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Introduction

“We can foster SEL through a variety of educational approaches that promote student’s capacity to integrate thinking, emotion and behaviour to deal effectively with everyday personal and social challenges.”

Mark T. Greenberg, Celene E. Domitrovich, Roger P. Weissberg, Joseph A. Durlak “Social and Emotional Learning as a Public Health Approach to Education. (p.14, The Future Of Children, futureofchildren.org)

Hardware

The idea of Numberella was born approximately 4 years ago, out of necessity. Teaching a student who refused to engage with traditional tutoring methods, I realised that I had to come up with something which would capture her imagination, motivate her to pay attention to me, and deliver educational value to her parents. I decided that I had to build a game, and asked myself some simple questions, such as ‘what would this game look like?’ I settled fairly quickly on dice as a simple and fun way to create suspense, and then began to think how I could combine their natural potential with the maths syllabus, and still make it fun. The first version of Numberella, therefore, was a Tupperware box filled with bits of folded paper that contained questions, which you would pick out according to the number on the dice the player rolled. Even this very simple version of the game was extremely popular with students. Encouraged, I thought back to the games from my childhood which I had enjoyed the most, and began to incorporate elements of them into Numberella. I kept what my students liked, and moved on from what they didn’t like. Thus the game balances the fun that comes from the Fortune Cards, with the knowledge that comes from the Game Cards. Fast forward four years, and the game is in manufacture, with rave reviews from the teachers who have trialled it, and from the students they have trialled it with. It is popular because it has a clear academic value, but above all, because anyone can win.

Software

As a private tutor I am lucky enough to form close relationships with the children I teach. One on one teaching allows a unique insight into the psychological structures of young children, and it has been apparent to

me for some time that children require the support, approval and affirmation of their parents to an extent they rarely admit, even to themselves. This observation gave rise to the idea that if Numberella, a game which I knew kids loved, could stimulate a connection between teachers, students, and parents that profiled maths in a positive way, the potential for increased enjoyment of the subject could be enormous. It was out of this thought that the Numberella software was born. I was looking for a way to provide continuity to the game playing process, which is provided by the league software. Gamification studies have proved that Leagues 'address the need for competence' and are thus a motivational force. I also wanted to harness the enthusiasm children feel for Numberella and involve their parents with it. How often is Maths the butt of mutual antagonism, a subject which parents never 'got' and consequently are intimidated by? What would happen if students started enthusing about it, and parents were made part of that process?

Building A Learning Community

So let parents follow students progress on an app, and allow them to leave encouraging comments on the child's Club Card; engage them in a process their children enjoy - and they might enjoy it too. And why not involve grandparents, who love their grandchildren more than anything? Make it as easy as scanning a QR code for Granny and Granddad to see how little Jimmy is getting on at maths. Extend the potential of this by dividing children into houses based on the Numberella characters, to encourage a 'whole school' culture. Have Numberella teams, house v house, school v school – and make maths an exciting part of school life that everyone wants to be involved in – because everyone feels like they could win.

In short, use Numberella Hardware and Software to create a 'Universal Intervention' which can 'change the norms, skills and attitudes of the entire population, thus creating a "sustaining environment"' where maths can flourish.



Alexander F.L. Newberry
Founder, ANT Education Ltd
Designer, Numberella

Numberella® – Who is it for ?

Combining elements of classic games like Monopoly and Snakes and Ladders with the Maths Syllabuses of the UK and the US is what makes Numberella a game that delivers big on educational value, and delivers big on fun. The result is a brilliant game that will leave your students begging to play again – and getting better at maths in the process. Numberella is available in 3 levels :

Level 1 – Key Stage 1 / Grades 1 – 2

Level 2 – Key Stage 2 / Grades 3 – 4

Level 3 - Key Stage 3 / Grades 5 +

Please note that Level 3 is often quite challenging for adults !

Numberella® is for you if you are a :

Parent

Put simply, there is no better way to revise the maths syllabus with your kids, than Numberella. It's a great game in its own right, so they enjoy playing it – and every second they do, you are giving them a maths work out.

Maths Teacher

Numberella is the perfect way to earn the affection of your class, and boost their maths skills. Kids love playing Numberella, so by giving them a session where they can play, you will become more popular. From an educational perspective, you know you will be strengthening their memory for maths facts *and* improving their mental arithmetic. Utilising the houses and the league will give you a new dimension as

you can give them team tasks and challenges which may well extend beyond the playing of Numberella.

