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Gamification and Having Serious Fun

Introduction

The project's ultimate outcome is that "learners are equipped with foundational skills and attitudes for future academic success". The targeted skills are visual literacy skills including emotional literacy, English oral communication skills, numeracy skills, gross-motor skills and fine-motor skills. The attitudes of motivation to learn, enjoyment of learning and confidence in learning are also sought but the focus throughout is on the use of play.

The purpose of sharing this learning brief is to outline the difference between the gamification design elements of the project as opposed to the focus of the project on learning through play and to explain how the two concepts have complemented each other in this Learning Gains through Play project which has equipped ten primary schools with the Xbox Kinect and 20 android tablets. This brief is intended to provide some insight into a renewed enthusiasm displayed by teachers as well as the way in which some teachers are starting to adapt their teaching strategies.

Learning through Play

As long ago as the 1940's, The Walt Disney Company coined the term, "edutainment" to refer to content that was entertaining but educational at the same time. Around the world and over decades we have seen many instances of edutainment, such as children's' television programmes, for example Sesame Street, films such as Wall-E, and radio programmes such as Soul City and currently the Nal'ibali multilingual early literacy programme. Similarly the concept of 'learning through play' is a well-known strategy that has been used by parents and teachers for centuries and has led to the growth of the educational toy industry. The use of play for learning has been widely researched and currently The Institute for Play has concluded that we have underestimated the value of play in learning. The Institute's Executive Director, Katie Salen, a professor at Depaul University describes learning through play as a state of being in a video interview. She describes play as transforming learners to feel free, to be creative, to make their own choices and to explore. She refers to a playful state of mind which naturally includes engagement and sharing of ideas. Salen characterises learning spaces that are designed for play as appealing to learners because they feel the space is not rule-bound and has been designed for them and more importantly designed

for them to succeed. Learners know that they are central to the play process; without the player there is no game. In play spaces there are opportunities for practising and improving and thus, for building confidence which is at the heart of learning.

Gamification

Gamification is a different concept from learning through play and should be distinguished from it. The definition of gamification is "*the use of game elements and game design techniques in non-game contexts*". So, game elements can be used in the teaching of any subject and these usually consist of giving badges for achievement, having a leader board, game points for progress, challenges between users and systems for awarding, redeeming, trading, and gifting. The badging concept has been gaining popularity world-wide over recent years and involves students (anywhere, anytime and of any age) gaining recognition for their skills achievements through the allocation of badges according to prescribed criteria.

Not only does the LGP project use games and learning through play as a vehicle for learning but a key factor in the design of this project, is an element of gamification built into the professional development strategies in the form of badging for the teachers. In the longer term, these teachers will also apply gamification models in their classrooms for their learners. In order to "earn" badges, teachers in the LGP project have to prove they have matched the criteria by showing evidence such as videos, digital mind maps of learning topics using their mind mapping app, photos of learners using the teaching methodologies from the course, and photos of learners' work. Evidence of the effective use of the teaching strategies leads to the accumulation of badges for the staff as a whole, which in turn can lead to rewards for the school, which might be a data projector, a second bank of Intel tablets or a further Xbox Kinect.

There is a gaming profile test characterising the players of online games into four groups: achievers, explorers, socialisers and killers. The Bartle Game Theory offers some value for teachers as a tool for motivating learners. If all four gaming profiles' needs can be accommodated in learning activity design and planning, then engagement of all learners can be enhanced and the same motivations for play can be used to drive learning. Core principles in game design are the same as for instructional design.

We have learnt that there are some negatives to avoid when using gamification elements in class. For example, there are some topics that are too serious to trivialise by awarding points or having leader boards and badges. One valuable attribute that children have which adults do not, is that they learn the rules by playing the game and not by reading a manual - so learning tends to be experimental and fast.

SchoolNet has had previous experience of the badging concept which was being used in the very successful CSIR's ICT4RED project in the Eastern Cape. The badging programme was effective as an incentive for teachers to earn rewards for themselves personally, as well as for their schools. There are currently 29 badges in the Learning Gains project, 13 of which are compulsory.

There were some drawbacks that we identified previously with the badging system. Firstly, collecting evidence from teachers was a cumbersome process. This was particularly labour intensive if the evidence was in the form of a video and required transfer to the badge assessor's device from the teacher tablet. In the LGP project therefore we decided to process badge evaluation online. So teachers log on to the website and submit their artefacts there. They upload their videos to YouTube and share the link on the website. The badge assessors can then view the evidence online and provide feedback. The evidence gives an instant indication of whether the teacher has understood the criteria. Once evidence is approved then the badge is automatically issued to the teacher through Credly.

Another shortcoming in the badging process that we wished to avoid was that teachers can be highly motivated to master skills in order to achieve badges but do not always apply those skills in the classroom. To combat this tendency we designed badges in the LGP project that require evidence of classroom implementation. This instantly indicates whether the teacher has understood the teaching strategy that has been work-shopped and gives the opportunity for remediation if necessary.

