School of Education
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Informing Education: Research for Learners and Communities

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Abstracts

Presenters in Alphabetical Order

Effat Alvi   **Examining the Role of Teachers in Scaffolding Independent Learning in Year 4 Children**

It is critically important to develop independence in learners from the early ages. Independence helps children to achieve academic success and develop as productive members of the society. However, being independent requires a repertoire of skills, and students can be helped to become successful independent learners with adequate training in these skills. This fact highlights the central role of teacher in this process. This study intends to examine the role of teachers in scaffolding independent learning in young children. This study will also look into the difficulties encountered by teachers as they develop independence in their students. An exploratory qualitative research approach will be adopted by using an observational case study method. Two cases of year 4 primary school teachers known for their autonomous teaching beliefs will be selected. These 'reputational cases' will be drawn through a purposive sampling technique. Data will be triangulated by semi-structured interviews, participant-observations, and document analysis. This study will help to provide insight into how teachers develop independence in their students.

Julie M. Bower   **Unlocking the Strengths of Youth At-Risk: The Construction and Preliminary Validation of the CAT-RPM**

Present behaviour management practices in Queensland state schools focus on antisocial behaviour by highlighting the young person's failure to fit with school systems and policies, without consideration of individual contexts and behavioural precursors. This research is twofold. First, the Contextualised Assessment Tool for Risk and Protection Management (CAT-RPM) is constructed from items identified in an earlier study as significant indicators of risk and protection across six domains (self, family, school, peers and leisure, community, and significant life events), emphasising the young person's strongest domain. Second, a Pilot Study is conducted with 30 young people aged between 12 and 18. A pencil and paper survey consisting of 99 items is used to measure levels of risk and protection across the 6 life domains. The young people are asked to indicate on a sliding scale, to what extent each of the statements represented how they perceive themselves. Scores are entered into a database. Item Affectivity and Item Discrimination tests are conducted to determine which items would be included in a final online tool. All items that function at <0.2 or >0.8 would be considered not affective and therefore disregarded. A Panel of Experts is asked to assist in weighting items to maintain consistency.   The outcome of these studies will be the creation of an online instrument with sound psychometric properties that will measure risk and protective factors across domains while taking into consideration the poor literacy and engagement levels of many young people at risk.

Eng Fung Chan   **Connecting Teaching and Learning of Science in Middle Schools Using the Teaching for Understanding Framework**

Teaching for understanding is not a new idea but helping students to acquire understanding is difficult. Teachers often find that students understand much less than teachers hoped and students, in turn, often do not see the connections between what they learn in school and what they do outside of school. Disaffection in science learning shown by mounting evidence in the decline of interest of young people in pursuing scientific careers has made this matter an issue of considerable societal concern and debate. This research studies the meaning of learning for understanding in science in the context of Middle school students. It seeks to investigate if connections between teaching and learning for understanding can be made using the Teaching for Understanding (TfU) framework (Wiske, 1998) developed by Harvard University's Teaching for Understanding project. Through a mixed method design study, the proposed research hopes to throw some light on understanding how students learn for understanding during a unit of science in which the TfU framework has been embedded.

Kim Davies   **B/Othered by others: How "Aspies" construct "NT's" at Wrongplanet.com**

A lot of research has investigated how "Others" are a necessary corollary of the problematic binaries that lay at the heart of dominant ideologies like racism, sexism, and ableism. What is less frequently reported however, is how this process of 'othering' can be reversed to shore up previously marginal identities, rendering them powerful and desirable. This paper reports on the work that young (?) people identified with Asperger Syndrome ("Aspies") perform online to valorize Asperger Syndrome and marginalize 'normality' or so-called neurotypicality ("NT's"). A series of posts from Wrongplanet.com will be analysed through a Bahktinian discursive frame to interrogate how cyberspace seems to provide an otherwise unavailable space for "Aspie" posters to perform Asperger Syndrome in such ways that, in contrast to neurotypicality it becomes the preferred identity.

