PROJECT 600: INSPIRE, CONNECT AND TRANSFORM

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Abstract

This paper provides an overview of the highly successful Education Queensland Project 600 literacy and numeracy strategic initiative, with more than 19000 students from Years 3-9 being involved since its inception as Project 300 in 2011. Project 600, which aims to inspire, connect and transform student learning through deep engagement, involves Education Queensland's regions choosing a specific area to focus on within their improvement agenda. The Project 600 team then works with the regions to design and implement the initiative, enabled through online learning, guided by the IMPACT model which enables personalised learning. This paper suggests that the IMPACT model makes a contribution to proposing a Model of Technological Pedagogical Reasoning and Action (MTPRA) (see Smart et al., 2013; Finger & Finger, 2013), which builds upon Shulman's (1986; 1987) Model of Pedagogical Reasoning and Action (MPRA). Features of Project 600 are summarised, including the recruitment of high performing teachers who form an expert team, their training and ongoing coaching and mentoring, engagement for school leaders and parents, and strategies for disseminating Project 600 within schools. Subsequently, this paper presents a summary of some key findings, which reflect Education Queensland’s Performance Monitoring and Reporting Branch (PMRB) reporting “Our findings were that participation in Project 600 – Year 5 Numeracy 2013 significantly increased student results in the Year 5 NAPLAN Numeracy Test in 2013”. In addition, PMRB reports that “Project 600 has also been successful in terms of NAPLAN data in other regions.” Importantly, this paper provides insights from students which collectively portray Project 600 as ‘awesome’.

Stream: Redefining Education

Keywords: Online learning; Student learning outcomes; Innovation; Professional Learning Dissemination
Introduction

As outlined in the *Horizon Report K-12 2103 Edition* (Johnson et al., 2013), schools are situated within contexts in which education paradigms are shifting to include online learning, hybrid learning, and collaborative models, and the abundance of resources and relationships are made easily accessible via the Internet is challenging us to revisit our roles as educators.

These trends are occurring in an increasingly networked world, where “having the ability to network with others, share original thoughts and creations, and work together will only become more important in the future, as will tools to leverage the power of community members, students, and others to contribute within schools” (Illinois Institute of Design, 2007, pp. 24-25).

However, Davidson and Goldberg (2009) argue that “our institutions of learning have changed far more slowly than the modes of inventive, collaborative, participatory learning offered by the Internet and an array of contemporary mobile technologies” (p. 9). Selwyn (2013) goes further in suggesting that “the primary significance of the information age and network society is one of globally networked power” (p. 4) and that, “This new world economic order is seen to be founded upon globally networked processes that are fast-changing, flexible and based around ephemeral rather than material ‘content’” (p. 4).

This paper, focusing on the Project 600 initiative, is positioned within those trends and takes into account the importance of proposing models of schooling in a networked world (Illinois Institute of Design, 2007; Davidson & Goldberg, 2009; Lee & Finger, 2010; Johnson et al., 2013; Selwyn, 2013). An overview and description of Project 600, which is a technology enabled literacy and numeracy strategic initiative, is presented.

Subsequently, the IMPACT conceptualisation which guides Project 600 is discussed through aligning IMPACT with relevant TPACK literature (Mishra & Koehler, 2006; 2008; Starkey, 2010) to inform a proposed Model of Technological Pedagogical Reasoning and Action (MTPRA) (Smart, 2013; Finger & Finger, 2013). The paper concludes with a discussion of future directions for Project 600, and the case is made for Education Queensland to build capacity through formalising this model at a systems level.

Project 600 - Background and project features

Project 600 was designed on the assumption that students in almost any location across Queensland could benefit from the strategies and skills taught by an expert teacher. Consequently, the first project called Project 300, as it involved 300 students, was conducted in 2011. It was conceptualised to capitalise upon networked technologies, whereby an expert teacher could design and deliver targeted and highly interactive lessons to students online.

Due to its success, there was a scaling up of that project and the next project was called Project 600, as it involved 600 students. Due to the collegiality of those involved, the ‘brand’ Project 600 seems to have taken hold, even though subsequent projects have included more than 600 students. Metropolitan Region and North Coast Region have re-named their version of Project 600 as Project U2B, referring to the Upper 2 Bands of NAPLAN results.

