

# High possibility classrooms: Emerging stories in design based learning in Australian secondary schools

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## Abstract

High Possibility Classrooms (HPC) is a framework for technology enhanced learning drawn from research (Hunter, 2013). It arose from a study of exemplary teachers' knowledge of technology integration in Australian classrooms of students aged 6-16. Conducted at four schools, the original study is being added to with a body of further research. Hailed as a framework of design based learning, this paper reports on an investigation of HPC in the teaching spaces of a group of mainstream teachers at two secondary schools in New South Wales (NSW). Understanding how this group of teachers deployed a theoretical model developed in particular classrooms builds a bridge between knowing what tech savvy teachers do and how mainstream teachers respond when using an explicit pedagogical scaffold. The framework of HPC (Hunter, 2015) has five conceptions and 22 underpinning themes; mainstream teachers in this study used HPC in powerful ways to create more engaging classroom communities. For example, students in the teachers' classrooms expressed gratitude for how they learned content using project based approaches while concurrently articulating a desire to revert to traditional learning approaches as the senior years loom. Using case study research methods involving observations, interviews and focus groups with support from a head teacher, six teachers co-created innovative learning sequences involving the HPC framework in various subjects. Analysis of data from the study demonstrates that HPC is a pedagogical scaffold mainstream teachers can use to reimagine pedagogy; it also suggests an urgency for jurisdictions to re-think models of assessment in the latter years of schooling.

## Introduction

In a recent keynote presentation at the *EduTECH 2015* conference in Brisbane, Australia, Professor Eric Mazur from Harvard University claimed students "are more asleep during lectures than when they are in bed". His proclamation resonated with comments made by secondary students in focus groups in new education research conducted in NSW schools who pleaded with teachers to "stop lecturing them".

Technology has transformed our work and daily activity. However what is clear in some secondary schools is that progress is slow in what students experience in terms of technological transformation in teaching and learning in classrooms. The book *Most Likely to Succeed* (Wagner & Dintersmith, 2015) argues that for young people to live well in the world now and into the future requires recreating school education.

This position resonates with the report *A Rich Seam* (Fullan & Langworthy, 2014) that offers consideration of how new and emerging pedagogies require students to create new knowledge and

connect it to the world by using the power of digital tools. Not merely a set of instructional strategies, the *High Possibility Classrooms* (HPC) framework emerged from Australian research (Hunter, 2013) on exemplary teachers' knowledge of technology integration in classrooms of students aged 6-16 years old. Teachers in the study (Hunter, 2015a; Hunter, 2015c) conceptualised their knowledge of technology integration based on theory, creativity, public learning, life preparation and contextual accommodations; the conceptions are supported by 22 underpinning themes of processes and practices. In each of the classrooms, students expressed a zeal for learning involving a myriad of activities involving technology. The examples of deep learning (Fullan & Langworthy, 2014) offered in this paper propose a fresh pedagogical slant to the conduct of schooling that bids necessity to develop 'creating, doing and expansive' dispositions in young people. New research in the classrooms of a group of mainstream secondary teachers demonstrates how new and emerging pedagogies are feasible.

## The problem being addressed

Gaining an appreciation of what mainstream secondary teachers do when they use a pedagogical framework (in this case HPC) to design learning that focuses on technology integration is important. In Australia, the Digital Education Revolution (DER) was the largest digital technologies policy ever initiated by government (Moyle, 2015). The 2008-2011 \$2 billion initiative placed a mobile device in the hands of every young person in a public secondary school from Years 9-12. Reportage of the policy effect (Master, 2014) and its impacts are inconclusive (Arthur, 2013; Buchanan, 2011; Howard & Gigloitti, 2013; Howard & Mozejko, 2013). However, what the DER did achieve was provision of equitable access to a technological tool that had "significant catalytic impact on secondary schools across Australia" (Danolo Partners, 2013, p.5). It disrupted the status quo.

In the original study (Hunter, 2013) secondary students in one of the classrooms used mobile devices distributed during the DER. Three years after the conclusion of the DER the study reported in this paper sheds light on how pedagogical scaffolds like HPC support or otherwise mainstream teachers' technology integration. The research adds to a similar study conducted at a NSW primary school site in 2014: *Big learning for the future* (Hunter, 2015b).

Many Australian secondary schools increasingly require students to 'bring their own devices or bring their own technology to school' (Moyle, 2015). The study examines whether secondary school teachers focus on different HPC conceptions in particular disciplines when students use mobile devices and technology applications more generally. It distinguishes which HPC conceptions are prominent in mainstream teachers' practices and how the framework presents new opportunities to teach in a different way. And, finally it identifies how students experience learning when technology is integrated. Benefits of the research are twofold; one, it provides pedagogical refinement of an existing design based learning model; and two, it facilitates how all teachers might begin to reimagine pedagogy in secondary school classrooms.

## Study design/Approach

The research used a qualitative design involving case study data collection methods of observations, teacher interviews, field notes, document analysis and focus groups with groups of students from the teachers' classrooms. Approved by Western Sydney University Human Ethics

Research Committee, the research was also agreed to by the State Education Research Approvals Process, as the study was conducted in two NSW Department of Education secondary schools.

The main research question was consistent with the 2014 study (Hunter, 2015b): *What HPC conceptions and themes dominate classroom learning when mainstream teachers integrate technology?*

The two sub-questions were narrower to capture the nature of teaching specific subjects in secondary schools:

- What HPC conceptions are most effective when teaching content in secondary schools?
- How can mainstream teachers in secondary schools make learning more engaging and motivating for students using the HPC framework?