Maths Tutor / Intervention Specialist / SEN Teacher

Numberella was built in a one on one tutoring environment, and was designed to engage children who could not be engaged in any other way. It is a godsend for tutors, intervention specialists and SEN teachers. It takes away the sense of you versus me which can arise in one on one teaching, and creates a zone where the child feels enthusiastic and comfortable. It also extends the concentration span of the child, so that a child who would previously be hard to engage beyond 15-20 minutes should now be able to concentrate for a full hour.

School Leader

Bringing Numberella into your school and running leagues across multiple year groups will enable you to invigorate your school culture. Research clearly shows that schools benefit from a house culture, as it deepens integration between year groups and gives children a sense of belonging which eases the social pressures which may otherwise arise.

You can put Numberella teams together and arrange matches with other schools ; or allow different classes to play each other. Use the league tables to motivate your students and enjoy an upswing in maths performances over your entire school.

Numberella Clubs

If you are a tutor or teacher and you would like to earn money by running your own Numberella Club, you can do so. I

have been running a Numberella Club successfully for over a year, and kids love playing.

Numberella Hardware – A Game Of Maths And Dice

Numberella will help students develop the following key skills :

Mental Arithmetic

Early arithmetic skills appear to ‘impact the construction of neurobiological architectures across development’ which may in turn support the acquisition of high school maths level skills.’

Gavin R Price, Michele M.M.Mazzocco, Daniel Ansari
The Journal of Neuroscience, January 2nd 2013 156-163

Numberella is built around mental arithmetic and the fast recall of maths facts. Every aspect of the game involves counting, from the first roll of the dice to the ‘cashing in’ of Ant Coins in exchange for Fortune. Game Card Category 4, High Pressure, requires players to answer 12 mental arithmetic facts as fast as they can, or within 45 seconds if you are using the timer. All of these different factors working together means that Numberella helps boost mental arithmetic – a fact that the 2017 trials have clearly indicated.

Fine Motor Skills

‘Fine motor skills should have a pivotal role in educational interventions designed to support the development of early mathematical skills.’

Nicola J. Pitchford, Chiara Papini, Laura A Outhwaite, Andrea Gulliford, University of Nottingham, <https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00783/full>

At every stage of the game, Numberella involves picking up and rolling dice of 3 different colours; picking up and holding cards; handling and exchanging coins of 3 different sizes. It also contains two question categories which specifically require the use of fine motor skills.

The Command Category of Numberella contains questions which require the stacking and/or arranging of dice. Depending on the level being played, it may also require players to do this *whilst* doing mental arithmetic.

The Quick Draw category, besides requiring the fast turning of a playing card, in some instance requires the player to perform a simple task, like putting their hands on their head, whilst answering a question.

Thus, Numberella can play a significant role in the development of Fine Motor Skills.

Pressure Tolerance

‘Pressure is an inherent part of life. The sooner you teach your kids how to perform under pressure, the sooner you’ll give them life’s ultimate edge.’

[Dr. Hendrie Weisinger, Performing Under Pressure: The Science Of Doing Your Best When It Matters Most \(Quoted from\) HuffPost 23/12/2015](#)

When you open your box of Numberella, one of the first things you’ll see is a green 15 second sand timer. Use of the timer in Numberella is optional, as its really important to make sure that players have a solid arithmetical foundation before exposing them to pressure around numbers.

However, if you are playing with a confident group, the timer allows kids to experience at first hand what it is like to have to

think under pressure. Numberella is a friendly environment – so the pressure is never too great – but it provides parents and teachers with the perfect space to begin to improve children’s responses to, and experience with, pressure.

Thus, Numberella can play a significant role in the development of Pressure Tolerance.

Social-Emotional Development

‘Social-emotional learning programs in schools not only improved social-emotional skills, but also increased positive attitudes toward school, positive social behavior and academic performance.’

‘Social and Emotional Learning as a Public Health Approach to Education’ Future Of Children.Org Spring 2017.

Mark T. Greenberg, Celene E. Domitrovich, Roger P. Weissberg & Joseph A. Durlak

Numberella can be played by up to 5 players, so it is by definition a game which creates social, interactive space. Here are some of the ways Numberella helps develop five social-emotional skills every child should have:¹

Patience – The Miss A. Go card enables one player to tell another player to miss their turn. Learning to accept this temporary set back is an exercise in patience.