To participate in Project 600, Education Queensland Regions choose a specific area to focus on according to their improvement agenda, such as Year 5 Reading for average students, or Year 9 Numeracy for above average students. Project 600 focuses on literacy and numeracy for average to above average students. These students are regarded as being at risk of plateauing and Project 600 provides them with an opportunity to deeply engage in learning and boost their achievement.

The Project 600 team then works with the region to:
• recruit high performing teachers from the region who form an expert teaching team;
• train this expert teaching team in project content and online pedagogies and lesson delivery;
• provide ongoing coaching and mentoring including feedback on lesson design and delivery;
• support teachers, teacher aides and school leaders to implement the project at their school;
• engage parents in supporting their child’s participation and progress; and
• coordinate training sessions for schools; e.g. Project 600 Reading Strategies or Online Learning in Your Classroom.

As shown in Table 1, since 2011, approximately 19000 Year 3-9 students and over 180 expert online teachers from all 7 Education Queensland regions have been involved, with approximately 4700 Year 4-8 students from South East Region involved.

Table 1 Summary of Project 600 Participation 2011-2014

<table>
<thead>
<tr>
<th>Title</th>
<th>Target</th>
<th>Date</th>
<th>No. of Students</th>
<th>No. of Schools</th>
<th>No. of Expert Online Teachers</th>
<th>Regions***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 300</td>
<td>Year 7 Writing and Year 7 Numeracy</td>
<td>March -May 2011</td>
<td>300</td>
<td>19</td>
<td>4</td>
<td>South East Metropolitan North Qld Central Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 7 Writing</td>
<td>Oct 2011-May 2012</td>
<td>600</td>
<td>28</td>
<td>8</td>
<td>South East Metropolitan North Qld Central Qld Darling Downs South West North Coast Far North Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 5 Numeracy</td>
<td>Feb-May 2012</td>
<td>1200</td>
<td>88</td>
<td>8</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 5 Reading</td>
<td>Feb-May 2012</td>
<td>675</td>
<td>71</td>
<td>9</td>
<td>Central Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 4 Number</td>
<td>Apr-Jun 2012</td>
<td>600</td>
<td>37</td>
<td>6</td>
<td>South East</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 7-8 Reading (Boys)</td>
<td>Apr-Sept 2012</td>
<td>250</td>
<td>20</td>
<td>6</td>
<td>South East</td>
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<tr>
<td>Project 600</td>
<td>Year 6 Reading</td>
<td>July-Dec 2012</td>
<td>600</td>
<td>45</td>
<td>10</td>
<td>South East</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 7-8 Reading</td>
<td>July-Dec 2012</td>
<td>250</td>
<td>19</td>
<td>4</td>
<td>South East</td>
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<tr>
<td>Project 600</td>
<td>Year 5 Numeracy</td>
<td>Feb-Jun 2013</td>
<td>1200</td>
<td>76</td>
<td>8</td>
<td>South East</td>
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<tr>
<td>Project 600</td>
<td>Year 5 Numeracy</td>
<td>Feb-May 2013</td>
<td>2000</td>
<td>102</td>
<td>12</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 9 Numeracy</td>
<td>Apr-May 2013</td>
<td>360</td>
<td>18</td>
<td>2</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Year 7 Flying Start Schools</td>
<td>Year 7 Numeracy</td>
<td>Apr-May 2013</td>
<td>190</td>
<td>3</td>
<td>1</td>
<td>Metropolitan</td>
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<tr>
<td>Project 600</td>
<td>Year 5 Numeracy</td>
<td>Feb-May 2013</td>
<td>550</td>
<td>28</td>
<td>7</td>
<td>Central Qld</td>
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<tr>
<td>Project 600</td>
<td>Year 5 Reading</td>
<td>Feb-May 2013</td>
<td>650</td>
<td>47</td>
<td>9</td>
<td>Central Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 9 Numeracy</td>
<td>Feb-May 2013</td>
<td>100</td>
<td>10</td>
<td>2</td>
<td>Central Qld</td>
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<tr>
<td>Project 600</td>
<td>Year 5 Reading</td>
<td>Feb-May 2013</td>
<td>450</td>
<td>38</td>
<td>6</td>
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<tr>
<td>Project 600</td>
<td>Year 4 Reading</td>
<td>July-Dec 2013</td>
<td>350</td>
<td>27</td>
<td>6</td>
<td>Darling Downs South West</td>
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<tr>
<td>Project 600</td>
<td>Year 4 Maths</td>
<td>July-Dec 2013</td>
<td>700</td>
<td>67</td>
<td>7</td>
<td>South East</td>
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<tr>
<td>Project 600</td>
<td>Year 8 Maths</td>
<td>July-Dec 2013</td>
<td>300</td>
<td>18</td>
<td>3</td>
<td>South East</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 7 Numeracy</td>
<td>Feb-Jun 2014</td>
<td>680</td>
<td>47</td>
<td>8</td>
<td>South East</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 5 Reading</td>
<td>Feb-Jun 2014</td>
<td>1090</td>
<td>97</td>
<td>12</td>
<td>Central Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 9 Reading</td>
<td>Feb-May 2014</td>
<td>750</td>
<td>27</td>
<td>10</td>
<td>Central Qld</td>
</tr>
<tr>
<td>Project 600</td>
<td>Year 3 Reading</td>
<td>Feb-May 2014</td>
<td>150</td>
<td>25</td>
<td>2</td>
<td>Darling Downs South West</td>
</tr>
</tbody>
</table>
Further projects are being designed for delivery towards the end of 2014 by South East, North Coast and Darling Downs South West Regions. By the end of 2014, more than 21000 students will have participated in Project 600 or Project U2B since 2011.

