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# Queensland Numeracy Summit 2015 Initial Teacher Education Identifying proactive strategies to improve student outcomes

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# Queensland Numeracy Summit 2015

## Initial Teacher Education

Identifying proactive strategies to improve student outcomes

A large banner image with a red tint. On the right side, there is a profile of a woman with dark hair looking towards the left. On the left side, the word "Communiq  " is written in a large, white, serif font. The background of the banner is dark with some faint, illegible text or numbers.

July 2015

Communiq   Citation:

Finger, G., Pendergast, D., Dole, S., Loughlin, W., Huntly, H., Brown, R., Fishburn, D., & McMahon, P. (2015). Communiq  : Queensland Numeracy Summit 2015 Initial Teacher Education. *Queensland Numeracy Summit 2015*, 16th June 2015, Pullman Hotel, Brisbane, Australia.



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## Purpose of the Summit

The School of Education and Professional Studies, Griffith University, with the support of the Queensland Deans of Education and the Queensland College of Teachers (QCT), hosted the inaugural Queensland Numeracy Summit on 16th June 2015. This was strategically conducted to follow the QCT Forum conducted on the 15th June 2015. The QCT Forum focused on numeracy as their priority area for 2015, and key messages from that forum were able to be shared at the Summit. Details about the Summit are available at [Queensland Numeracy Summit 2015 website–http://www.griffith.edu.au/education/school-education-professional-studies/news-events/numeracy-summit-2015](http://www.griffith.edu.au/education/school-education-professional-studies/news-events/numeracy-summit-2015).

The Queensland Numeracy Summit 2015 brought together key stakeholders to explore the major challenges facing educators, government, and community, relating to numeracy learning and teaching, and Initial Teacher Education.

Specifically, the purpose of the Summit was to:

- identify and prioritise numeracy challenges and issues in Initial Teacher Education;
- co-construct a shared numeracy philosophy in Initial Teacher Education;
- co-construct a shared numeracy framework for Initial Teacher Education; and
- identify shared actions and strategies for numeracy learning and teaching in Initial Teacher Education.

## Participants

There was a very positive response to invitations to attend the Summit, with 235 participants attending the Summit, with representation from a wide range of education stakeholders.

**Table 1** Participants' organisations

Participants	%
School Teacher	33.30%
University	27.90%
Government	16.30%
University Student	10.90%
School Principal	4.80%
School Association	4.10%
Other	1.40%
Mathematics/Numeracy Association	1.40%

## Program

The program was designed to provide guest speakers, panels, group discussions and input, with interactive engagement by participants enabled through questions and answer sessions, group discussions, and use of technology which captured participant responses and input. The Queensland Numeracy Summit program is provided in Attachment A. The list of participants is provided in Attachment B.

## Priority Numeracy Issues and Challenges in Initial Teacher Education

To achieve the identification and prioritisation of numeracy issues and challenges in Initial Teacher Education, guest speakers presented their key messages about numeracy.

The following presentations individually and collectively highlighted definitions of numeracy, the contexts and importance of numeracy, the central and pivotal importance of numeracy in Initial Teacher Education, and perspectives on numeracy issues and challenges:

- *The importance of numeracy education for Queensland STEM industries*  
Lauren Stephenson (Director, Office of the Queensland Chief Scientist)
- *Global Megatrends and the Educational and Skills Requirements of Tomorrow's Digitally Enabled Knowledge Economy*  
Dr Stefan Hajkowicz (Principal Scientist in Strategic Foresight at CSIRO Brisbane)
- *Numeracy across the curriculum—A not-so-impossible dream?*  
Professor Merrilyn Goos (Head of School, School of Education, Faculty of Humanities & Social Science, The University of Queensland)
- *Overview of key outcomes from Queensland College of Teachers' Forum*  
Ms Deanne Commins (Executive Manager, Professional Standards, Queensland College of Teachers)
- *What is the evidence based numeracy research telling us?*  
Professor Tom Lowrie (President of MERGA, Centenary Professor, University of Canberra)
- *Identifying and Prioritising Issues: Group Activity*  
Facilitated by Mr Dean Gould (Director, Executive Marketing and Communications, Griffith University)

Participants were asked



What do you consider is the highest priority numeracy issue/challenge in Initial Teacher Education?



These were collated and participants were then asked to rank the priorities (see Table 2).