Self-Reliance – Numberella gives players the opportunity to trade cards in the hope of getting an edge. Making these decisions helps build self-reliance.

Responsibility – Using a Harry Hijack card in Numberella places a player under the spotlight. If they don’t get a question right, that they thought they would get right, then they gift the

¹ Lawrence Kutner, PhD in <http://www.parenting.com/article/5-emotional-skills-every-child-should-have>

player they Hijacked all the available Antcoins. Thus, they have to take responsibility for their decision, in real time.

Bonding – Numberella requires team play – for example, in category 4, High Pressure, one child has to ask another child 12 mental arithmetic questions – an example of Student Centred Learning. Both children get rewarded at the end of the process.

Self-Control – Numberella is a game that can create highs and lows – from the triumph of winning a Sudden Death Dice Duel, to the disappointment of having a Thief 100 resisted, it is a game which allows children to experience a full spectrum of emotions, and as such, to learn how to control them in the knowledge that fortune can be a fickle friend.

Stealth Literacy

‘Anytime learning is presented and students are unaware they are learning, it is an unexpected benefit.’

[Laura A. Sharp, ‘Stealth Learning: Unexpected Opportunities Through Games’
Journal of Instructional Research | Volume 1 \(2012\) 42-46](#)

Numberella is a stealth literacy resource. Children who might traditionally freeze when confronted with reading in a task specific environment will not suffer their panic reflex when reading in Numberella, as it is not their reading which is being tested. They read, without thinking about it too much, because they are focused on maths and Antcoins.

Printed in a dyslexic specific font (the same one you’re reading now) chosen for its extreme clarity, Numberella is an easy game

to read, and thus perfect for dyslexic students, or students with reading difficulties.

Team Work

‘Students need to be immersed in learning environments that promote real learning in real contexts. Teams and teamwork help to promote deep learning that occurs through interaction, problem solving, dialogue, cooperation and collaboration.’

(Johnson & Johnson, 1995, in <http://www.unice.fr/crookall-cours/teams/docs/team%20Successful%20teamwork.pdf>)

It is inevitable that sooner or later we all end up needing to function within a group. For some of us this reality can be very challenging. Because Numberella involves up to 5 players the nature of the game is interactive and requires the players to communicate. This is a very fertile ground to help the children develop mechanisms to function within groups and to find their voice in a safe environment. The Harry Hijack card, in particular, allows this process to take place.

The Numberella leagues takes the concept of Team Work one step further. It creates a space where members of the community can work together to help children, through the use of Numberella, improve their mathematic skills whilst also generating a feeling of community.

Self - Motivation

“In their formative first two decades, individuals spend about 15,000hr in schools. Thus schools represent a primary socializing influence that has enormous impact on the course of

people lives and, in turn, on society. Ideal school systems are ones that succeed in promoting in students a genuine enthusiasm for learning and accomplishment and a sense of volitional involvement in the educational enterprise.”

Edward L. Deci University of Rochester, Robert J. Vallerand University of Quebec at Montreal , LUGG. Pelletier University of Ottawa, Richard M. Ryan University of Rochester in Motivation and Education : The Self-Determination Perspective. Educational Psychologist Volume 26 1991 Pages 325-346.

Numberella is an incredible intrinsic motivator. Because each question answered correctly or each victorious dice roll is a source of real success for the child, it stimulates more efficient learning through positive experience. It develops in children the self confidence that comes with success. Success breeds success! Once a child starts to get positive results from the game he will want to come back for more and more.

Not only is the game fun to play it also allows for kids of all levels to play together without risk of any player feeling left out. This is because all the players can win despite having different levels of knowledge. The Harry Hijack card is the safeguard against any player suffering embarrassment or a feeling of inadequacy for not knowing an answer, and in this way kids never feel demotivated from playing.

Numberella is a game designed to give all players the chance of winning. Win once, and you believe you can win again. For a child who has never done well at maths, this can be a game changer.

Real Time Maths Skills

‘Mental calculation sharpens the mind and increases mental agility and intelligence. It enhances the precision of thought... in mental calculation we cultivate fine and careful thinking.’