In June 2015 data was collected across a two-week period from teachers (N=6) who volunteered to participate in the study. School principals called for interested teachers to contribute and all teachers including the head teacher teaching and learning (HTT&L) attended a HPC workshop conducted by the author. Each teacher worked with the HTT&L to determine the particular HPC conceptions they would use in two lesson observations. Collected data was transcribed, member-checked then managed using *NVivo 11* qualitative software.

The prime purpose of data analysis is to make sense of out of the data (Merriam, 2009). Data analysis in this study involved a conscious method of selection, consolidation, reduction and interpretation of what was collected and collated from the actions of the research participants. These simultaneous processes are associated with the main stages in Strauss & Corbin's (1997) grounded theory method: open coding, axial coding and selective coding. The first teacher interview was initially read without specific coding. The goal was to promote familiarity, jotting notes in margins, summarising idea or potential themes at a macro-level. Each step in the process of analysis was designed to 'reduce' or break the primary data down into 'more manageable chunks' (Merriam, 2009). The data from teacher 1 generated over 20 codes; the names assigned to the codes were created from the original study (Hunter, 2013) and included the five HPC components. The number of codes was reduced at this point prior to the importation of the remaining five data sets into the qualitative software to commence open coding in earnest.

Case summaries were prepared and presented to the teachers and adjusted further after a conversation with each participant involving cross-case analysis. These form the basis of the case study; this research method is based on interpretation, and within qualitative study, the researcher plays the dominant role in the interpretation (Corbin & Strauss, 2008). The lens is a contested space, and therefore defining exactly the type of study this is, may speak volumes to some and to others it may be treated as simply words on a page, which gets to the root of the problem: subjectivity and interpretation (Abma & Widdershoven, 2011). Questions concerning subjectivity on behalf of the researcher are easily heard: 'why was that observed and not that'; 'why was this considered more important than that'; and 'was this really the way things happened' or 'would I have seen it differently?' The point of raising these hypothetical questions is to illustrate some of the strengths and limitations associated with qualitative data and case study more generally to provide some understanding as to the rationale for framing the research in this way.

## Findings

Six secondary teachers at the two school sites, Melton and Bally, taught English, Health & Physical Education (HPE), Science, Design and Technology (DT), History and Visual Arts (VA) to students in Years 7-10 (N=135). No senior students (Years 11 and 12) were involved in the study.

The research location was a Sydney selective school split across two campuses; one is co-educational, and the other, an all boys school.

This research forms a second case study of mainstream teachers perceptions and practices of technology integration using the HPC framework (Hunter, forthcoming). Technologies used by teachers and students ranged from various mobile devices to desk top computers loaded with Weebly, Google Drive, CAD and Edmodo programs.

Key emerging trends from the data explains how all conceptions in the HPC framework are equally viable in the support they offer teachers to adopt a design based approach to technology integration in secondary school classrooms, for example:

- conceptions of theory, public learning, life preparation, creativity and contextual accommodations lead to closer pedagogical attention when teachers integrate technology, and
- there is increased pedagogical flexibility for teachers from a design based scaffold that focuses on the integration of technology to facilitate the type of learning students prefer.

Furthermore the HPC framework was effective for teachers and changed the dynamics of their pedagogy when:

- project based learning in a subject like DT required students to complete week long tasks in small groups
- it was used to encourage team work in Science enabling students to create rich digital artefacts to reinforce understanding how the human body functions
- it targeted purposeful teaching that focused on providing students with the means to search more efficiently for information
- it was employed in English for teaching satirical texts involving opportunities for students to respond using innovative digital formats; and
- it framed the inclusion of blogging tools to facilitate real world responses from students to understand healthy lifestyle issues in HPE.

Findings from the research are reported in a forthcoming case study: *Reimagining education in Australian secondary schools requires more than just tinkering at the edges.*

## Discussion and conclusion

OA History teacher in the study made this comment: “HPC is about actions and new methods of teaching but the focus of the scaffold is really on its wider impact on pedagogy”. It is reflective of statements made by the other five teachers. In discussing emerging findings, the HPC framework supports making teachers’ pedagogical approaches more student centred. Such practices are driven by technology that students find engaging and motivating in ways that lecturing or didactic teaching are not.

In many secondary schools, teachers recognise that the ‘fall back’ pedagogical position is “you listen and I will fill your head with what you need to know and then you will be able to produce that information in a test/tests” (Interview 1, Teacher 5). One comment from a student in a Year 10 focus group in English recognises that using technology is distracting but it acts to engage them if they perceive “the teacher or what they have to do in class as boring”. This was not an issue in English at Melton campus but a comment about what the student perceived occurred in other classrooms. In qualifying the previous statement the student recanted: “even if the lesson is engaging people will still prefer to play games...teachers need to know about the alt tab”. Another added: “even the best students in a class will have dropped out of what they are meant to be doing and spend whole lessons playing games on the internet”. This response was widespread across student responses in Years 7-10.

The data was replete with claims of poor connectivity and the unreliability of the internet on most school days and there were persistent calls by students, especially by the time they reached Year 10, for teachers to foster hand writing skills in preference to going completely online: “technology must be an extra not replace books...you absorb more when you write notes in class by hand”.

In conclusion, the research raises dilemmas about deep learning practices that pedagogical frameworks like HPC invite. Teachers find design based scaffolds useful for reimagining personal pedagogy. On the one hand there are countless reports, national assessments, documents, policy statements, professional development bodies, education conferences and academic research papers that demand how teachers must prepare, and are not yet preparing, students for the future. Yet we still have an industrial model of schooling that is bound by a rigid model of assessment that values individual achievement, written responses and fact recollection. The two worlds clash and teachers (and students) will not ‘risk teaching (and learning) in other ways’ while one is privileged. Until that reality changes for more Australian teachers and there is widespread establishment of deeper evidence-based pedagogical approaches...secondary schools will remain ‘tinkering at the edges’ in enhancing student learning using technology.

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