The project which is the focus of this paper is Project 600 - Year 5 Numeracy – South East Region, conducted from February until June in Semester 1, 2013. This was a joint initiative between Education Queensland’s South East Region and the BSDE Regional Projects and Training Team. This project aimed to deeply engage students in learning and boost achievement of students into the NAPLAN Upper 2 Bands in numeracy, according to their Year 3 NAPLAN results in 2011 (Bands 4-5).

Approximately 1200 Year 5 students from 75 schools across South East Region participated in the project. The project’s curriculum focus was problem-solving, informed by Polya’s problem-solving process of See, Plan, Do, Check and students applied this to various mathematical problems. This mirrored the successful use of Polya’s work in Metropolitan Region’s Project 600 – Year 5 Numeracy project in 2012. Acknowledgement goes to Metropolitan Region’s Teaching and Learning Team for introducing Polya’s work to Project 600.

Students participate in one Web Conferencing group session per week at school for the duration of the project using Elluminate in 2011-2013 and Blackboard Collaborate in 2014. Students also access independent consolidation and extension activities via the Virtual Classroom at any time, using Blackboard’s Learning Management System. The Project 600 networked, online model enabled the expert teachers and the Project 600 students to have both synchronous and asynchronous access.

The pedagogical conceptualisation guiding Project 600 is referred to IMPACT, which is an acronym for Inspire, Model, Practise, Apply, Connect and Transform. This conceptualisation was developed by Glen Watt, a BSDE Project 600 Team leader, and he recommends the IMPACT model for all subjects across all year levels.

The IMPACT model has also been used as an example of best practice by the Learning Mentors facilitating DEEWR’s Integrating ICT Pedagogy in School Communities Workshop in 20 regional and remote locations across Australia.

IMPACT is also used as a learning design by a number of mainstream primary and high schools in Education Queensland’s South East Region.