**Table 2 Highest priority numeracy learning and teaching issue/challenge**

Rank	Priority Numeracy Issues and Challenges	%
1	Understanding what numeracy is and enacting numerate practices	45.10%
2	Dispositions for numeracy, including student engagement and inspiration	23.20%
3	Numeracy is everybody's business	14.80%
4	The importance of schools and school systems to work in partnership with HEIs in progressing this numeracy agenda	9.20%
5	Principles of ITE program design include numeracy as a priority	5.60%
6	Public perception - including our great stories and inspiring learning and ensuring confidence	2.10%

## A Shared Initial Teacher Education Numeracy Framework and Philosophy

To develop a shared numeracy philosophy, a panel discussion was facilitated by Mr Dean Gould (Director, Executive Marketing and Communications, Griffith University) with the following panellists:

- Associate Professor Vincent Geiger  
(National School of Education, Faculty of Education & Arts, Australian Catholic University)
- Professor Shelley Dole  
(Head of School, School of Education, Faculty of Science Health, Education and Engineering, University of the Sunshine Coast)
- Associate Professor Peter Grootenboer  
(School of Education and Professional Studies, Griffith University)

The subsequent session was a panel discussion designed to provide stimulus for developing a shared framework for numeracy to support the shared philosophy in Initial Teacher Education. This session was also facilitated by Mr Dean Gould (Director, Executive Marketing and Communications, Griffith University) with the following panellists:

- Professor Tom Lowrie  
(President of MERGA, Centenary Professor, University of Canberra)
- Associate Professor Raymond Brown  
(School of Education and Professional Studies, Griffith University)
- Dr Stephen Norton  
(The School of Education and Professional Studies, Griffith University)
- Jeff Munce  
(Curriculum into the Classroom (C2C), Seconded Principal, Department of Education, Training and Employment)
- Dr Bronwyn Ewing  
(Senior Lecturer, Faculty of Education, School of Curriculum, QUT)



Importantly, Professor Merrilyn Goos proposed the following 21st century numeracy framework, shown in Figure 1, essential for developing a shared numeracy philosophy.

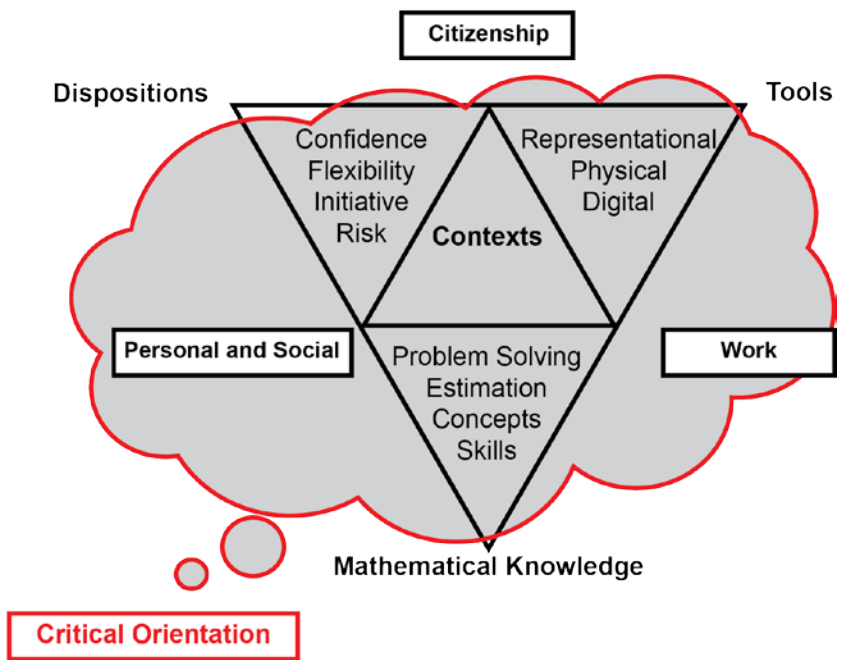


Figure 1 21st century numeracy framework

The following framework, that captures the work of Professor Merrilyn Goos as represented in the 21<sup>st</sup> Century Numeracy Framework and the work of the OECD (2012) report *Literacy, Numeracy and Problem Solving in Technology-Rich Environments: Framework for the OECD Survey Skills*, was used at the Summit to guide discussions about numeracy in Initial Teacher Education. As such, the framework was owned by the participants and could be used as a shared numeracy framework.