Knowledge Sharing

One of the project staff, Senzo Ngcobo comments on the online submission process:

> *"When we started this project most of these teachers knew very little about technology and its integration within teaching. They could not even send or receive email and had never used the internet before. When they now submit their badges online, they are compelled to use the internet. Through the use of the internet, they have learnt to email and upload videos to YouTube. They regularly check their email now and they also visit the LGP website to check how they have fared with their badges. We would not have achieved this, had we not gone the online route. They are not the same teachers we met in July last year. Furthermore, the assessor does not have to go to school to collect badges and disturb classes. The teachers can submit anytime, anywhere."*

Teachers and principals in all ten projects schools attended a workshop in early 2015 that analysed the overall objectives of the project; what we are measuring and why. Teachers correlated the skills prescribed in the CAPS documents with the targeted skills of visual literacy, English oral communication, numeracy, gross-motor, fine-motor and emotional literacy. Teachers then mapped different Android apps and Kinect games to determine which of these skills were being developed, practised and promoted. This insight has now contributed to teachers making well-informed choices for their learners when integrating games and apps in their lesson design. The aspect which teachers appreciated the most, was that instead of this element of play being treated as an add-on or additional teaching time burden, playing Kinect games or their selected app games, has allowed their learners to readily achieve the outcomes of the national curriculum.

Three new knowledge-sharing activities, related to these new software evaluation skills, were introduced and all three result in compulsory badges. The first is the compilation of a publication or anthology called, "LGP – Games to Develop Foundational Literacies: A Collection of Authentic Learning Briefs". Each teacher selects a Kinect Game and a specific app to evaluate. They analyse the game/app in terms of teaching and learning opportunities for the foundational literacies that it affords. They then write up detailed reviews in order to share their experience of how the game or app has benefitted their learners. This in turn will inform other Foundation Phase teachers using this technology. The second knowledge-sharing activity is a video diary badge that teachers upload to the LGP website on a regular basis demonstrating play-driven and learner-centred activities that have

worked in their classroom. In the third activity, teachers record in their reflective journal on the LGP website their thoughts about activities that they have chosen and why. This takes the form of 'Two Stars and a Wish'. The 'two stars' are offerings of two classroom lessons, activities or teaching moments that worked well. The 'wish' is for an activity that could have gone better or that the teacher wished she might have done differently.

Teachers have noted that the big advantage of using Kinect in class is that it easily achieves the outcomes of the CAPS documents and can cover a range of topics and outcomes. E.g. Kinect Adventures is a game that involves dodging obstacles and navigating the river while balancing on the river raft. Teachers have recorded that it develops gross-motor skills, fine-motor skills, locomotor skills, perceptual motor skills, coordination, balance, spatial orientation, directionality and laterality. Learners listen and follow the instructions. They also learn to share and wait their turns. Similarly, in the game 3D Bowling, teachers have noted that learners are using mathematical numeracy skills all the time for counting scores, comparing scores and collecting points. Language skills are emerging as learners are recognising and reading signs and following instructions. Most importantly this is happening in their additional language (which is most likely to become their language of learning and teaching in Grade 4) because the Xbox uses English. Obviously the bowling game makes extensive use of hand – eye coordination through virtual object-control skills which research has shown to further extend mathematical skills.

Teachers have been encouraged to source new apps and games, to test them out and to report on them. In some cases, feedback in workshops has also been recorded via video, viewable on the project website. In this video, Thabisile Nyide from Qhamukile Primary, describes a Podcast on English vocabulary which had helped learners to improve their listening skills and pronunciation while building their vocabulary. Thabisile points out that this type of podcast really assists children who are taught only in their mother tongue. She also outlines the benefits of the android app, Cup Cakes, and explains that it is such a popular app because it gives learners the freedom to be creative in their designs and colour schemes. In this video, Jabu Mkhize HOD of Foundation Phase at Nogqaza Primary outlines the advantages and disadvantages of using e-books with her learners. Ms. Fikile Ndabeni of Christmas Tinto and Bianca Meyer from Temperance Town Primary in the Western Cape both recorded feedback on their experiences with Kinect games using the Xbox in their classrooms and both highlight classroom management techniques as well as identifying the relevant teaching opportunities while playing the game River Rush.

Conclusion

Collaboration with teachers on the creation of their Learning Briefs has been providing insight into their teaching strategies and how these have been evolving. The process has enabled the identification of specific teachers who might prove to be interesting case-studies for the project evaluation.

Collaboration among teachers is not only improving teaching overall but is starting to strengthen their community of practice, building their confidence to be able to share, support and inspire their peers. Once published the Learning Briefs will showcase a teacher's expertise, enhance their professional reputation and give pride in the importance of their work. A published compilation of Learning Briefs, for using specific Xbox Kinect games and android apps to develop and improve the vital Foundation Phase skills, will provide a valuable resource for other teachers and will fulfil a knowledge-sharing legacy for the project.