...I think teachers like the model because it provides a simple, yet comprehensive structure.
...importantly, it provides the teacher with flexibility. The amount of time devoted to each step and the sequence of activities is influenced by the subject matter being taught and the
nature of the students in the class. (Watt, cited in Microsoft Partners in Learning, 2010, p. 20)

Review of Relevant Literature – TPACK and IMPACT

Shulman’s (1986; 1987) theorising of Pedagogical Content Knowledge (PCK) has informed the design of most initial teacher education programs in Australia. Integral to PCK is his Model of Pedagogical Reasoning and Action (MPRA), which comprises:

...actions that a teacher undergoes during the teaching process including: comprehension of subject knowledge, transformation of subject knowledge into teachable representations, instruction, evaluation of students’ learning and teacher’s performance, reflection and new comprehension. This was an attempt to illustrate reflective practice during the teaching process...” (Starkey, 2010, p. 234)

Shulman’s thinking in this area was conceptualised well before the emergence of the networked society in which schooling is now located and enabled by the Internet. Subsequently, Starkey (2010) explored how MPRA might occur in this digital, networked world. A key finding from Starkey’s research was that MPRA “remains relevant” (p. 233), but “was based on an assumption that teaching involves knowledge being passed from a teacher to their students, which was found to restrict innovation by digitally able teachers” (p. 233).

Building upon Shulman’s PCK has been the conceptualisation of Technological Pedagogical Content Knowledge (TPCK), and now known as TPACK (Koehler & Mishra, 2005; Mishra & Koehler, 2006; 2008). TPACK more adequately understands how technological knowledge (TK) might intersect with content knowledge (CK) and pedagogical knowledge (PK).

Recent attempts to explore teachers’ Technological Pedagogical Reasoning (TPR) (Smart et al., 2013) have added to proposals by some writers for a Model of Technological Pedagogical Reasoning and Action (MTPRA) (Finger & Finger, 2013). Smart et al. (2013), for example, in examining the digital portfolios of four experienced teachers, suggested that these teachers might develop technological pedagogical reasoning (TPR) through their careers, and her research explores the influences on their TPR development.

Drawing upon Smart et al. (2013) and the concept of TPR, Finger and Finger (2013), in examining an early career teacher’s story of technology and teaching, also drew upon ‘praxis’ (Freire, 1970), which involves “highly developed educational practice that consciously articulates the theory on which it is based, and, in turn, generates new theory” (O’Toole & Beckett, 2013). This enables teacher voice to portray experience and reflection which might differ from those around them, through ‘limit situations’ (Freire, 1970).

Consistent with ‘limit situations’, TPACK accommodates different understandings of the context and complexities of teaching with technologies. In examining an early career teacher’s story, TPACK was found to be inherent in the Australian Professional Standards for Teachers in relation to Graduate Teachers (Finger & Finger, 2013). They highlighted that this was evident in the ICT Elaborations for Graduate Teachers (AITSL, 2011) developed through the Teaching Teachers for the Future (TTF) Project (see AITSL, 2013; Finger et al., 2013) which used TPACK as the guiding conceptualisation.

By drawing upon the recent work by Smart et al. (2013), and reflecting upon the teacher’s story presented, Finger and Finger (2013) suggested that TPACK, which builds upon Shulman’s PCK and MPRA, might be assisted by the conceptualisation of a Model of Technological Pedagogical Reasoning and Action (MTPRA) to accommodate the importance and influence of the technological changes since Shulman theorised PCK and MPRA.

Figure 1 below attempts to conceptualise Project 600 contexts, and MPRA and MTPRA, by drawing
upon the work of Shulman (1986:1987), Starkey (2010), Smart et al. (2013), Finger and Finger (2013), and IMPACT. It is evident that, in Project 600, the expert teachers, when employing IMPACT, require TPACK capabilities. This also reflects alignment with MPRA. However, we suggest that MPRA is insufficient, and have proposed that IMPACT requires TPACK capabilities, and that the Project 600 teachers adopt a Model of Technological Pedagogical Reasoning and Action (MTPRA).

![Diagram](image)

**Figure 1: Project 600 Contexts - Conceptualising TPACK, MPRA, MTPRA and IMPACT**

**Research Design**

**Participants**

The student participants in this study were 1200 students from 75 South East Region schools who had participated in the Project 600 Year 5 Numeracy Project. Schools which participated had nominated,
and the 1200 student places were rapidly filled, with the demand for places in the project exceeding places available. The project parameters included a negotiated cap of 24 students in 2 groups per school so that all schools that nominated could participate. To select the students, the schools analysed data sources to identify students who might have the potential to reach the Upper 2 Bands in numeracy with targeted support. Most of these students had achieved Band 4-5 in Year 3 NAPLAN numeracy in 2011.