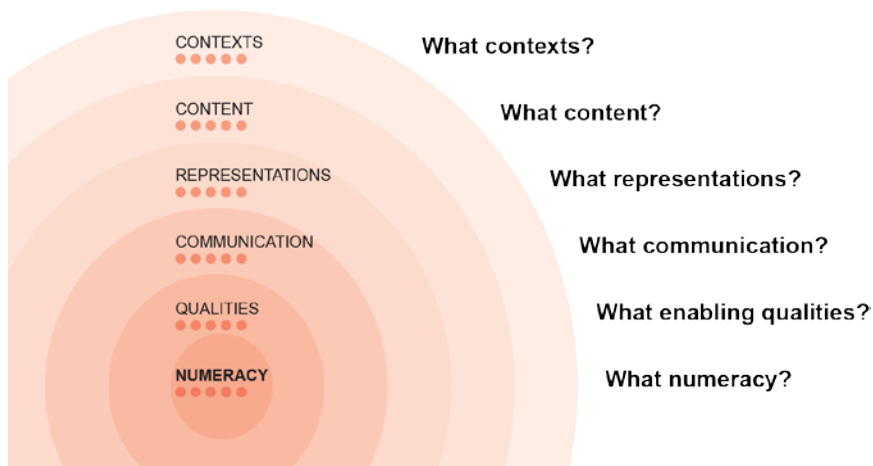


Figure 2 Co-constructing a shared numeracy learning and teaching philosophy

Participants' responses were sought in relation to Contexts, Content, Representations, Communication, and Enabling Qualities. These responses were synthesized, and then prioritised by the participants.

## What Contexts?

Responses	%
1 Real-life, meaningful, relevant contexts	71.20%
2 Prior learning and experiences and dispositions	11.40%
3 ITE students and teachers to identify numeracy moments	9.80%
4 Culturally appropriate contexts	4.50%
5 Purpose, product, profile	3.00%

## What Content?

Responses	%
1 Making connections	42.40%
2 Meaningful content	19.40%
3 Encourage and Maintain curiosity	17.30%
4 More than skills and procedures in isolation	14.40%
5 Employ the concrete and the abstract	6.50%

## What Representations?

Responses	%
1 Multiple forms of representations across curriculum areas	50.00%
2 Common language around representations, including mathematical concepts	31.00%
3 Modelling of good habits in all learning contexts	11.30%
4 Fit for purpose representations - e.g. Precise v. ambiguous	5.60%
5 Be inclusive of representations, including physical and digital	2.10%

## What Communication?

Responses	%
1 Ability to justify thinking - justification, think aloud	55.60%
2 Positive dispositions around engagement	18.30%
3 Common, Unambiguous language	14.80%
4 Purpose of numeracy	9.20%
5 Positive communication through the lifespan	2.10%

## What Enabling Qualities?

Responses	%
1 Growth mindset	33.30%
2 Experimentation and exploration	24.80%
3 Positive attitudes	19.10%
4 Resilience in; e.g. when faced with adversity, and difficulties	18.40%
5 Confidence	4.30%

Based upon the above data generated by participants at the numeracy summit, the following shared numeracy in Initial Teacher Education philosophy can be constructed.

**Numeracy in Initial Teacher Education is about using prior learning, experiences and dispositions to:**

**identify and manage** real-life problems in culturally relevant contexts for the purpose of

**producing a meaningful product** or to encourage and maintain curiosity by

**positively responding** through the use of explanation and justification to

**everyday situations** that involve mathematical content/ concepts/skills/procedures at both the concrete and abstract levels to

**make connections** that may be represented in multiple ways that model good habits, that are inclusive of the digital generation and that are fit for purpose across multiple curriculum areas.

This philosophy is founded on enabling factors that encourage experimentation and exploration, positive attitudes towards mathematics and that develop an individual's confidence and resilience.

## Shared Actions—Strategies

To progress from the shared numeracy philosophy and framework, strategies for Contexts, Content, Representations, Communication and Enabling Qualities were developed. These were stimulated by the previous sessions and by the following Case Studies, narrated by Dr Kevin Larkin (Lecturer, School of Education and Professional Studies, Griffith University and MERGA VP (Communications)).

