUSIONS**

The Monash University GDPA Research Portal is meeting the research needs of students of an online course that includes a research project. When development of the Research Portal is complete it has

considerable potential to meet the needs of students of many other courses that include a research project component, and also to meet many other online research needs.

The learnings from the development of the Monash GDP-A Research Portal include recognition of the importance of:

- Including a wide variety of expertise in the development of the Research Portal,
- Identifying a wide range of potential users and encouraging their input into the Research Portal's development,
- Pragmatism and flexibility in the development and dissemination of the Research Portal.

The next steps in the development of the Monash GDP-A Research Portal include completion, refinement, implementation and dissemination of its components, possibly assisted by grants and other funding opportunities, and by the formation of networks and working partnerships.

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