The participating Project 600 teachers were eight high performing teachers from schools recruited to deliver the program. These teachers were specially trained and mentored by the Regional Projects and Training Team at BSDE. Schools also organised one or more teachers to coordinate and support their students’ involvement. Teachers, teacher aides and school leaders accessed professional development via after-school web conferences and lesson observations.

Data were collected by the BSDE Project Team for research and evaluation purposes, as well as for accountability purposes. For example, for accountability purposes, data were collected to record the number of students, schools, expert online teachers, and Regions participating in these projects. Research and evaluation data were collected through surveys of students, school leaders and parents. Furthermore, the Year 5 NAPLAN results for numeracy were obtained and analysed in collaboration with Education Queensland's Performance Monitoring and Reporting Branch (PMRB).

Summary of Findings

Given the length limitations of this paper, this section provides some key outcomes in terms of NAPLAN Results, and the perceptions of teachers, students and parents.

Student Learning Outcomes - NAPLAN Results

As outlined earlier, the target group for the project was students who achieved Band 4-5 in Year 3 Numeracy in 2011. Students from this target group were compared in relation to 2 groups; namely, Project 600 vs Non-Project 600 (Control Group). There were 819 students in the Project 600 target group and could be matched in relation to their Year 3 NAPLAN Numeracy result of Band 4-5 in 2011 and their Year 5 NAPLAN Numeracy result in 2013. Similarly, 1935 students were in the Control Group and could be matched in relation to their Year 3 NAPLAN Numeracy result of Band 4-5 in 2011 and a Year 5 NAPLAN Numeracy result in 2013. While comparisons need some caution, as displayed in Figure 2, Project 600 students overall showed that more Project 600 students reached the Upper 2 Bands than did their Control Group peers in the Year 5 Numeracy NAPLAN 2013 Test.
In general, students in the Control Group received 2 years of classroom lessons from Year 3 to Year 5. Project 600 students participated in up to an additional 12 project lessons from February and completed prior to the NAPLAN test in May 2013 in this planned high impact, high yield strategy.

Education Queensland’s Performance Monitoring and Reporting Branch (PMRB) reviewed the data and concluded that, “Our findings were that participation in South East Region’s Project 600 – Year 5 Numeracy 2013 significantly increased student results in the Year 5 NAPLAN Numeracy Test in 2013”.

Perceptions of Students
A total of 814 students completed the online survey during one of their final project lessons. As shown in Figure 3, the students were enormously positive about their involvement in this learning experience.

![Graph showing student responses](image)

**Figure 3: Project 600 student responses to “I would say Project 600 is...” (N=813)**

Complementing these data shown in Figure 3, students’ responses highlighted that Project 600 was awesome, it inspires, connects and transforms through improving thinking skills and ability to collaborate and use technology, as conveyed in the following examples of student responses.

*The web activities are absolutely awesome. The activities to work out are fun, they really get your brain working and that is what I love about Project 600. During Project 600 I have really improved.*

*Computer skills are great because I didn’t know much about computers and Project 600 helped me.*

*In my opinion, I think Project 600 is an awesome way to learn other than working on paper all day! It helps us learn beyond what people are learning in class, it is fun, and you can interact with teachers in different areas!*

Perceptions of Teachers and School Leaders
Feedback from the teachers and school leaders during the project was tremendous. Strong relationships between the project team and school coordinators were developed. 14 schools responded to an optional online survey and this survey was completed by the Principal or key project coordinator at the school. As indicated in Figure 4 below, Project 600 was seen as being a very worthwhile experience.
Teacher responses were extremely positive, and, in particular, highlighted improved engagement, learning outcomes and motivation by students. Their comments, such as the following example, also reflected the development of their own capabilities in an innovative project.

Students (and staff) at my school were exposed to an innovative, engaging and interactive approach to teaching. The students were so motivated throughout the entire project, which is evident in the way they have engaged, progressed and also in the fact that they are devastated it is coming to an end.

As conveyed in the following comment, teachers received positive feedback from parents, such as the following example.

