AISNSW School Based
Research Project Application Form

Valuing, measuring and tracking the development of learning dispositions within a K-12 School.

Important information

The AISNSW School Based Research Projects are designed to provide new opportunities for schools to undertake, access and utilise education research in their practice. These are conducted over a two year period by practising teachers and/or school leaders. Projects are in areas of education which ultimately impact student outcomes and make a substantial contribution to the education sector, in and beyond individual schools.

Before completing this application please read the Application Guidelines.

A school may apply to undertake a research project on its own, or alternatively a cluster of schools may apply for a project, with one school identified as the lead school.

School principal approval is required for the submission of this application.

Key contact details

Please enter your school and project contact details.

School details

School name	Roseville College
School address	███████████████
School phone number	██████
Principal's name	Ms Deb Magill
Principal's email	█████████████
Principal's approval (signature)	████████

Project contact details

Contact name	Amy Van Arkkels
Contact role/position	Director of Teaching and Learning
Contact email	████████████
Contact phone number	█████
We are interested in participating as a	☒ Single school ☐ Lead school of a cluster of schools

Project outline

The project application should address why your school/cluster has chosen a specific area of focus, why you want to undertake the project, what you would expect to gain and what you hope to contribute.

Applications are assessed based on the following criteria:

- Rationale

- Project design

- Wider contribution: embedded in the rationale and justification for the project

- Organisational capacity: how the applicant school/s are able to support and implement the proposed research project

- Professional response: application presentation, including writing style, formatting and overall appearance.

Rationale

This section should include:

- background: what led to the development of the project? This may include information on the local context of your school, and any concerns or issues identified by your project team — either in your practice or from the literature review

- a *brief review* of the literature on the topic to show your familiarity with, and the importance of the topic. Where relevant, you might identify gaps that have not been thoroughly investigated in the literature, and which your project is aiming to address

- your aims: what are you going to prove, investigate, or evaluate?

- your intended research question/s, and hypotheses if applicable

- your rationale and justification for the project: why is your project important to your school as well as the wider community? What will it offer in terms of adding to the current knowledge base and/or practice?

Supporting documents

Please attach any supporting documents with your application. Please ensure all included documentation is directly relevant to this section.

Project design

Who will be involved? How will your project's aims be achieved? What is needed to succeed? How will success be measured? What will occur as a consequence of the project?

In this section, applicants need to provide an indication of how they might undertake the research. This might include:

- research design: which research design might you utilise? For example, is it a case study, or an action research project?
- data collection: providing details of how you might collect data, including:
  - who you might collect data from, how many, and how you might get access to them
  - the types of data you intend to collect. For example, you might collect student work samples and teacher reflection notes
  - if relevant, the instruments you intend to use to collect data. For example, you might use an interview guide, or a self-developed questionnaire
  - why you might collect data that way
- ethical considerations: including confirmation that you have reviewed the AISNSW Ethical Guidelines, and how you will address ethical concerns that might arise in your research
- data analysis: how you might analyse and interpret your data. For example, finding themes in student feedback or using statistical methods to analyse your survey numerical data
- teacher/staff training and support if any.

Please also indicate:
- infrastructure and capacity within the school to undertake the project
- resources you might require
- an indication of what support you might need AISNSW to provide.

It would be useful for you to also provide:
- any known deliverables
- a timeline.

Supporting documents

Please attach any supporting documents with your application. Please ensure all included documentation is directly relevant to this section.

Rationale

Educational institutions recognise that the purpose of an education extends beyond the acquisition of knowledge. The OECD (2018) suggest that students also need a broad range of skills including critical and creative thinking, self-regulation, collaboration as well as empathy and self-efficacy. Additionally, when moving into the workforce, it is expected that problem solving, interpersonal and communication skills will become more important than ever before and individuals will be required to continually learn, updating their skills and knowledge in a rapidly evolving working environment (Foundation for Young Australians, 2017). At Roseville College, our Strategic Direction 2018-2020 (Roseville College, 2017) clearly outlines our vision to equip each girl with a progressive, robust attitude to learning through responsibility, challenge and curiosity. The challenge; however, is in how we operationalise the learning dispositions required for success, in school and beyond, and how we ensure that these dispositions are valued, measured and delivered.