- University-School Partnership: Benowa State High School Teacher Education Centre of Excellence—Mark Rickard, Benowa State High School, Principal, Kim Alden, Head of Mentoring, Benowa Teacher Education Centre of Excellence, Kristin Chapman and Dr Julien Gringnon, Graduates, Dr Harry Kanasa, The School of Education and Professional Studies, Griffith University
  - Constructing Mathematics in the Minds of Children—Bronwyn Reid O'Connor, The Aboriginal and Islander Independent Community School
  - Indigenous Numeracy Perspectives—Cherie Cefai, Head of Teaching and Learning at Tagai State College, Thursday Island
- Working Model of Numeracy across the Curriculum—Nigel Hughes, Principal, Southport State High School, Cara Avery, Head of Mathematics, Southport State High School

## Strategies for Contexts

	Responses	%
1	Designing real life contexts in lectures, tutorials and ITE learning experiences	46.90%
2	Challenge ITE students to find numeracy in learning areas	21.20%
3	Modelling pedagogy	20.40%
4	Draw upon the numeracy framework which situates context as central	7.10%
5	Lecturers and supervising teachers to know the contexts of their ITE students	4.40%

## Strategies for Content

	Responses	%
1	Make explicit linkages between content in learning areas/subjects	42.50%
2	Model effective teaching of numeracy	33.30%
3	Design an activity, implement it and appraise it	10.00%
4	Plan inquiry-based numeracy practices	7.50%
5	Use good frameworks of developing knowledge and understanding	6.70%

## Strategies for Representations

	Responses	%
1	ITE students to develop an appreciation that there can be more than one answer and more than one way of teaching numeracy (and Mathematics)	31.10%
2	Access and develop a repertoire of multiple representations	26.10%
3	Teach how to teach representations across all learning areas/subjects	23.50%
4	Representations that reflect contexts and content	16.80%
5	Initial test for ITE for representations	2.50%

## Strategies for Communication

	Responses	%
1	Shared understandings, language and effective communication - ITE students, educators, curriculum	52.50%
2	Discuss, share, communicate numeracy contexts, content and representations	22.00%
3	Feedback on teaching practices	13.60%
4	Dispositions - open to new ideas, critical reflection	7.60%
5	Multimodal approaches to communication	4.20%

## Strategies for Enabling Qualities

	Responses	%
1	Growth mindset - continued professional learning	44.90%
2	Confidence and positive disposition for numeracy	28.00%
3	Allow opportunities to 'fail', reflect, justify, learn	18.60%
4	Disposition for feedback - 'a feedback culture'	5.10%
5	Adaptive reasoning	3.40%

The following actions and strategies for numeracy learning and teaching in Initial Teacher Education were identified.

### **Contexts**

- To ensure that Initial Teacher Education student numeracy learning employs real life contexts which are meaningful to students, models pedagogies that reflect best practice and next practice, and challenges Initial Teacher Education students to find numeracy situations outside the Mathematics classroom and curriculum.

### **Content**

- To ensure that Initial Teacher Education student numeracy learning employs content that develops knowledge and understanding through making explicit linkages between content in subject disciplines other than Mathematics, that allows for the effective teaching of numeracy, and that uses inquiry-based practices that encourage students to design, implement and appraise numeracy focused activities.

### **Representations**

- To ensure that Initial Teacher Education student numeracy learning employs representations that develop an appreciation that there can be more than one answer to a numeracy situation and that there can be more than one way of teaching numeracy, that these are recognisable in discipline areas other than Mathematics, that reflect real-life contexts and meaningful content, and that are readily recognised and reproduced in a test situation.

### **Communication**

- To ensure that Initial Teacher Education student numeracy learning employs effective multi-modal approaches that encourage open discussion, critical feedback, shared understandings, and positive dispositions about numeracy contexts, content and representations.

### **Enabling qualities**

- To ensure that Initial Teacher Education student numeracy learning promotes continued professional learning, confidence and positive dispositions towards numeracy, opportunities for 'risk taking', reflection and discussion, adaptive reasoning and the development of a 'feedback culture'.

## The Next Phase—Commitment to Action

In terms of the above outcomes, the Numeracy Summit achieved its objectives by identifying and prioritising numeracy challenges and issues in Initial Teacher Education, co-constructing a shared numeracy philosophy in Initial Teacher Education, co-constructing a shared numeracy framework for Initial Teacher Education, and identifying these shared actions and strategies for numeracy learning and teaching in Initial Teacher Education.