One parent said they had never seen their child so enthusiastic to do homework, the child loves project and is eager to do extra work to succeed. Very rewarding and insightful. Can’t wait to be involved again. Thank you for your time and effort and expertise.

Perceptions of Parents

Parents of the participating students were included in this project from the beginning. They received a letter via the school introducing them to the project. They also received a Parent DVD which outlined the benefits of the program and showed them how Web Conferencing and Virtual Classrooms work. The online teachers communicated with many parents via email and the virtual classroom. Students brought home a certificate at the end of the project.

Schools also contributed to parent engagement by including project updates in their newsletter, coordinating parent information sessions and inviting parents to attend project lessons at the school to check it out for themselves. The parent response to the program was very positive and parents indicated that their children were talking to their parents about their learning and the parents, reflected in the following parent comments from the Project 600 Online Parent Survey sent via email at the conclusion of the project.

Confidence and attitude to maths has increased 200%. Before the program his self-talk was “I hate maths” and “I’m no good at maths” and it was becoming a struggle to get him to attempt it. Now he does his maths homework first 😊
Our daughter has thoroughly enjoyed her time participating in this program and has expressed interest in being able to do it again next year if it is offered to Year 6 students. It has been a great confidence building activity for her and has helped to improve her problem-solving ability not only in maths but other parts of her schooling also.

Conclusion and Future Directions

To conclude, the case is made for Education Queensland to build capacity through formalising this model at a systems level. This paper has provided evidence through achievement data and positive student, parent, school and teacher feedback that this project capitalises upon online, networked design possibilities.

Importantly, this project is agile, scalable and enables agency by Schools and Regions in Queensland to engage in high priority areas of study, such as improving NAPLAN literacy and numeracy in this high impact online project. While the target group has been average to above average students, there is the potential for project design to include students with lower achievement levels to participate in a longer project timeframe to enable success. There is the potential for the target group of students could be anyone, anywhere, anytime as this project has proven that connecting like-minded students across the state can be hugely successful.

Furthermore, future directions could continue to investigate and build upon innovations that have already occurred within and across Regions in Queensland, such as Project 600 in Central Queensland Region, Project 600 in Darling Downs South West Region, Project U2B in Metropolitan Region and North Coast Region.

Further innovations, dissemination and impact in schools are occurring as a direct result of the projects and the training programs delivered by Project 600 leaders at Brisbane School of Distance Education, including:

- Brisbane School of Distance Education has delivered UNIFY – University For You online projects to more than 8000 gifted or high achieving students from over 500 Queensland state schools since 2012 – topics include Critical Thinking, Science, Design and Technology and Creative Writing
- Helensvale State High School and Southport State High School have delivered online projects to their feeder primary schools
- Queensland Academy Science Mathematics and Technology now deliver online projects to over 500 high achieving students in Brisbane and the Gold Coast
- Metropolitan Region’s Teaching and Learning Team now deliver the majority of their regional Professional Development programs via web conferencing and edStudios improving access and outcomes for teachers and school leaders. They have also developed online projects for indigenous students (Solid Pathways Project) and high schools maths students (Metro 10 Project)

Project leadership has been integral to the success of Project 600 in South East Region and the other online projects listed above. Investment is required in the leadership team of the BSDE Regional Projects and Training Centre which enables this innovative, approach to teaching and learning guided by the IMPACT conceptualisation to become embedded and formalised through a systems level approach. This will require investment for 2015 and beyond to ensure that existing outcomes are sustained and further possibilities explored.

Moreover, this paper has attempted to make a contribution to the literature (Smart et al., 2013; Finger and Finger, 2013) which is emerging to suggest that TPACK might require an accompanying Model of Technological Pedagogical Reasoning and Action (MTPRA). The IMPACT model which guides Project 600 teachers shows alignment with Shulman’s MPRA. However, we suggest that MPRA is
insufficient, and have proposed that, as IMPACT requires TPACK capabilities, the Project 600 teachers adopt a Model of Technological Pedagogical Reasoning and Action (MTPRA) in their design, implementation and evaluation of their Project 600 initiatives.

References