Kalani Eggington   **An Investigation of Teacher-Scientist Collaborations**

This presentation describes a study that seeks to investigate the interactions and effects of teacher-scientist collaborations in a biotechnological context. These unique and valuable communities of learners help to promote current science education reform efforts. Such efforts aim to make science instruction, including the teaching of biotechnology, more attuned to student and societal needs and aspirations. Participating in teacher-scientist collaborations offers teachers the opportunity to enhance their scientific content knowledge. Limited research has been conducted concerning the effects teacher-scientist collaborations have on scientists. A lack of literature also highlights the need to further explore the professional interactions that occur between teachers and scientists during times of collaboration. To address these issues, the presented study will use a qualitative multiple case study approach to thoroughly investigate three teacher-scientist collaborations. Data will be collected through semi-structured interviews, observations and surveys. The findings of the study will help to explore theoretical assumptions that an increase in teachers' content knowledge improves pedagogical content knowledge and self-efficacy. Findings will also draw attention to the effects of collaborations on scientists and identify aspects needed to

enhance teacher-scientist collaborations so that they may serve as strong and successful communities of learners.

Susanne Garvis   **Examining Personal Experiences on Pre-service Teachers' Engagement with Arts Education**

Many beginning generalist teachers are responsible for the delivery of integrated arts education as part of their curriculum. This responsibility is dependent on their own beliefs about their competence, school context, pressures of the curriculum and benefits of the arts for students. These beliefs operate as a key factor in a generative system of human competence (Bandura, 1997), leading to the assumption that they are powerful influences on the overall teachers' effectiveness with students. Little is known about the impact of personal experiences on pre-service teacher beliefs and confidence levels for arts education. Greater recognition of confirming and disconfirming experiences that shape teacher engagement with the arts is necessary. This paper provides insights into a research project that attempts to contribute towards filling this void, in order to improve teacher effectiveness within the arts domain in the middle years. It is part of a bigger study exploring beliefs of beginning generalist teachers. This study explores the life stages of 15 generalist pre-service teachers undertaking a graduate diploma in education. Each participant's life stage isanalysed before being compared to their level's of teacher self-efficacy for arts education. Results indicate that negative arts experiences at school and little engagement with the arts during each life stage inform teachers' beliefs for their future teaching practice. The study reveals important information that informs teacher training and induction programmes to foster positive experiences for pre-service teachers to rely on within the arts domain in the middle years.

Christina Gowlett   **Situating Queensland's Assessment Culture Within International Assessment Reform Literature**

"In terms of student assessment, Queensland has moved from excellence to lunacy, from penthouse to cellar" (Riddle, 2006, p.3)   The idea of a national curriculum being established in Australia has refuelled debate about the best type of educational system in operation within the States and Territories. Within the media, Queensland's education system has been the subject of criticism, constructed as ideologically charged and lacking assessment rigour. This presentation aims to discuss Queensland's education system in regards to assessment culture and position it within the field of international assessment reform literature. More importantly, it serves to highlight the benefits of Queensland's assessment infrastructure and refute claims that Queensland's assessment culture is backward and lacking professionalism.

Harry Kanasa   **Changes in the Scientific Literacy of Middle Years Students, in Relation to Biotechnology, after Completing an Inquiry-Based Unit**

Past attempts to raise the scientific literacy of middle years students have met with varying degrees of success. These have traditionally focussed on only presenting the public with 'facts' on topical issues. The present study not only focuseson middle years students (12-15 year olds) but also equipsthem with the skills to be able to evaluate and analyse media debates on genetically modified crops to come to a personal stance on the question, 'Should Australia grow genetically modified (GM) crops?'. The concept of interest therefore is the

scientific literacy of these students. For the purposes of this research, scientific literacy has been reconceptualised to consist of Attitudinal, Behavioural and Cognitive domains and is described as the AB&C model of scientific literacy. The study proposes that an inquiry-based unit that focuses on both the science and the societal implications of GM crops would positively influence students' scientific literacy as defined by the AB&C model. This seminar will position the current study within the existing literature around student attitudes to biotechnology and discuss the consequent design of the instruments utilised in the study. Not only do students know more, but their attitudes become more polarised as a result of participation within this unit. Using this novel approach, this study shows that it is possible, at least within a schooling context, to change public attitudes towards topical science issues.

