



The Teachers' Guild of New South Wales

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# Research Awards Evening

The Teachers' Guild of New South Wales will hold its Guild Research Award Presentation Evening on **Friday 16 August 2019**, at **Boston University, 15-25 Regent Street, Chippendale**, commencing from **5.30pm**.

The Annual Guild Research Presentation Evening is an opportunity to give teachers and postgraduate researchers an opportunity to present their research work to a learned audience.

These awards have been created to encourage excellence in research work, and all nominees who participate in the awards evening will receive a special certificate recognising the nominee's high standing.

A **\$1000 Guild Research Award** and **\$650 Teachers Mutual Bank Award** are offered to a Postgraduate Student and/or Experienced teacher in NSW or ACT school, who is currently completing or completed research of direct benefit to classroom teaching within the last two years. The prize is presented at the Teachers' Guild of NSW Annual Dinner and Awards Evening.

The presentations will be judged on the criteria (1) content and scientific quality, (2) clarity and (3) presentation skills.

***See further details regarding judges' criteria on Page-12 of this Research Awards Evening booklet***

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# ***Post-grade acceleration practices: Parental perceptions of educational practices that support grade accelerated gifted students***

**Helen Baber  
University of New South Wales**

## **Abstract**

This Grounded Theory study explored twelve parents' perspectives of school and teacher practices surrounding the grade acceleration of their children. Data from interviews provided in-depth descriptions of students' journeys leading up to grade acceleration and the subsequent educational practices employed to support students after their accelerations. A set of recommended practices was developed and is offered as a supportive guide for schools and teachers. The core phenomenon of this Grounded Theory research was 'knowledge of Gifted Education best-practice'.

The parents in this study reported a range of differing experiences of teacher responses to gifted students' learning needs depending upon the knowledge of Gifted Education held by the teachers involved. Some parents experienced extreme frustration at teachers' lack of understanding of their child's needs and schools' inaction to adequately support them. The study provided hurting and frustrated parents with a platform to share and be heard. Conversely and most encouragingly, this study provided several families with the opportunity to share their highly successful, well-supported journeys alongside Gifted Education trained educators who are committed to supporting gifted learners to be their best. This study adds to the evidence of the need for all teachers to be trained in Gifted Education. Recommendations include further research into post-grade acceleration practices to validate findings.

# ***Changing Assessment Cultures: Needs Theoretical and Practical Knowledge of Pre-service Teachers' Assessment for Learning (AfL) Literacy***

**Chery Zin Oo**  
**University of New South Wales**

## **Abstract**

Views about different assessment systems used throughout the world are diverse and continually evolving, shaped by shifts in the forms of assessment: from exam-dominated systems to school-based assessment; from norm-referenced to criterion-referenced assessment; and from assessment of learning (AoL) to assessment for learning (AfL). As a result, the role of teachers and the conceptualization of their assessment literacy has shifted. However, the level of teacher AfL literacy remains relatively low (Davison & Michell, 2014; Malone, 2013; Popham, 2009). This is particularly the case in Myanmar, where this study takes place, as teachers do not use peer tutoring or self-assessment, their feedback practices are very teacher centre, and they do not seem to know how to build pupils' answers into subsequent questions (Hardman, Stoff, Aung, & Elliott, 2016). In terms of teacher preparation, internationally, pre-service teachers (PSTs) are not thought to be well prepared to use appropriate AfL strategies to support pupil learning (Siegel & Wissehr, 2011; Volante & Fazio, 2007). Moreover, PSTs do not seem to have enough theoretical knowledge and practical knowledge, they lack the necessary assessment components in pre-service teacher education (James & Pedder, 2006; Siegel & Wissehr, 2011; Stiggins, 1999; Xu & Brown, 2016), and little attention is given to PSTs' authentic assessment practices in school classroom. PSTs need opportunities to integrate theory and practice to improve their assessment practices (Davison, 2015). To address these gaps, this study investigates in what ways can PSTs education help develop AfL literacy among PSTs. Specifically, this study explores the impact of a professional development (PD) program on improving PSTs AfL literacy, and what helps them improve their AfL literacy in practicum. Using a design-based research approach, a needs-based PD program for PSTs AfL literacy was developed. A total of 335 PSTs, involving 30 PSTs in the intervention group and 305 PSTs in the cohort group, were asked to self-assess their AfL literacy before and after the program through a survey (Loc, 2016). Findings revealed that there was an intervention effect (PD program) on their overall PSTs AfL literacy.