<http://www.focusacademy.com/index.cfm?fuseaction=home.pageview&storyid=13&chnl=19>

One of the greatest features of Numberella is that it trains the brain in mental arithmetic. This is done in a 'Real Time' environment. When a player picks up a card she has to work out the answer on the spot, without jotting down answers. Whilst this can be daunting at first it is a skill that can be learned and that Numberella teaches very effectively. In an academic environment where an increasing value is placed on interviews and the ability to think on your feet, rather than in the bubble of an exam, Numberella is one of the best ways to train children to think clearly under pressure.²

Becoming numerically confident is hugely important to future life; people who are able to do a quick percentage in their head can hold conversations on business which would be completely beyond someone who cannot. With poor numeracy costing the UK economy 20 Billion Pounds a year, Numberella is a way of engaging and improving numeracy in *all* students, equipping them to perform better in later life.³

Better Memory

“Children must care enough about information or consider it personally important, for it to go through the brain filters and be stored as memory. Use your child’s interests to connect her to the material.”

<https://www.psychologytoday.com/blog/radical-teaching/200904/top-10-list-improve-your-childs-memory>

² The influential Consortium group of London private schools recently announced that they would stop examining children at 11+ and based school entries on performance in interviews.

³ [3 https://fullfact.org/education/counting-cost-poor-literacy-and-numeracy-skills/](https://fullfact.org/education/counting-cost-poor-literacy-and-numeracy-skills/)

A good memory is a key instrument in the fast paced world we live in. It has an impact on our social life. Remembering people, their stories, and even their names can make a huge difference.

As Samuel Johnson said 'the true art of memory is the art of attention'. Numberella provides a vehicle through which children repeat elements of the maths curriculum but because it is fun it does it in an environment where the attention of the children is focused on learning. When someone is actively engaged in an activity the memory works better. Put someone in a situation of stress and their capacity to memorize immediately suffers.

A good memory is also a means of stress reduction. If your memory functions well you remember appointments, you tend to be less chaotic and more organized. It leads to a cleaner and healthier life style. A better memory also triggers better learning. An ability to remember learnt facts stimulates comprehension. A grasp of the key concepts also provides the framework to build more complex structures of understanding.

Numberella is a key tool in helping Kids develop a better grasp of key concepts and to memorizing them through repetition in an environment of heightened attention.

Strategic Thinking

'Strategic leaders take a broad, long range approach to problem solving and decision making that involves objective analysis, thinking ahead, and planning.'

<https://hbr.org/2014/02/develop-strategic-thinkers-throughout-your-organisation>

Numberella helps children to start thinking strategically. The game demands that each player analyzes and considers the best long term strategy to help in maximizing his or her chances of winning the game. Do you use a Thief Card against the

player with the most Ant coins? Or does that player have a Ronnie Resist card that will thwart this plan? When is the best time to use your last Hijack card? Should I sell a Harry Hijack card to try and get my next cash in, or should I keep it to try and Hijack someone's turn. Decisions, decisions!

All these questions will be in the mind of the player throughout the game. The attention will be on the content of the game and also on the overall strategy. Without realizing the players will be developing a broader strategy to win the game that will in turn stimulate the creative and strategic areas of the brain. The constant ebb and flow of the game will mean that these strategies will be constantly evolving in the Player's brain also stimulating his or her need to adapt to changing environments, think on his or her feet and be innovative and smart.

Numberella Software – Helping You Build A Learning Community

Numberella software allows school leaders, teachers, tutors, and Numberella Club owners to create continuity between game play, and a connection with parents and their children's progress. The House system allows children to develop a greater sense of belonging, and the potential to be involved in maths related team activities.

Building A League

'The combination of game theory with the use of friendly competitions provides a strong motivation for students; helping to increase their performance.'

[Using game theory and competition based learning to stimulate student motivation and performance.](#)
J.C Burguillo, *Computers and Education* 55 (2) (2010) 566-575

Building a Numberella League is the gateway to creating continuity between games, and the first step to creating an active dialogue about the game amongst the students. An active dialogue will involve attempts to memorise questions, discussion about how to get quicker at mental arithmetic, and so on – making maths a popular topic of discussion and thus contributing to an upswing in engagement with the subject. Because of the game play design, Numberella has the capacity to create unlikely winners, and thus, unpredictable leaderboards. For this reason, a Numberella league will not suffer from any of the problems associated with purely meritocratic leaderboards, namely, that the people at the bottom can become de-motivated.