Sarah Loch   Thinking Ahead: Future Planning in the Middle Years

Previous research by the author examined ways that career education could be incorporated into the middle years of schooling and found that younger students could benefit from careers and futures learning. This inquiry stems from students' common requests to swap elective subjects and from issues that arise within the school context regarding whether to follow policy and decline such requests or to advocate for students. This change is important for future learning and career paths. The study focuses on what students say about their futures and how they align their past and current learning experiences with those they hope for or anticipate in the years ahead. Insights gained from that work compel the author to consider a program of broad career education for the middle year students at the study school. This program is now the focus of continuing research. This presentation will share reflective insights into research which is embedded within phases of reform in a school. It will highlight findings from the aforementioned research and discuss emerging issues from literature relevant to a broader direction. The focus of enquiry has shifted to examine how young adolescents make educational decisions about the subjects they will study and the pathways they will follow in the future. Of interest is what happens when schools present 'subject choices' and how students will manage their limitations relating to knowledge and language about future directions. The potential of discourse analysis in understanding how middle year learners construct, engage in or avoid 'discourses of the future' will be discussed with reference to data from student participants.

Lisa Lynn   Self-regulation in Extremely Low Birth Weight/very Preterm 2 and 4 Year Olds: A Comparison Study

Recent advances in maternal and neonatal interventions have dramatically improved survival rates for the most vulnerable premature infants. Children born at extremely low birth weight (ELBW; <1000g) or very preterm (< 28 weeks gestation) often exhibit a range of executive functioning deficits that contribute to later learning difficulties. These interactions of deficits may also be described as difficulties with self-regulated functioning. Self-regulation has been identified as the critical ability to integrate executive functions, and provides an over-arching construct to guide later intervention. This study is based on the definition of self-regulation described by Berger, Kofman, Livneh, and Henik (2007) as "the ability to monitor and modulate cognition, emotion, and behaviour, to accomplish one's goals and/or to adapt to the cognitive and social demands of specific situations" (p. 257). Two hundred children will participate, comprising equal numbers aged two and four years of ELBW/very preterm children and comparison children. Measures of planning and organization, inhibition, and delay of gratification will be supplemented by assessments of cognitive and language abilities, temperament, behavioural and attentional problems; and

parental expectations, support for autonomy, parenting style and parenting stress. It is expected that ELBW/very preterm children will perform less well on all measures of self-regulation.

Michelle Mukherjee   **Technology Teaching Tools in Science Classrooms – What's Used and What Makes it Usable?**

This paper reports on a study into the technologies currently used in science classrooms, and in particular, issues associated with their usability. A Technology Teaching Tool (TTT) is defined in this study as any instrument which enhances the teaching of classroom science, but it is not the central teaching subject and its use is optional (e.g. digital microscopes, GIS, dataloggers). Technology can "engage students in ways not previously possible" (MCEETYA, 2005) and teachers are encouraged to adopt pedagogies which embrace their use (Farry, 2003). There is a bewildering choice of TTTs available to teachers and schools, but there is little guidance on what could prove productive in the classroom. A key factor which could adversely affect the uptake and continued use of technology is its usability – effective use of technology in a classroom is hindered by poor design and unintuitive user interfaces which make it difficult to learn and remember (Molich & Nielsen, 1990). This paper considers: what TTTs are in everyday use? It discusses the results from a survey of approximately sixty Queensland science teachers.