Participants expressed a very strong commitment to action informed by these outcomes. There are important roles and actions needed by stakeholders to positively enact this commitment. The next phase will involve the Queensland Deans of Education in collaboration with the Queensland College of Teachers in developing an action plan which progresses this important numeracy improvement agenda. Those action plans will be inclusive of all stakeholders – including relevant Government, Higher Education Institutions, school systems, schools and their communities, teachers, Initial Teacher Education students - as a collaborative, collegial approach will be an underlying principle to achieve success.

The commitment for further action will align with relevant expectations outlined in:

- The Queensland College of Teachers focus on numeracy as a priority area in 2015;
- The Australian Institute for Teaching and School Leadership (AITSL) *Australian Professional Standards for Teachers – Graduate Level*;
- The Australian Curriculum, Assessment and Reporting Authority (ACARA) *Australian Curriculum*; and
- The TEMAG report *Action Now: Classroom Ready*, with specific reference to recommendations and findings related to numeracy; that is,

**RECOMMENDATION 13** Higher education providers use the national literacy and numeracy test to demonstrate that all pre service teachers are within the top 30 per cent of the population in personal literacy and numeracy.

**RECOMMENDATION 17** Higher education providers equip all primary and secondary pre-service teachers with a thorough understanding of the fundamentals of teaching literacy and numeracy.

### Findings

- Primary and secondary pre-service teachers should be adequately prepared to use a range of evidence-based strategies to meet student learning needs, particularly in literacy and numeracy.
- There is growing interest in requiring primary teachers to have a specialisation, particularly in science, mathematics or languages other than English.

## Further Actions

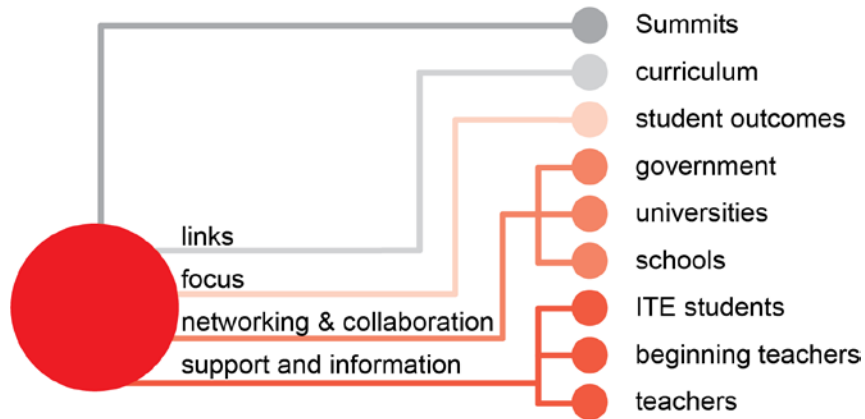


Figure 3 Further actions

## Summit Evaluation



Figure 4 Participants' comments on best thing about the Summit

# Queensland Numeracy Summit 2015

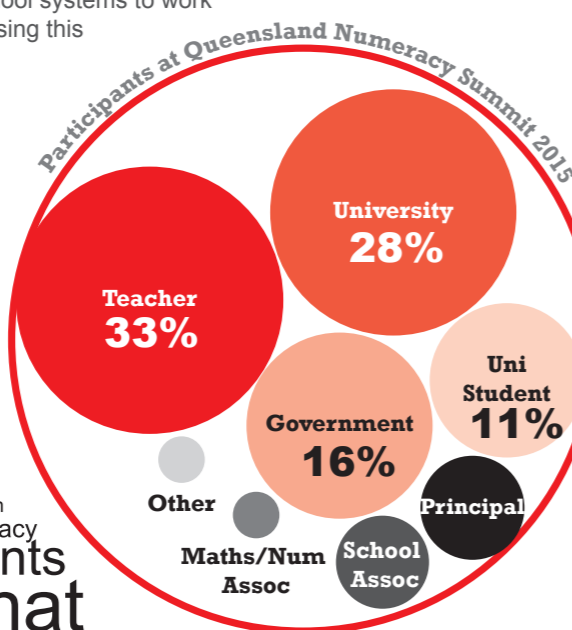
## Initial Teacher Education

Identifying proactive strategies to improve student outcomes

### Numeracy Priorities

What is the highest priority numeracy issue/challenge in ITE?