This challenge is not unique to Roseville College. Tertiary institutions, including the University of Sydney, have commenced the development of measures which will assess and track the growth of 'graduate qualities'. These qualities, which extend beyond content knowledge, include influence, interdisciplinary effectiveness, cultural competence, integrity and resilience. (University of Sydney, 2016). Similarly, at the University of Technology Sydney, Thompson (2016) developed web-based software to facilitate student self-assessment of important 'attributes' including group work, respect for others, curiosity, innovative thinking and versatility. For both tertiary institutions, it is clear that 'the relevance of attributes beyond handwriting and memorizing standard answers needs to be made explicit throughout their curriculum' (Thompson, 2016, p. 210).

In a secondary education environment, Nagy (2016) developed a system for tracking students' 'effort indicators' which include, engagement, persistence and diligence. Using a rubric designed in consultation with staff and students, each student was assessed for their effort indicators, and students self-assessed their learning dispositions against a rubric. Data visualisations, presented to students, facilitated targeted student-led coaching conversations which informed goals set for the following term. Through focusing on the measurement and tracking of effort, rather than academic results, Nagy (2017) suggested that the school's success focus intentionally shifted towards the development of essential learning dispositions. Despite the reported positive results of this project, Nagy warned that 'effort tracking could be used counter-productively as just another summative assessment of student performance, merely increasing the pressure on students' (2016, p.187). As such, it is paramount that schools are ethical in the development of any visual data analytics tool intended for student use, and pay particular attention to any unintended effects on student learning or wellbeing.

It is not unreasonable to expect that regular exposure to evaluative information regarding learning dispositions could have an effect on students, as suggested by Nagy (2016). Students who are confident in their capabilities are more efficient problem solvers, show greater persistence, and monitor their time more effectively than do equally able students who have low self-efficacy. Self-efficacy is defined as a judgement of one's capability to organise and execute courses of action required to accomplish designated types of performances (Bandura, 1986). Essential to this definition, is that self-efficacy is a judgement of what one *can do*, for example, whether or not you *can* complete the task ahead of you. Importantly, self-efficacy beliefs are formed as students interpret information from four sources; mastery experiences, observing others, social persuasions and emotional states. Pertinent to this study, social persuasions refers to the evaluative information received from others, in this case teachers, parents and other students. Although mastery experiences are the most powerful source of self-efficacy, negative information received from others can have a detrimental effect on a students' developing self-efficacy beliefs (Usher & Pajares, 2008).

In summary, within a rapidly evolving educational and workplace context, a focus on the development of skills necessary for success is appropriate. As such, tertiary and secondary institutions have turned their attention to the qualities, attributes or indicators valued with the respective institution, and how these might be developed, measured and valued. The broad aim of this project is to devise a school wide measure to assess the learning dispositions which are valued by the Roseville College community. It is our intention that this measure could be used by students across Primary and Secondary to facilitate the development of valued learning dispositions from an early age.

Through this project, it will be essential to investigate the ways in which primary and secondary students currently engage with data within the College. An evaluation of the current best practices in data visualisation within the broader educational community, and the ways in which students may use data to inform learning, will also be prioritised. Heeding the warning of Nagy (2016), we also aim to evaluate the effect of engaging with learning dispositions data on students' self-efficacy for learning. As such, our proposed research questions are as follows;

Research Questions

1. Which learning dispositions are most valued by students, teachers and parents?
2. In what ways, if at all, do key stakeholders (students, staff and parents) currently engage with data regarding student learning.
3. How does an engagement with data regarding assessed learning dispositions effect students' motivation and self-efficacy for learning?

Research Design

To address the research questions, a multi-stage, longitudinal mixed-methods study has been designed. The three stages are reflected below, and indicate a proposed timeline.

Stage One – Roseville College Learning Dispositions and Student Engagement with Data
(September 2018 – February 2019)
The first stage of the research project will have two key focus areas. The first is the development of Roseville College Learning Dispositions. The second, to develop an understanding of how students, teachers and parents currently engage with data related to their learning.

The research team will review the literature on the two key focus areas. Firstly, the learning dispositions required for students' success in school, tertiary study and work. Secondly, the ways in which data is currently used by all stakeholders within educational institutions, specifically examining how students engage with data and the effects on learning outcomes, self-efficacy and motivation. A survey will be developed by the research team to ascertain the learning dispositions most valued by students, teachers and parents. In this survey, we will also ascertain students' attitudes towards, and engagement with, data about their learning.