Mary Rafter   **Building a Picture of Teacher Practice Promoting Student Investigation in the Classroom**

How can teachers respond to major pedagogical change? As a result of both international and national advances in science education, experimental investigations are becoming a feature of most curricula. In Queensland the new Senior Chemistry syllabus mandates Extended Experimental Investigations as an assessment task. These tasks require teachers to adopt unfamiliar pedagogies that lead them to question their role in what is by definition a student-centred activity. This paper will describe the process of developing a framework for analysing interview and observational data from teachers immersed in these tasks. Even expert teachers appear to be unable to describe in detail how they bring about successful learning in this seemingly unchartered territory. Observations of these teachers during a sequence of "investigation oriented" lessons are somewhat more revealing. This study has developed a method of analysing the pedagogical content knowledge teacher's display during interaction with students involved in inquiry learning. Mining transcriptions for the "classroom teacher talk" provides an insight into good inquiry teaching. The analysis involves categorising teacher judgments with respect to content knowledge, pedagogy, knowledge of students and knowledge of curriculum. Evidence from a pilot study shows that there is significant overlap among these aspects of teacher-student interaction but that there are attributes that can be usefully identified. Capturing this data and developing a framework/model of teacher practice is generating a "picture" of what an inquiry classroom looks like. This will lead to the development of professional learning opportunities for teachers faced with inquiry learning in a high stakes situation as required in an Extended Experimental Investigation.

Rosie Scholl   **Philosophical Communities of Inquiry: Transforming Teaching and Learning**

Current ideas and ideals about student-centred, inquiry-based learning respond to an improved understanding of learning as dialogical: employing thought and language (Bruner, 1966; Burgh, Field & Freakley 2006, Cam, 1995; Dewey, 1933; Lipman, 2003; Rogoff, 1990; Vygotsky, 1978; Wood, Bruner & Ross, 1976). This can be achieved when teachers train in and work with students to develop philosophical communities of inquiry in their classrooms (Lipman, Sharp, & Oscanyan, 1980). A brief overview of the standard processes involved in Philosophy and a short summary of research to date regarding the effect of philosophical inquiry on teaching and learning will be provided. The qualitative methodology of this retrospective interview study is described along with the results, in terms of themes and ideas of the teachers conveyed in the interviews. This study indicates that transformation of teaching and learning may be a synergistic process necessitating the interaction of students and teachers working together in supportive, democratic, egalitarian environments. In order to effect pedagogical transformation, future preservice courses, professional development and research needs to consider the sorts of pedagogies or classroom practices that can incorporate this type of approach.

Marg Sellers   **Plateaus~Becoming-Children~Rhizomatic Methodology**

Research(ing) rhizomatically and becoming-children both work with(in) playful plateaus; becoming-children who work~play with/in uninterrupted, unhurried plateaus of time and space are like rhizomes. Becoming-children perform rhizomatically as they flow freely through the spaces of the setting, through the time of programme and with/in social interactions. As they flow through play areas and through their games, they follow lines of flight, exploring folds and surfaces – physical and imaginative – happened upon, slipping in and out of discursive spaces. Rhizomatic methodology works similarly, like 'a flow of children; a flow of walking with pauses, straggling and forward rushes… a collective assemblage…one inside the other…plugged into an immense outside that is a multiplicity' (Deleuze & Guattari, 1987, p. 23). Sifting through the writing of a rhizomatic assemblage, the thesis of this research, reveals plateaus, a collection that links in different ways to itself and to the outside. Instead of sections and chapters there are a multiplicity of plateaus, some inside the others. These plateaus (within plateaus) can be read in any order, as the outside~reader follows lines of flight through engaging with(in) the text. It is these methodological plateaus that will be discussed.

