

# Sharing the stories of near novices to impact mainstream change



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*Dr Bronwyn Stuckey has been engaged in educational community and gameful practices in learning development for the past 15 years. She has worked to explore virtual worlds, games in learning and how we can cultivate identity, agency, citizenship, leadership and community. Bronwyn earned her PhD in researching the core factors supporting successful online communities of practice. In that research, she examined in-depth the development of communities across many sectors: e-government, enterprise, military and not-for-profit. She has applied those research findings when consulting in the design of adult learning communities and workplace communities of practice. Since leaving lecturing and I*

*earning design in the higher education sector (at the University of Wollongong, Queensland University of Technology and the University of Western Sydney), her research, consultation and design have been in gamification and game-inspired designs for professional learning and communities of practice.*

*Most prominent of this work was the gamification (badges) and community design of the PLANE professional community. PLANE was a flagship of the Australian Digital Education Revolution. Bronwyn also co-designed and coached in the Foundations of Communities of Practice online workshop with Étienne Wenger, founder of the concept. This workshop inspired new community designs and supported workplace community developers to bring their personal projects from idea to viable product, and to address concerns and roadblocks.*

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## **Abstract**

This case study research is designed to examine the ways in which teachers are bringing gameful practices into their classrooms as part of a STEM learning agenda. It is hypothesised that one of the best persons to inform or improve the practice of novices is a near novice; someone who was most recently themselves a novice. In many case study programs, we hold up exemplary practitioners as models, but these experts may be too far removed in their levels of expertise to impact the practice of true novices. Experts and evangelists might be useful

in creating vision for change, but the actual steps toward change in practice might lie with educators 'more like ourselves'. This research sets out to examine the work of educators starting out in various forms of gameful practices in teaching and learning. Telling the stories of these near novices has the potential to support, influence and impact the next wave of innovators, those beyond the early adopters. This is a work in progress and will report on the case studies collected and nascent feedback on their impact early in 2017.

## What is the relationship of games and gameful practices to STEM learning?

Conventional mathematics mini-game content management systems like *Mathletics* have found a ready place in classrooms for demonstration and assessment of domain knowledge. But games may take a much more transformational role in learning. Simulations and virtual worlds have allowed learners to be immersed in contexts, roles and experiences. Immersive games like *Murder under the Microscope* (Nielsen, 2011), *Quest Atlantis* (Barab et al., 2010a, 2010b), *Whyville* (Kafai, 2010), *WolfQuest* (Goldman, Koepfler & Yocco, 2009) and *ecoMUVE* (Metcalf et al., 2013) have demonstrated how virtual world games can be used to support an abstraction of participation in a field or study (behave as a vector or practitioner in a field).

Gameful or gamified learning experiences like Hour of Code (<https://code.org/learn>) and Scratch (<https://scratch.mit.edu>) are being used to build a positive disposition to fields of STEM new to primary education (like computational thinking), while the mobile game *Water Bears EDU* (<https://itunes.apple.com/us/app/water-bears-edu/id964924572?mt=8>) engages learners in spatial awareness and systems thinking.

Commercial or 'off-the-shelf' games (commercial games not designed specifically for educational use) have been appropriated and adapted successfully by teachers for specific learning contexts. Games such as *Minecraft* (<https://minecraft.net/en>) and *Portal 2* (<http://www.thinkwithportals.com>) have reported success in supporting STEM learning topics as diverse as momentum, potential energy, circuitry, Rube Goldberg machines and city planning.

Game design tools are being used for students to evidence their own research and learning by embodying STEM concepts in games to teach others. Leveraging this constructivist pedagogy (Piaget, 1977), competitions in Australia like the ACER STEM Video Game Challenge (<https://www.stemgames.org.au>) and ACMI Screen It (<https://www.acmi.net.au/education/student-programs/screen-it>), while relatively new to the scene, clearly are drawing teacher attention. They promote STEM learning agendas while providing an authentic context and audience for student-designed products.

## What do we know about the diffusion of gameful practices?

Everett Rogers (1962; 1983) described the diffusion of innovation as being a bell curve of adoption. It seems reasonable to assume that over time, innovations such

as video games would follow a similar pattern of diffusion from the early adopters through to the laggards.