Further analyses of semi-structured individual interviews with the intervention group (30 PSTs) before and after their practicum and the data collected during their practicum, including their lesson plans, observation checklists, and audiotapes, were carried out to explore how PSTs were able to use AfL literacy in practicum. The influences on their practicum, supervising teachers, pupils, physical context, and PSTs' personal effort, affected their assessment practices. The findings of the current study suggest that no matter how well-prepared PSTs are with a professional development program, there are still problems at the level of the local context. Therefore, to develop PSTs' AfL literacy, it is necessary to work on developing assessment professional knowledge and skills of supervising teachers and students, making changes to the classroom context, and supporting PSTs with the professional development program. Implications of the results for theory, PSTs education including assessment practices and policy in changing assessment cultures will be discussed.

# ***Everybody in! Drama as a pedagogy for inclusion***

**Olivia Karaolis  
University of Sydney**

## **Abstract**

Famous educationalist Friedrich Froebel described kindergarten as a 'garden for children'. His vision was a both a place for children to meet with the natural environment and one in which they could play together and express themselves in a smaller garden world through play. He believed that "children are like tiny flowers; they are varied and need care, but each is beautiful alone and glorious when seen in the community of peers."

This research looks at the children on the outside of this community. It is for these children this study is for, to have their experience realised and to belong.

The study seeks to examine the potential of drama and puppetry in creating a meaningful and useful pedagogy for inclusion in early childhood settings. It focuses specifically on whether drama processes can foster the authentic participation, of children with additional needs, aged between 0-5 at risk for exclusion. Preliminary findings indicate that this approach can reduce the potential barriers to inclusion, bring about change in attitudes and knowledge of early childhood educators and build a garden for all children.

# ***Beliefs about bilingualism, family literacy practices and identity: Family language policies of Korean immigrant parents in Australia***

**Eun Kyong Park**  
**University of New South Wales**

## **Abstract**

This study draws on family language policy (FLP) research to explore the relationships between immigrant parents' beliefs about bilingualism, family literacy practices and their children's identity development in Sydney, Australia. In the study, I examine how parents' ideological beliefs, knowledge and experiences are related to their provision of family literacy practices and management of environment for their bilingual children. This is a follow-up study to my Master's thesis that presented Korean immigrant mothers' beliefs and decision making with regards to supporting their children's bilingualism.

This project is to include fathers' perspectives within the participating families as a whole by comparing and contrasting perceptions of identity development alongside bilingualism. It adopts a qualitative approach, exploring the attitudes, beliefs and practices of twelve immigrant mothers and fathers living in a Korean-Australian community whose child/children attends one of the community Korean language programs. It includes auto-ethnographic data, by adapting introspective and self- evocative research method (Ellis, 2004) and taking my own reflexivity into consideration.

As the initial data set was collected from the first part of this study, I built on the data including a family literacy log and focus group interviews with mothers. Additionally, new data is to be collected over a three month period: 1) a focus group interview with mothers; 2) a brief self-report of fathers; 3) my researcher's reflective diary. To analyse these multiple data sources, a thematic analysis and coding will be used to reveal the ideologies surrounding bilingualism and the bilingual identities of the participating Korean immigrant parents. It will highlight the complexity of language and literacy practices in the family domain interrelated with sociocultural factors. This project makes an original and significant contribution to the field of FLP and a major methodological contribution by introducing auto-ethnographic input of this community's lived experiences and practices. It will enable educators and policy makers to access authentic information about how bilingualism is practised within Korean-Australian immigrant families in multiple ways and to help inform the creation of culturally appropriate partnership between home and school-community.

# ***Connecting mathematics with science to enhance students' aspirations and achievement: Implications for classroom practice***

**Jake Little  
University of Sydney**

## **Abstract**

Traditionally in secondary school, mathematics is taught as an isolated discipline that can have little connection to students' lives. It is common for students to find mathematics abstract and irrelevant, frequently questioning its' usefulness and purpose. Previous research highlights that throughout secondary school students' aspirations for mathematics decline and disengagement increases. These are potential reasons for the low number of students studying advanced mathematics courses in the senior years. In recent years, focus in research and schools has focused on STEM (Science, Technology, Engineering, Mathematics) education with concerns about the impact of declining student enrolments in these fields on national innovation and productivity.