How to do it?

Building a league in Numberella is easy. Simply log on at Numberella.Club and upload an excel or word document with the names of your students on it. Then all you need to do is print out a pdf for each student, which you should give them to take home to their parents. At home, parents must simply download the Numberella App from the App Store, and scan a QR code to open their, and their children's account. Children and parents can access their account via a smart phone or tablet, and the app is available in both Android and iOS. Parents can monitor the accounts of multiple children, and view all activity on the cards. Anytime the League is updated, parents will receive an update on how their child has done. They can then leave an encouraging message on their clubcard, helping the child feel that their efforts are being noticed. Parents can easily add supporters on behalf of their child – by generating a QR code on their phone for the other person to scan.

The Power Of Houses

'Results indicated that the implementation of the house system led to significant positive changes in stakeholders' perceptions of school community.'

[Fostering Community Through The House System at Most Holy Trinity Catholic \(Primary\) School, Michael C Brennan, Director of Schools, Rochester Catholic Schools, Minnesota, July 2013](#)

In Numberella, the heads of houses are the 6 characters in the game – the five Fortune Card Characters and Numberella herself. As mentioned above, each head of house has their own narrative, communicated to the Club Cards on a weekly basis, with periodic 'top ups' available via the characters twitter pages.

Students are automatically arranged into houses when they are added to the system. Once the students are arranged, teachers can display house performance on screen. Performance of

different year groups in the same house can also be compared, helping to promote communication between year groups and a sense of belonging which will mostly likely be absent if there is no such system in place.

Because of Numberella's Fan Power system, students will be motivated to make contact with, and 'support' other people in their house. Supporters will share a message board where they can talk amongst themselves. Teachers and parents will be able to view all communications entered into by students, and students can block any other student whose comments become inappropriate, an action which will trigger an alert to a teacher.

Once the house system is set up, teachers can use it to create team tasks – Numberella can be played as a team game.

Fan Power & Community Building

“Every time we post, share, ‘like,’ comment or send an invitation online, we are creating an expectation,” according to the study. “We feel a sense of belonging and advance our concept of self through sharing.”

[Molly Soat, “Social Media Triggers Dopamine High’ in Marketing News November 2015.](#)

As in Facebook and Linked In, in the Numberella software you have to apply to support someone. If they accept the request, then you become their supporter and you can comment on their clubcard. If you're in the same house, chances are they will support you back, as this

The more supporters someone has, the more Fan Power they get. The more Fan Power they get, the more Antcoins they can earn from the questions pushed to their Clubcards. HQ will offer questions which will only be available to players who have

reached certain Fan Power thresholds. This will drive players to add supporters. Because of the House System, players will quickly agree to add each other if they are within the same house. This will drive communication between year groups and help to forge the house identity within the school, bringing with it cultural benefits and a sense of belonging.

Players can earn even more fan power by inviting people to support them who are outside of their league eco-system. For every external supporter gained, they will receive 2 Fan Power points. Thus Fan Power encourages students to build communities not only within their school, but also, within their communities – thereby fulfilling a pre-condition of Social Emotional Learning.

Narratives (going live May 2018)

‘The addition of narrative stories to the gamified environment has been shown to be effective in motivating and engaging learners.’

Meghan C Lister, Holland College. Gamification: The effect on student motivation and performance at the post-secondary level. (Apostol et al., 2013; Erenli, 2013; Gåsland, 2011; Stott & Neutaedter, 2013).

The characters in Numberella all have on-going narratives, which will be communicated to Club Card holders via their Club Cards. Narratives will give added meaning to The Power Of Houses, by making the lives of the House Leader talking points for the people within their house, and giving them an extra dimension.

Numberella Characters

Numberella is an orphan who lives with her grandparents in London. Her parents died tragically in a plane crash, on their way back from a Physics convention. They were both scientists working on the development of Nuclear Fusion...

Ronnie Resist was born in Israel - his mother was a member of the Ethiopian community there. His parents came to London in search of better opportunities and Ronnie grew up in a tough neighbourhood near Hackney..