- 1 Understanding what numeracy is and enacting numerate practices
- 2 Dispositions for numeracy, including student engagement and inspiration
- 3 Numeracy is everybody's business
- 4 The importance of schools and school systems to work in partnership with HEIs in progressing this numeracy agenda
- 5 Principles of ITE program design include numeracy as a priority
- 6 Public perception - including our great stories and inspiring learning and ensuring confidence



### Co-constructing a shared numeracy philosophy in ITE

CONTEXTS
Real life, meaningful, relevant contexts
Prior learning, experiences, dispositions
ITE students and teachers to identify numeracy moments
Culturally appropriate contexts
Purpose, product, profile
CONTENT
Making connections
Meaningful content
Encourage and maintain curiosity
More than skills and procedures in isolation
Employ the concrete and the abstract
REPRESENTATIONS
Multiple forms of representations across curriculum areas
Common language in representations, inc. math concepts
Modelling of good habits in all learning contexts
Fit for purpose representations - e.g. Precise v. ambiguous
Be inclusive of representations, including physical and digital
COMMUNICATION
Ability to justify thinking - justification, think aloud
Positive dispositions around engagement
Common, unambiguous language
Purpose of numeracy
Positive communication through the lifespan
QUALITIES
Growth mindset...
Experimentation and exploration
Positive attitudes
Resilience in ... adversity, difficulties
Confidence

### Top 5 strategies for engaging ITE students with numeracy

CONTEXTS
Designing real life contexts in lectures, tutorials and ITE learning experiences
Challenge ITE students to find numeracy in learning areas
Modelling pedagogy
Draw upon the numeracy framework which situates context as central
Lecturers and supervising teachers to know the contexts of their ITE students
CONTENT
Make explicit linkages between content in learning areas/subjects
Model effective teaching of numeracy
Design an activity, implement it and appraise it
Plan inquiry-based numeracy practices
Use good frameworks of developing knowledge and understanding
REPRESENTATIONS
ITE students to develop an appreciation that there can be more than one answer and more than one way of teaching numeracy (and Mathematics)
Access and develop a repertoire of multiple representations
Teach how to teach representations across all learning areas/subjects
Representations that reflect contexts and content
Initial test for ITE for representations
COMMUNICATION
Shared understandings, language and effective communication
ITE students, educators, curriculum
Discuss, share, communicate numeracy contexts, content and representations
Feedback on teaching practices
Dispositions - open to new ideas, critical reflection
Multimodal approaches to communication
QUALITIES
Growth mindset - continued professional learning
Confidence and positive disposition for numeracy
Allow opportunities to 'fail', reflect, justify, learn
Disposition for feedback - 'a feedback culture'
Adaptive reasoning

### Participant Questions

when your understand productivity important from disposition culture courses basic ability don't test need more many improve education across university subjects curriculum literacy skills about does school students

have teaching what teachers mathematics numeracy

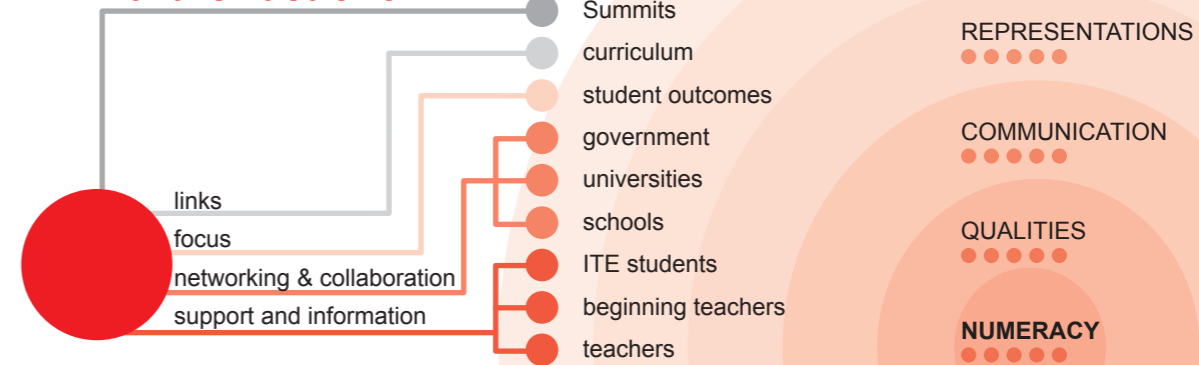
### Best things about the Summit?