Using the results of this survey and the literature review, the team will facilitate staff, student and parent focus groups to determine those learning dispositions deemed essential for future success and valued the Roseville College community. By the end of Stage One, the Roseville College Learning Dispositions will be defined and operationalised. A rubric indicating the extent to which a student is demonstrating this disposition in the learning environment will also be developed.

Stage Two – Developing and Using an Online Assessment of Learner Dispositions
In the second stage of the research, an online tool will be developed for both staff and students to assess the Roseville College Learner Dispositions. This stage of the research will be exploratory in nature. Building on knowledge gained from the literature review, members of the team will conduct research into best practices in data visualisation as currently evidenced in schools and tertiary institutions in Australia. Data visualisations will be presented to executive, staff, parents and students to gain feedback on usability and ease of engagement. (This part of Stage Two would take place between October 2018 and March 2019.)

Once developed, the tool will be used by a pilot group, Years 5 and 10 students and staff, twice per term over a fifteen-month period (April 2019 – July 2020). It is envisaged that Years 5 and 10 students will have access to visualisations of data collected through this online assessment. The pilot group will work with the research team to engage with and utilise the data presented through the online

tool. The format of these regular 'data informed conversations' will be determined, in consultation with students, once the Literature Review is completed.

Stage Three – Student Engagement with Data and Student Self-Efficacy

(April 2019 – July 2020)

Throughout the fifteen-month period, researchers will collect both quantitative and qualitative data regarding students' self-efficacy. An online survey will be completed by students at three-four points within the fifteen-month period. Additionally, researchers will conduct interviews, with a sample of students, at these data collection points, to gain an understanding of the lived experience of engaging with data based on their learning dispositions.

Data Collection and Analysis

Stage One

Roseville College Learner Dispositions Survey

It is envisioned that this survey will collect both quantitative and qualitative data from students, teachers and parents. A descriptive statistical analysis of quantitative data will reveal trends in responses whilst qualitative data will be reviewed for key themes.

Focus Groups – Learner Dispositions and Data

Qualitative data collected from students and staff focus groups will be reviewed thematically by the research team and cross referenced with literature and survey results.

Stage Two

Roseville College Learner Dispositions – Online Assessment Tool

This measure will be developed through the research project and will collect quantitative data. Students will self-assess their learner dispositions twice per term, staff will also assess each students' demonstration of each disposition, twice per term.

Stage Three

Children's Self-Efficacy Scale

Students' self-efficacy will be assessed through an adapted version of the Children's Self-Efficacy Scale (Bandura, 2006) (see Appendix A for original version). Students within the pilot year groups, Years 5 and 10, will complete the measure in March 2019, as a baseline measure, and then again at three points within the fifteen month period.

Interview

To add depth to the motivation and self-efficacy measures, the research team will conduct interviews with a sample of students throughout the fifteen-month period. The purpose of the interviews is to

gain student insight into the lived experience of using the assessment tool and any effects of this on students. An interview protocol will be developed with the research team. Interviews will be recorded, and a researcher will take notes as the interview proceeds. Transcripts will be read and re-read to capture the sense of the interview and memos noted in the margins (Creswell, 2012).

Ethics

In line with the AIS Ethical Guidelines, the privacy and confidentiality of all participants will be protected. All students involved in this project, and their parents, will be provided with an informed consent form which outlines the purpose of the study. Students randomly selected for the Focus Group Interviews will be provided with an additional informed consent form outlining the purpose of the Focus Groups and the student's right to withdraw from the Focus Group at any time.

Organisational Capacity

Infrastructure and capacity within the school to support staff.

Roseville College supports all staff to engage with rigorous professional learning. Every staff member is allocated to a Professional Learning Group (PLG) which meets regularly throughout the year, within the timetable. Within these groups, staff focus on an area of professional practice which they endeavour to develop within the school year. Individual goals are set and tracked on the online platform Touchstones. PLG Leaders coach staff as they work to achieve their goals. It is envisioned that the members of the research team would form one PLG throughout 2019-2020. This will enable regular meetings, within the timetable, to reduce the impact on classroom teachers and their work load. The research team will focus their goals on the development of necessary research skills, theories of learning dispositions, and student engagement with data. In so doing, the collective professional capacity of the teachers, through the establishment and pursuit of contextualised and specific goals, that link to student learning outcomes, will grow. Additionally, in the Junior School, grade partners have allocated two-hour meetings per week to facilitate planning and programming. Stage teams meet twice per term and these allocated meeting times will both enable regular meetings for the Years 5 and 6 teachers involved in the research, without unduly impacting on their workload.