Residing in a murky council estate somewhere in South London, no one really knows where Harry Hijack comes from. Some think he's originally from Egypt, because he has a tattoo of a pyramid on the back of his right hand. Others think he's from Mexico, because he often says 'ay caramba' under his breath...

The Thief has never been seen without her mask on, and she usually only operates at night. Ronnie Resist once tried to follow her home, but she disappeared into the fog under London Bridge and he lost her...

As a child Miss A. Go always seemed to finish second - and she always suspected that the person who finished first had been cheating. She left her native Aberdeen at eighteen for Scotland Yard, determined to stop all those suspected of deception from achieving their crooked ends...

Jin Genie left his native India as a teenager after inheriting a fortune from his Great Uncle, who had died childless, and came to England because he loved the Royle Family. An early investor in dotcoms, Jin Genie became so wealthy he never had to work again...

Booster Questions (Going Live May 2018)

'According to the new theory of disuse, information that is learned will remain in memory forever. New learning of the material will increase its "storage strength". On the other hand, when information is not used it will become inaccessible over time – it will decrease in "retrieval strength".'

Dr. Robert Bjork, 'Storage Strength v Retrieval Strength' gocognitive.net.

Poor recall of facts is a widespread issue amongst all learners, and is of course the driver of 'Revision.' But 'Revision' – the practice of trying to cram a term or years worth of information into a stressed brain – is not the best way of memorising things at all. The most effective way of memorising things is to in the first place, learn them with interest – a precondition which Numberella hardware provides. Then, that knowledge must be

revisited on a regular basis, increasing what Dr. Robert Bjork calls 'Retrieval Strength.'

This is where Booster Questions come in. Questions will be pushed to Numberella Club Cards by HQ. Players will be able to answer them on line. Some questions will be easy, some questions will be hard. Players will be encouraged to seek the help of their support base to answer higher tariff, harder questions, in order to earn Antcoins for their league score; promoting teamwork between children and their family in a positive environment.

Teachers subscribing to the premium model will be able to upload their own questions, specific to whatever part of the syllabus they are teaching, and want their students to remember.

Motivational Brain Training (Going Live June2018)

“Very soon after Moss started working through the ANT books (he observes the daily tests with a religious enthusiasm), we started to notice an improvement in his general confidence around numbers, and a gradual improvement in his attitude to school work in general (improved handwriting and a general diligence that had been absent before). Moss clearly identifies his progress with the work he does with Alex.”

Jason Mitra, whose son Moss used the ANT Maths Brain Training Series

Goal Setting and Personal Achievement Recognition

ANT Maths Motivational Brain Training uses techniques drawn from ANT CEO Alex's Newberry's background in ski racing, encouraging students to set and achieve realistic goals, which neuroscience has proved is one of the best ways to create motivation.⁴ For many children

⁴ One of the most powerful ways of getting dopamine into the mesolimbic pathway, where it will make you feel motivated, is by acknowledging your own achievements.

this is a game changer. Children who struggle with maths almost always do so out of a belief that they 'cannot' do it. When confronted (especially publically) with a situation where they feel helpless, they immediately panic and are thus incapable of cognitive function. ANT Maths uses goal setting and personal achievement recognition to slow down and halt this process, and thus, if used regularly and over a few months, can radically alter the way a child feels about themselves in relationship to numeracy.

Intrinsic Motivation

All students desire to improve themselves can be reached by appealing to them through either intrinsic or extrinsic motivators. Central to the ANT Maths programme is the provision of detailed neuroscientific information which allows children to rationalise the processes they are implementing in their brains, and take ownership of them. The more they do this, and begin to see results, the more they commit to the programme. ANT Maths provides videos and learning packs to help teachers and tutors connect with the language they need to learn in order to convey persuasively to children the logic of the journey they are undertaking.

Extrinsic Motivation

It can be very hard to convince a young child of the merits of brain training – they are often not mature enough to fully grasp concepts like 'you are doing this for your own benefit, you will be grateful you did it in the long run.' The Antcentive reward system is based around the same ANT coins that players earn in Numberella, and the fruits of students labours can be incorporated into their Numberella Leagues, if a school or tutoring agency adopts the entire platform, or kept separate in a personal 'Antcentive' structure, where they will be redeemable for prizes when the students hit achievement thresholds. This system, trialled for the past 18 months in the field, delivers huge gains in student focus and motivation which would otherwise be impossible to achieve.