### What's your commitment to numeracy in ITE?



### Further actions





## Attachment A: Queensland Numeracy Summit 2015—Program

Time	Speaker / Activity
8:30am	<b>Registration in Foyer</b>
9:00am	<p><b>Welcome and introduction</b> Mr Adam Spencer, <i>Master of Ceremonies</i></p> <hr/> <p><b>The importance of numeracy education for Queensland STEM industries</b> Lauren Stephenson, <i>Director, Office of the Queensland Chief Scientist</i></p> <hr/> <p><b>Global Megatrends and the Educational and Skills Requirements of Tomorrow's Digitally Enabled Knowledge Economy</b> Dr Stefan Hajkowitz, <i>Principal Scientist in Strategic Foresight at CSIRO Brisbane</i></p> <hr/> <p><b>Numeracy across the curriculum – A not-so-impossible dream?</b> Prof Merrilyn Goos, <i>Head of School, School of Education, Faculty of Humanities &amp; Social Science, The University of Queensland</i></p> <hr/> <p><b>Overview of key outcomes from Queensland College of Teachers' Forum</b> Ms Deanne Commins, <i>Executive Manager, Professional Standards, Queensland College of Teachers</i></p> <hr/> <p><b>What is the evidence based numeracy research telling us?</b> Professor Tom Lowrie, <i>President of MERGA, Centenary Professor, University of Canberra</i></p> <hr/> <p><b>Identifying and Prioritising Issues</b> Group Activity facilitated by Mr Dean Gould, <i>Director, Executive Marketing and Communications, Griffith University</i></p>
11:10am	<b>Morning Tea</b>
11:50am	<p><b>Panel Discussion 1: Co-constructing a shared numeracy philosophy in Initial Teacher Education</b> Facilitated by Mr Dean Gould, <i>Director, Executive Marketing and Communications, Griffith University</i></p> <p><b>Panel</b></p> <ul style="list-style-type: none"> <li>➤ Associate Professor Vincent Geiger, <i>Nat School of Education, Faculty of Education &amp; Arts, Australian Catholic University</i></li> <li>➤ Professor Shelley Dole, <i>Head of School, School of Education, Faculty of Science Health, Education and Engineering, University of the Sunshine Coast</i></li> <li>➤ Associate Professor Peter Grootenboer, <i>The School of Education and Professional Studies, Griffith University</i></li> </ul> <hr/> <p><b>Group Strategy Discussion</b> Facilitated by Mr Dean Gould, <i>Director, Executive Marketing and Communications, Griffith University</i></p>
12:55pm	<b>Lunch</b>

Time	Speaker / Activity
<b>1:40pm</b>	<p><b>Panel Discussion 2: Develop framework of ITE numeracy education to support the shared philosophy</b></p> <p>Facilitated by Mr Dean Gould, <i>Director, Executive Marketing and Communications, Griffith University</i></p> <p><b>Panel</b></p> <ul style="list-style-type: none"><li>➤ Professor Tom Lowrie, <i>President of MERGA, Centenary Professor, University of Canberra</i></li><li>➤ Associate Professor Raymond Brown, <i>The School of Education and Professional Studies, Griffith University</i></li><li>➤ Dr Stephen Norton, <i>The School of Education and Professional Studies, Griffith University</i></li><li>➤ Jeff Munce, <i>Curriculum into the Classroom (C2C), Seconded Principal, Department of Education, Training and Employment</i></li><li>➤ Dr Bronwyn Ewing, <i>Senior Lecturer, Faculty of Education, School of Curriculum, QUT</i></li></ul> <hr/> <p><b>Group Strategy Discussion</b></p> <p>Facilitated by Mr Dean Gould, <i>Director, Executive Marketing and Communications, Griffith University</i></p> <hr/> <p><b>Case Studies</b></p> <p>Narrated by</p> <p>Dr Kevin Larkin, <i>Lecturer, The School of Education and Professional Studies, Griffith University and MERGA VP (Communications)</i></p> <p><b>Partnership presentation: Benowa State High School</b></p> <p><i>Principal – Mentor – Graduate - Professor</i></p> <ul style="list-style-type: none"><li>➤ Mark Rickard, Benowa State High School, Principal</li><li>➤ Kim Alden, Head of Mentoring, Benowa Teacher Education Centre of Excellence</li><li>➤ Kristin Chapman and Dr Julien Gringnon, Graduates</li><li>➤ Harry Kanasa, The School of Education and Professional Studies, Griffith University</li></ul> <p><b>Constructing Mathematics in the Minds of Children</b></p> <p>Bronwyn Reid O'Connor, <i>The Aboriginal and Islander Independent Community School</i></p> <p><b>Indigenous Numeracy Perspectives</b></p> <p>Cherie Cefai, <i>Head of Teaching and Learning at Tagai State College, Thursday Island</i></p> <p><b>Working Model of Numeracy across the Curriculum</b></p> <p>Nigel Hughes, <i>Principal, Southport State High School</i></p> <p>Cara Avery, <i>Head of Mathematics, Southport State High School</i></p> <hr/> <p><b>3.45pm</b> <b>Synthesis &amp; Communiqué</b></p> <p>Professor Donna Pendergast <i>Dean and Head, School of Education and Professional Studies, Griffith University</i></p> <hr/> <p><b>4:00pm</b> <b>Drinks and Canapés in Foyer</b></p> <hr/>