Regarding the broader staff, the creation of an online assessment of learning dispositions will create capacity for growth within a significant number of College teaching staff. All Years 5 and 10 teachers (2019) and Years 6 and 11 teachers (2020) will be involved in the development and refinement of the Roseville College Learner Dispositions, and the assessment of these within the classroom. Following the completion of the research project, this pilot study would broaden to include Years 7 and 12 in 2021, and Years 8 and 9 in 2022. In this way, the research study will have a broad, long-term impact on both staff and students within the College.

Infrastructure and capacity within the school to support students.

There are a range of structures in place at Roseville College which will enable time for staff and students to co-create and co-research without detracting from the academic, wellbeing or co-curricular program. Focus groups regarding learning dispositions and engagement with data can be integrated within current learning programs. In the secondary school, every Year 10 and 11 student belongs to a Pastoral Care Group which meet three times per week for 25 minutes. Additionally, both Year 10 and11 students engage with Senior Seminars for one hour per fortnight. These in-school structures will enable time for students to complete online surveys, focus groups and data informed conversations, without impacting academic outcomes.

AISNSW Resources and Support

We anticipate working with the AISNSW throughout the development of this Research Project. In conjunction with our Academic Mentor, we look forward to working with the Research and Data Services division to broaden research capacity within the team, and in turn, within the Roseville College staff. We invite feedback from the Research and Data Services division throughout all stages of the research project and look forward to the learning gained from the collaborative opportunities, including the regular meetings of the Independent Schools Research Network and the AIS Education Research Symposiums. In order to build the capacity of all research team members, we will engage with the following online courses, facilitated by AISNSW Research and Data Division:

- What is Educational Data?
- Conducting Interviews and Focus Groups
- Designing Surveys that Work

These courses will support all team members to design tools, collect and analyse data and conduct research ethically.

Wider Contribution

Roseville College is committed to sharing practices, knowledge and research within the broader educational community. This has been evidenced through our previous engagement with AISNSW professional learning communities, including Elevate and the Sustainable STEM/STEAM Partnerships. Roseville College looks forward to a continuing contribution to the educational community as outlined below.

One aim of this research project is to devise an online tool which would assess and track learning dispositions necessary for success in the 21st century. It is hoped that this would positively impact student outcomes within Roseville College and provide insights for other schools who are interested in the measurement and tracking of essential learning dispositions. Secondly, this project is focused

on investigating best practices in data visualisation, importantly, how students engage with data in ways that are motivating and encouraging of self-efficacy beliefs. From the review of the literature, this seems to be a new area of research into data usage in schools. We hope our research would be a positive contribution to these current data conversations.

Deliverables include, though are not limited to;

- Literature Review - learning dispositions, student engagement with data, student self-efficacy.
- Survey design – learning dispositions / key stakeholder engagement with data.
- Interview Protocols – student engagement with data / self-efficacy beliefs.
- Online measure of learner dispositions.

Working with the AISNSW, we would aim to share practices with other schools across sectors in a variety of ways. In addition to the deliverables outlined above, we would also be willing to share our research experiences as a case study for future professional learning regarding the design and implementation of research measures.

References

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Farrell, C.C., Marsh, J. A., Bertrand, M. (2015). Are we motivating students with data? *Educational Leadership, 73*(3), 16-21.

Foundation for Young Australians. (2017). The New Work Smarts. https://www.fya.org.au/wp-content/uploads/2017/07/FYA_TheNewWorkSmarts_July2017.pdf

Nagy, R. (2016). Tracking and visualizing student effort: Evolution of a practical analytics tool for staff and student engagement. Journal of Learning Analytics, 3(2), 165–193. http://dx.doi.org/10.18608/jla.2016.32.8

Nagy. R. (2017). Tracking and Visualising Student Effort: A Practical Analytics Tool for Student Engagement.

OECD. (2018). *The Future of Education and Skills: Education 2030*.

Roseville College. (2017). Strategic Direction 2018-2020 Realising Purpose. Retrieved: http://www.roseville.nsw.edu.au/what-sets-us-apart/strategic-direction

Rothman, R. (2015). What data dashboards can do. *Educational Leadership,* 73 (3), 28-32.