We know that teachers have used games as tools in their teaching for very many years. They might have been singing games, puzzles, 'decide your destiny' stories, physical games, trust games, card games or board games. Somehow, though, digital games and video games have not evolved in the same way as part of that continuum of game adoption. Their pattern of uptake much more mirrors that of 'disruptive technologies' (Christensen, 1997).

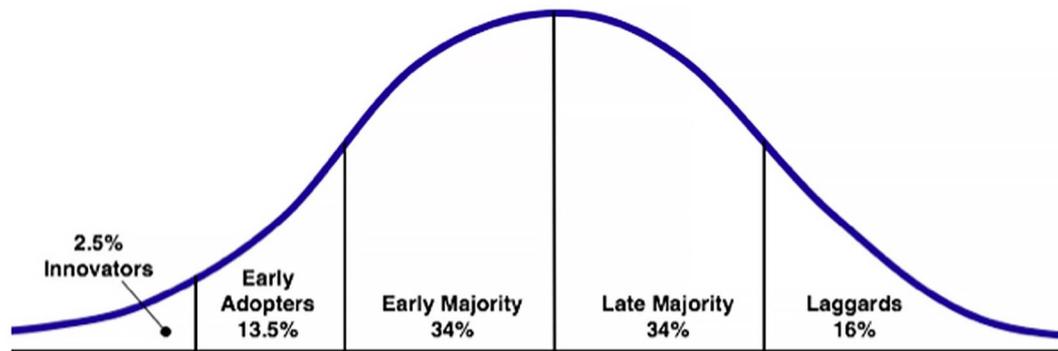
Coming from a marketing perspective, Moore (1983/2014) expanded on Rogers' theory to propose the technology adoption life cycle, and the idea that diffusion was not necessarily a smooth and a complete continuum. He proposed that there was a chasm between the early adopters and the early majority that had to be crossed for a disruptive technology (or product) to become mainstream. Malcolm Gladwell (2000) called this point just before impacting the early majority the 'tipping point'.

Both Rogers and Moore suggest that the needs of early adopters are very different to those of the early majority. Where early adopters are motivated by scarcity, by being individuals in a small leading-edge elite, the early majority are influenced by a level of social proof. They are swayed to take up innovation because others around them and like them are engaging in it.

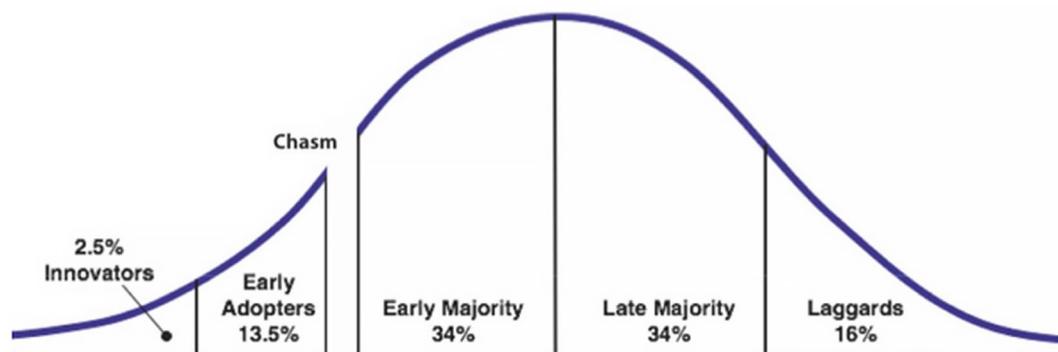
For educational use of games, this chasm might be perpetuated when we continually share only stories of the most expert of the innovators. Their stories and practices might be too distant from those in the prospective early and late majority. While their stories can inspire and give vision to what is possible, they may not provide the social proof needed by many for a shift in classroom practice.