Research studies and government reports are encouraging schools to modify approaches to teaching and learning STEM subjects, specifically by connecting the disciplines in schools to resemble how they are used in the 'real world'. Given the overlap in content, knowledge and skills, it has been recommended that secondary mathematics teachers link their content through science as a context. By making connections through applications, it is anticipated that secondary school students will engage more in class that may result in improved mathematics achievement. Previous research has been focused on work in primary schools, has studied short experiences and fail to detail changes in student achievement, especially mathematics. This makes it difficult for secondary classroom teachers to learn from and model current reforms off previous findings. To address a significant research gap, this current longitudinal project is based in one secondary school in Western Sydney. In 2019, students have the same teacher for both mathematics and science. In each term, for 3-4 weeks, students conduct project-based interdisciplinary units of work that connect content and skills from mathematics and science.

Students work in small groups to create and present innovative work that they have learnt throughout the project. The teacher's role is to connect concepts between both disciplines, to showcase how mathematics can be useful and to encourage creativity and collaboration. Whilst the researchers primary focus is on collecting data through student and teacher questionnaires, interviews, observations and achievement tests, he is working alongside the teachers to assist them to make connections in the classroom and to provide suggestions for improvement. This presentation will examine preliminary findings from the connected learning experiences and consider what they mean for the future of mathematics teaching and learning in secondary classrooms.

# ***A Systems Thinking Approach to the HSC Chemistry Depth Study - Preparing Better Chemists and Better Global Citizens***

**Andrew Eaton  
Wollondilly Anglican College**

## **Abstract**

This thesis is the culmination of a 6-year longitudinal study into the impact of 1:1 laptops on the experiences and achievements of high school science teachers and students. Set in the context of 16 Sydney high schools during the Australian Digital Education Revolution, this thesis explores the practices of teachers and students with 1:1 laptops in the sciences, the impact of the 1:1 laptops on student attainment in standardised external examinations, and ultimately investigates the reasons behind the findings. As a thesis-by-publication, this thesis contains five papers, all published in peer-reviewed journals. The first paper explores teachers' and students' perceptions of laptop use in grade 10 science. A variable, the Misalignment Index, is developed and calculated to help differentiate the alignments of perceptions between teachers and their students. Bubble graphs are also created as visual representations to help identify relative misalignment. The second paper utilises Bloom's Digital Taxonomy as a theoretical framework to label various laptop activities as higher- or lower-order. Using questionnaire data, the self-reported practices with 1:1 laptops of teachers and students are presented, compared and contrasted in terms of higher- and lower-order activities. The third paper is the pinnacle of this thesis. Responding to the paucity of quantitative research into the impact of 1:1 laptops (and other technologies) on student attainment in standardised external examinations, multiple regression analyses are performed to determine if using 1:1 laptops is a predictor of academic attainment. Within the context of this study, I found that using 1:1 laptops has statistically significant positive correlations with attainment in biology, chemistry and physics, with small effect sizes in biology and chemistry and a medium effect size in physics. This paper was very well received by the national media; featuring in national newspaper articles, The Conversation and radio interviews. Building on the substantial findings of the third paper, the fourth paper seeks to explain the different effect sizes for biology and physics. Using TPACK as a conceptual framework, along with analyses of teacher and student exit questionnaires in terms of higher- and lower-order uses, thematic analyses of teacher and student comments, and an analysis of the respective curriculum documents, physics teachers and students are found to engage in more higher-order activities, such as simulations and spreadsheets, than those in biology. This disparity is found to be reflected in the curriculum documents. Explosion charts are created and utilised as visual representations to assist with the analysis. The fifth paper is a longitudinal case study of four science teachers; one for each of biology, chemistry, physics and senior science.

This paper records the evolving experiences and skills of the teachers and their students with using 1:1 laptops in the study of their respective science subjects. Common themes are identified and differences in practices over time are compared and contrasted. Ultimately, this thesis provides a detailed, mixed methods commentary of the experiences of schools, teachers and students over the five years of the much-maligned Digital Education Revolution, something that is missing in the national public domain.