Thompson, D.G. (2016). Marks should not be the focus of assessment—But how can change be achieved? *Journal of Learning Analytics*, *3*(2), 193–212.

University of Sydney (2016). The University of Sydney 2016-20 Strategic Plan. https://sydney.edu.au/dam/intranet/documents/strategy-and-planning/strategic-plan-2016-20.pdf

Appendix A – Children's Self-Efficacy Scale (Bandura, 2006)

Children's Self-Efficacy Scale

This questionnaire is designed to help us get a better understanding of the kinds of things that are difficult for students. Please rate how certain you are that you can do each of the things described below by writing the appropriate number. Your answers will be kept strictly confidential and will not be identified by name.

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately can do				Highly certain can do	

Confidence (0-100)

Self-Efficacy in Enlisting Social Resources

Get teachers to help me when I get stuck on schoolwork _____

Get another student to help me when I get stuck on schoolwork _____

Get adults to help me when I have social problems _____

Get a friend to help me when I have social problems _____

Self-Efficacy for Academic Achievement

Learn general mathematics _____

Learn algebra _____

Learn science _____

Learn biology _____

Learn reading, writing, and language skills _____

Learn to use computers _____

Learn a foreign language _____

Learn social studies _____

Learn English grammar _____

Self-Efficacy for Self-Regulated Learning

Finish my homework assignments by deadlines _____

Get myself to study when there are other interesting things to do _____

Always concentrate on school subjects during class _____

Take good notes during class instruction _____

Use the library to get information for class assignments _____

Plan my schoolwork for the day _____

Organize my schoolwork _____

Remember well information presented in class and textbooks _____

Arrange a place to study without distractions _____

Get myself to do school work _____

Budget

As a minimum, the proposed project budget needs to identify expenditure in the line items listed below. A **nil** value is acceptable where appropriate.

A. Staffing costs

Item	Amount
Teacher release	$█████
Staff salary component	$█████
Specialist mentor	$█████
Other (please identify in field below)	-

B. Research related Activities

Item	Amount
Purchase of materials	$█████
Conducting and/or attending events/activities	Professional Learning through AISNSW *What is Educational Data?* $████████ *Conducting Interviews and Focus Groups* ████████ *Designing Surveys that Work* $████████ *AIS Education Research Symposium* *2018, 2019, 2020* $████ x 4 = $█████ Other potential courses / conferences. $█████ Total = █████
Accessing additional external expertise	-
Other (please identify in field below)	-

Please describe other item/s:

C. Travel

Item	Amount
Visits to other schools or research sites	$▉▉
Other (please identify in field below)	-

Please describe other item/s:

D. Other items

	Description	Amount
Item 1	-	-
Item 2	-	-
Item 3	-	-

E. Total funding requested

	Amount
Total of all funding requests (A+B+C+D)	▉▉▉

F. School contribution (where appropriate)

	Description	Amount
Financial	-	-
In-kind (please identify)	Teacher salary, leadership	$█████
Other (please identify)	Maintenance, ICT Staff, Teachers' time	$█████

TOTAL PROJECT COST

	Amount
Total funding requested and school contributions (E+F)	$█████

Your team

Please list proposed members of your research team (if known)

Name	Position and school	Research role
Amy Van Arkkels	Director of Teaching and Learning	Project Manager Researcher
Abi Woldhuis	Head of Junior School	Researcher
TBA	Head of Personalised Learning	ICT Specialist Data Analytics
	Year 5 & 6 Teachers	Researchers
	Sample of Years 10 & 11 Teachers	Researchers

Specialist mentor details

Please add details of the specialist mentor (if known at this time).

Participating schools commit to establishing or building on an existing specialist mentor relationship with an academic from an institution such as a university. The specialist mentor will work closely with the school research team for the duration of the project.

The school can identify seek the assistance of the AISNSW in identifying a specialist mentor suitable to the intended field of research if required.

Do you already have Specialist Mentor?

☒ Yes   ☐ No

Mentor's name	Dr Kimberley Pressick-Kilborn
Organisation (if applicable)	University Technology Sydney
Website address (if applicable)	
Role/Position	Senior Lecturer and Engagement Coordinator (including School Partnerships) Acting HDR Coordinator
Contact email	██████████████████████
Contact phone number	██████