## Where do gameful practices sit in the adoption cycle?

There is a serious dearth of evidence about the uptake of gaming and gameful practices in Australian schools. Recent US studies (Takeuchi & Vaala, 2014) would suggest as much as 55 per cent of teachers allow students to use games at least weekly. However, the type of games and the purpose of their use proved not to be the immersive and transformative game experiences described earlier in this paper. 'Teachers are using dedicated game platforms in particular to motivate and reward students (54%) and for break activities (43%), at about twice the rate they're using these devices to engage students with lesson content' (Takeuchi & Vaala, 2014 p. 56). So while the survey percentages appear to suggest games are now well into early majority use, I would suggest this is not the



**Figure 1** Diffusion of innovation (Rogers, 1962; 1983)



**Figure 2** Technology adoption life cycle (Moore, 1983)

case if we consider the affordances of games to be transformational play experiences (Barab et al., 2010a, 2010b) and truly disruptive. We may well be looking at a percentage for adoption much closer to 16 per cent and the tipping point. The tail end of early adopters, those educators having just stepped into new gameful practices for the first time, could hold the key to influencing the early majority mainstream educators.

## How are teachers acquiring skill in using games and gameful practices?

'Teachers are learning to teach with digital games via more informal means (i.e., fellow teachers and self teaching) than formal training programs (pre-service and in-service)' (Takeuchi & Vaala, 2014, p. 57).

This informal learning may explain why burgeoning face-to-face practices like Edcamp (<http://www.edcamp.org>) and TeachMeet (<http://www.teachmeet.net>) appear anecdotally to be both popular and impactful in uptake of educational innovation. Their participant-driven nature builds relationships and, equally, gives access to a range of

practitioner stories – expert and near-novice – and perhaps some level of clear social proof or acceptance of an innovation's benefit.

Conversely, formal educational events continue to host expert stories. We see this at professional conferences, webinars, in media articles and in research case studies. But it is the stories of near novices or 'advanced beginners' (Dreyfus, 2004) that may prove more accessible and influential to true novice practitioners.

## What might constitute social proof?

This research project marries constructivist and situated learning, diffusion of innovation, and communities of practice theory to create a social-media-savvy case study approach. We can look to constructivist learning theory to understand why focusing on near novices might be advantageous. If we accept the Vygotsky concept of the zone of proximal development (Vygotsky, 1978, p. 86) as the space where a person is able to perform with guidance and scaffolding, then creating a place for teachers to support each other could work towards jumping the chasm. The research strives to

understand if and how telling the stories of near-novice innovators in the tail of the early adopters group might scaffold those true novices following behind them. In this case, the innovation describes all gameful learning practices (bridging game-based learning, game design and game-inspired learning or gamification).

## The research motivation and questions

'Those who are successful at creating social epidemics do not just do what they think is right. They deliberately test their intuitions' (Gladwell, 2000, p. 258–9).

This research represents a deliberate testing of intuitions cultivated by the researcher over 20 years of leading teacher professional learning, communities of practice and games in learning research. It is a disciplined and informed intuition that suggests telling the stories of near novices (on the tail edge of early adopters) and building a discourse around those stories will be impactful in influencing those not yet involved in gameful learning practices (on the leading edge of early majority). Essentially, this project is designed to create the zone of proximal development to scaffold novice game-using educators (Vygotsky, 1978, p. 86).

### Research questions

- How effective can case stories of near novices be in motivating and scaffolding novices to innovate with gameful learning practices?
- How and in what ways can stories and the intentional community cultivated around them serve to amass the social proof required by early majority adopters?

## Methodology

Jumping this chasm will involve collecting and publishing a critical mass of case stories as the core component around which to cultivate professional discourse (and community).

This will involve:

- Case study methodology: Volunteer participants identified through expressions of interest, nominations, events, conferences, and so on
- Stories of near novices as recognisable other: Case stories built from interviews and site visits with volunteer educators
- Blog to dynamically offer and build a critical mass of stories: Cases appear as blog posts with identified educators and a follow-up means of communication
- Facebook group and Twitter handle (#getgamehub): Discourse, networking and community building spaces
- Webinar, Meetup and other community building events and activities: Regular synchronous events to host discussions and meet case educators
- Google Analytics to gather click data: Site data used to understand traffic and usage
- Mailing list to identify users: Identify those engaging with cases for survey feedback
- Survey to determine value to early majority: To question site users and community users about the value of cases and social engagement.

At the time of writing this paper, the tools described are in various stages of development, and the first stories are being amassed. First data should be available in early 2017.

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