# ***Motivation in the Classroom: The Associations Between Teachers' Underlying Growth Orientation and Classroom Mathematics Outcomes***

**Keiko Bostwick**  
**University of New South Wales**

## **Abstract**

Research in teachers' motivation tends to be limited to how teachers' motivation is associated with their pedagogical practices in the classroom. More precisely, evidence suggests that teachers with certain motivational beliefs tend to demonstrate more adaptive instructional styles in the classroom. In turn, it is believed that these pedagogical practices promote more positive academic outcomes for their students. However, the current research in this space is limited and more work is needed to better understand how teachers' motivation is directly associated with students' academic outcomes. In particular, less research has looked at the direct links between teachers' motivation and their classroom outcomes or how the interaction between classroom and teacher motivation is implicated in classroom outcomes. It is possible, for example, that teachers' motivation has different effects on classroom outcomes depending on the level of motivation of their students. Teachers' motivation may act as a catalyst for classrooms already high in motivation, enabling even greater academic outcomes for students. It is also possible that teachers' motivation may have attenuating effects, thereby limiting the positive benefits of students' motivation. Investigating these direct and moderating effects is important, as it examines additional avenues to promote students' academic outcomes via teachers and provides more detailed information on how teachers' motivation works in different classroom contexts. Thus, the present investigation aims to address such research questions by examining the direct associations and moderating effects of one motivational variable, teachers' underlying growth orientation, on their students' mathematics outcomes. An underlying growth orientation is an emerging motivational variable in the educational psychology literature that is focused on students' broader orientations towards academic growth. This construct captures the overlap among multiple academic growth constructs, including growth mindset and two types of growth goals. Previously, researchers have shown that students' underlying growth orientation is positively associated with students' academic outcomes, including gains in such outcomes over time. However, as noted above, it is also important to determine if teachers' underlying growth orientation is implicated in students' classroom outcomes. Using data from 91 mathematics teachers in 91 classrooms with over 1400 students, the current investigation will focus on the associations between student-, classroom-, and teacher growth orientation on students' engagement and achievement in mathematics. In addition, teachers' growth orientation is also examined as a moderator for the association between classroom growth orientation and classroom outcomes.

Using multilevel path analysis, the findings demonstrate that above and beyond student-level effects, teachers' growth orientation may have some positive and some negative associations with classroom mathematics outcomes. More precisely, findings show that in classrooms where growth orientation is low, teachers' growth orientation is positively associated with classroom engagement. However, in classrooms where growth orientation is high, teacher growth orientation may have an attenuating effect. Taken together, such findings hold implications for teachers' classroom practices and educational interventions targeting growth. Furthermore, such findings highlight the need for additional research in to the direct and moderating effects of teachers' motivation on classroom outcomes.

# ***Engaging girls in STEM: Program design, implementation and evaluation***

**Sophie Poisel  
University of New South Wales**

## **Abstract**

Research into the limited number of women in STEM professionals has been connected to a “leaky pipeline”, with evidence in low self-efficacy from the early age of Year 4 students (Chief Scientist Report). A number of programs are available to High School female students, but less programs have been developed to address this problem from Primary School. This study seeks to contribute to the research in developing and implementing programs for Primary School aged students and evaluating the impact on the students’ interest in STEM.



# JUDGES' CRITERIA FOR GUILD RESEARCH AWARDS

All nominees will present a **max 15-minute presentation** (*not including questions*). The judges score and rank the candidates according to: (1) Content and Scientific Quality, (2) Clarity and (3) Presentation Skills. The judges combine their results to determine the winner. *Decisions by the panel are final.*

- Content and scientific quality are important criteria. The presentation must be interesting, and the material should be seen to be significant within the field of research. Context is important for establishing what the state of current research in the field is and how the described research contributes to and extends current knowledge. The candidate must balance the competing demands of providing a clear explanation to the non-specialist and illustrating the techniques and methods to allow a meaningful assessment of the presenter's own understanding and contributions to the research. The context can be further clarified during the question-and-answer session

**1 = Strongly Disagree**  
**3 = Neither Disagree nor Agree**  
**5 = Strongly Agree**

<b>A. Content and Scientific Quality Matrix</b>	<b>Total _____/20</b>				
(i) Interesting	1	2	3	4	5
(ii) Significant	1	2	3	4	5
(iii) Addresses Research Gap/Need	1	2	3	4	5
(iv) Contributes and Extends Knowledge	1	2	3	4	5

- Clarity is a skill which is required to communicate a subject requiring years of study into a multimedia presentation. The judges are looking for the presenter's ability to communicate the essence of the research without becoming excessively encumbered with detail. A proper introduction, good exposition and meaningful conclusions are important factors in providing a clear presentation.