Emilia Sinton   **An Exploration into the Vocabulary Presented in Mathematical Word Problems**

The unique language of mathematics incorporates words, numbers, symbols and diagrams. These elements and their associated mathematical concepts introduce reading and comprehension requirements that are not experienced in other disciplines. It is the responsibility of teachers to ensure that students are educated about, and encouraged to apply mathematical language in a variety of contexts. This is essential to the development of mathematical problem solving, where word problems often feature in classroom instruction and assessment, and where mathematical language is expected within student responses. Mathematics teachers need to be mindful that the validity of test items used to assess student mathematical problem solving ability are not influenced by other variables such as vocabulary comprehension difficulty.   This study discusses the vocabulary which Year 9

students identify as difficult when undertaking word problem tasks in pen and paper test situations. To challenge generalised assumptions that teachers may make, this study focuses on development of an instrument to monitor and evaluate the vocabulary comprehension of individual students within the classroom, and with respect to their particular school context. Analyses of findings support the requirement of reading proficiency in mathematics, and in particular, of vocabulary comprehension to student performance on mathematical problem solving assessment comprised of word problems.

Neville Donald Smith   **Utilising Teacher Narrative Research in Analysing Middle School Trained Beginner Teacher Professional Identity**

This paper explores middle school trained beginner teachers' ideological and pedagogical beliefs, during the shaping of a professional identity within their induction year. Narrative studies are elicited from four beginner middle school trained teachers, namely, two female and two male, in their mid twenties who are employed in three different school institutions. In addressing these concepts a key focus will be on the beneficial or detrimental effects that a middle school study program has on these beginner teachers within their induction year. In essence Narrative Research is utilised to analyse their stories and to inform the reader of the four teachers' experiences, perceptions and reflections of their teaching identity and practices within this transitional period. The aim of this study is threefold; firstly, to inform the reader of this difficult period encountered by beginner teachers, in particular, the notions of school culture and trainee-teacher adjustment, which is argued, contributes to rising teacher attrition rates. Secondly, to assist these participants in their own professional development through narrative reflection, which is argued, contributes to a decline in these attrition rates. Finally, to propose possible measures that a middle school training department might implement in future study programmes.

Dyah Sunggingwati   **Teachers' Perceptions Towards Their Ability in Questioning**

Teaching students to think critically in reading has always been part of effective English teaching. The challenge for teachers is how to develop students' critical skills in reading. This study intends to investigate teachers' perceptions about their abilities to teach questioning and to develop their skills in teaching questioning to their students. The study involves three English teachers at grade 11 in Indonesia. These teachers participate in 3 one-day workshops around teaching questioning strategies based on Bloom's taxonomy. Pre and post- interviews are conducted prior and after the workshops to investigate teachers' perceptions of the workshops. The teachers perceive that the training is beneficial for them because they can become more analytical about their own reading and more effectively relate their reading to their own contexts. This suggests that teachers and students can be taught different levels of questioning.

Mark Taylor   **The Effects of Cognitive Training, Conflict Resolution, and Exercise, on Young Adolescents' s Sense of Well-Being**

The World Health Organisation has predicted that by 2020, depression will be the largest cause of disease burden in the world (Ellen; 2002). This study investigates the effects of three interventions (Explanatory Style, Conflict Resolution, and Exercise) on the level of

well-being of 25 adolescents from the middle years of schooling. The 25 students are allocated into six groups that are then engaged in a counterbalanced design study. There is also a group of six students selected on the basis of their high levels of resilience who are members of a no intervention group. These students are used as a comparison group. The results show that students in the intervention group experience a significant reduction in internalising behaviours such as withdrawal and depression following all three interventions. They also develop a more optimistic thinking style following the explanatory style intervention. Analysis of parent data reveal that parents of the intervention group experience significant feelings of incompetence and guilt towards themselves as parents. Having good social skills and a strong support network of friends and family are protective factors against depressive symptoms.