## Attachment B: Queensland Numeracy Summit 2015—List of Participants

Title	First Name	Last Name	Position	School/ Organisation
Mr	Jonathan	Klein	Teacher	Albert Park Flexible Learning Centre
Mr	Andrew	Wheaton	Deputy Headmaster Academic	Anglican Church Grammar School
Mrs	Monique	Russell	Specialist Mathematics teacher/coach	Ascot State School
Mr	Andrew	Skipper	Curriculum Head- Mathematics	Assumption College, Warwick
Ms	Vinnie	Williams	Teacher	Assumption College, Warwick
Dr	Irene P-A	Cheong	Lecturer	Australian Catholic University
Assoc Prof	Vincent	Geiger	Nat School of Education, Faculty of Edn & Arts	Australian Catholic University
Dr	Chris	Longhurst	Lecturer	Australian Catholic University
Dr	Jodie	Miller	Lecturer - Education	Australian Catholic University
Dr	Monica	Wong	Lecturer in Mathematics Education	Australian Catholic University
Mrs	Rosh	Padayachee	Teacher	Beenleigh Special School
Ms	Kim	Alden	Head of Mentoring	Benowa State High School
Ms	Kristen	Chapman	Graduate	Benowa State High School
Dr	Julien	Grignon	Graduate	Benowa State High School
Mr	Mark	Rickard	Principal	Benowa State High School
Mrs	Rachael	Blond	Deputy Principal	Biggera Waters State School
Mrs	Averil	Milne	ST:LaN	Bray Park State School
Ms	Lisa	Kelly	HOD Numeracy	Bremer State High School
Mrs	Carole	Taaffe	Numeracy Support Teacher	Bremer State High School
Mrs	Bernadette	Sligar	Middle School Coordinator	Brigidine College
Mrs	Michelle	Tubb	Mathematics Coordinator	Brigidine College
Ms	Belinda	Emmi	Education Officer Mathematics	Brisbane Catholic Education
Mr	Peter	Fas	Teacher of Mathematics	Brisbane Grammar School
Miss	Charlotte	Thomas	Deputy Principal	Brisbane School of Distance Education
Ms	Toni	Hatten	Head of Subschool	Broadbeach Independent Public School
Ms	Christine	Tetlow	Teacher	Broadbeach Independent Public School
Ms	Susan	Crouch	Teacher	Browns Plains State High School
Mrs	Selena	Roberts	Teacher	Browns Plains State High School
Mr	Andrew	Beattie	Principal	Browns Plains State School
Mrs	Lisa	Nagy	HOC	Browns Plains State School
Mr	Bevan	Penrose	HOD Senior Schooling	Bundamba State Secondary College

## List of Participants

Title	First Name	Last Name	Position	School/ Organisation
Mr	Adam	Spencer	Master of Ceremonies	c/- HLA Management Pty Ltd
Ms	Nicole	Lewicki	HOD	Calamvale Community College
Mr	Mitchell	Staples	HOD - 5-12 Mathematics	Canterbury College
Mrs	Karen	Harris	HOC	Capalaba State College
Mr	Damian	Gaffney	Acting HOD Mathematics	Cavendish Road State High School
Mrs	Kerry	Aprile	Head of Program Primary Education	Central Qld University
Dr	Reyna	Zipf	Lecturer	Central Qld University
Prof	Helen	Huntly	Dean of School	Central Qld University
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