<b>B. Clarity Matrix</b>	<b>Total _____/20</b>				
(v) Communicates Essence	1	2	3	4	5
(vi) Good Introduction	1	2	3	4	5
(vii) Good Exposition and Explanations	1	2	3	4	5
(viii) Meaningful Conclusion	1	2	3	4	5

- Presentation skills include the best use of audio-visual aids, speaking ability, eye contact, efficient use of time, projecting a professional and confident attitude, preparedness and response to questions.

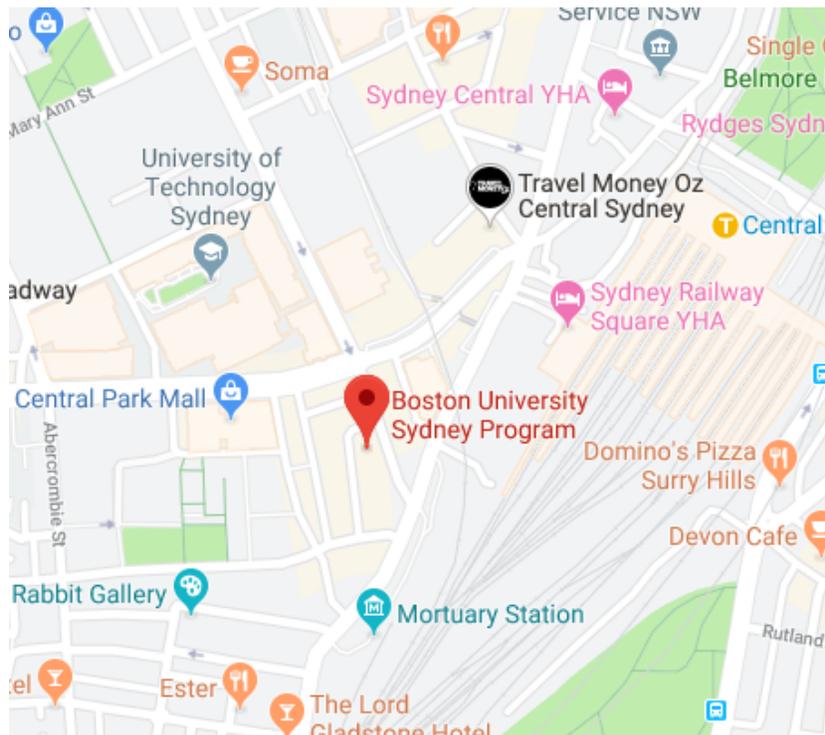
<b>C. Presentation Skills Matrix</b>	<b>Total _____/20</b>				
(ix) Preparation and Use of Time	1	2	3	4	5
(x) Use of Audio-Visual	1	2	3	4	5
(xi) Professional and Confident	1	2	3	4	5
(xii) Response to Questions	1	2	3	4	5

**These factors and others contribute to the overall impression of the candidate's performance. A good talk is more than the sum of good performance in each component. The best talk is well-presented, well-practised, clear, conveys significance and impact, and is stimulating and memorable.**



## Parking and Venue Information:

The event will be held at **Boston University Sydney campus, 15-25 Regent Street, Chippendale**



## Travel and Parking:

### Public transport to Central Station

**Parking:** Broadway shopping centre, Bay Street, Ultimo  
UTS car park, Thomas Street, Ultimo (Fridays 6:30am-10:00pm)

## Photographs taken at Guild events

Photographs taken at Guild events may be published on our website, Facebook page or elsewhere. **Patrons who do not wish to have their photograph published are required to indicate this clearly to a Guild Council member, ensuring that their name is clearly understood and noted.**

**Teachers' Guild of New South Wales**

*Established 1892*

*Doceo ut discam: I teach, that I may learn*