Lorraine Thompson　　　　**Coaching: A Learning and Development Approach for Engaging Professionals**

The nursing profession is facing unprecedented challenges, on a global scale, in the recruitment and retention of staff. Factors which may be having a detrimental effect on staff retention in nursing include a lack of job satisfaction, stress and burnout. Although burnout has been investigated for many years in nursing, contemporary burnout research has been influenced by the positive psychology movement and is now turning its focus to the opposite of burnout - engagement. Engaged employees radiate a positive energy and enthusiasm for their work, have a passion for learning and growing, and are proactive in investing time and effort to stay updated professionally. Coaching is an activity which may foster engagement and is underpinned by adult learning theory, particularly reflective and transformational learning. This study aims to measure the effects of coaching on nurses' work engagement levels. The study is a pre and post design with an intervention group, a non contact control group and an attention control group. The coaching intervention is delivered over an eight week period with weekly telephone coaching sessions. It is anticipated that this coaching intervention will have a positive impact on the engagement levels of participants and reduce their burnout levels and intention to leave their current place of employment.

Briony Wainman　　　　**The Dilemma of Conducting Learning Disability Research in Queensland: The Arguments for Diagnosis and/or Identification**

This paper provides discussion arising from the difficulties experienced with an on-going research project into the relationship between loneliness and classroom participation in adolescents with learning disabilities. Research into learning disabilities in Queensland is frustrated by the disinclination of schools to identify students who experience learning disabilities, opting for the more general term learning difficulties. Several characteristics have been identified as being associated with the former group, particularly in terms of social skills, but differentiation between the two groups is not being effected in the name of inclusion. Irrespective of why the students are not identified, to develop a greater understanding of the experience of learning disability and to provide preventative strategies to diminish the impact of the learning disability, researchers need access to these individuals. One option, the 'Learning Disabilities Indicator Chart', is presented here as a tool for identifying candidates who may be deemed useful for participation in learning disability

research in the absence of a school-based diagnosis. The aim is not to offer an alternative to clinical testing and it is certainly not the researcher's intention to suggest less rigorous research methods for participant selection, on the contrary, research into learning disabilities cannot be said to be rigorous or trustworthy if the population under examination have not been identified as such. The aim is to provide researchers with a tool, informed by learning disability research, which will provide access to students of interest.

Ping Wang   **Professional Development through CoPs: A Case Study of EFL Teachers in China**

This study is an investigation of the implementation of a Community of Practice (CoP) model in a Chinese higher education institution. It aims to explore the processes of adoption of this model. Data are collected from multiple sources. These include a pre-PD questionnaire of 30 EFL teachers at the department of English of a Chinese university, pre-PD individual interviews of the four teachers who participate in the CoP, observations of a ten-week PD, post-PD interviews, and on-line blogging. The CoP modules aim to help teachers develop skills and techniques for organising group discussion activities which is anticipated to improve students' oral communication skills. Findings from the study will contribute to a better understanding of the implementation of the CoP transformative model and provide empirical evidence to inform the future design and expansion of the model to effectively meet the professional development needs of Chinese EFL teachers working at the tertiary level.

Zheng Zhu   **A Comparison Study of Students' Reasons for Taking Physics Between Two Australian High Schools and Two Chinese High Schools**

This mixed-methods research study aims to explore students' reasons for taking physics at senior high school level, and to compare the information between Australian and Chinese schools. 143 physics students in Year 11 or Year 12 level (62 Australians and 81 Chinese), from two Australian and two Chinese high schools, participated in this study. The information is collected through questionnaires and interviews. This study finds that for these students, supportive learning environments in students' earlier school years and families, are very important for their subject choices. The Chinese students generally hold very vague perceptions of the link of learning physics and their future careers. On average, the South Australian students have stronger career awareness than Chinese students. They also seem to enjoy learning physics more than Chinese students. However, both the Chinese and Australian students perceive that the career information and advice provided by the schools and science teachers, were generally deficient. The interviews indicate how physics enrolment decisions differed widely between individuals. Two main areas were found to need special attention from schools and educators: the physics curriculum and its teaching, and the importance of career education in secondary schools.