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Masters in Global Youth Work Games and Digital Media

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Declaration

I hereby declare that this is my own work and has not been submitted for any award at any other university.

Signed: Ciarán Kennedy

September 7th 2018

Acknowledgements

This project could not have been completed without the support and assistance of a number of people. I would like to thank the staff members in Youthreach Cappawhite for their support and for gaining access to the participants on the course. A big thank you to Donal Kelly for highlighting the benefits of games for inclusion in an educational setting. I would also like to thank the other participants from Ireland, England and Greece who I hope have enjoyed the experience as much as I have. I would like to thank Catherine Ann for supporting me while I played games in Greece. Lastly, I would like to thank Paul Keating for the innovation, support and encouragement over the last two years and who was responsible for making this possible.

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Introduction

This journey has its roots in a cup of coffee with someone who was gaining an interest in games for young people that were 'at risk'. This being the age group of the young people that I work with in Youthreach in Cappawhite. My baseline interest in games in recent years was that I had little or no interest in games in the past 25 years. Although I am interested in sports and competitions and track and field events I was seeing games in a different light. To me I would have judged games as screen games or else a board game. Although I grew up where games were an important part of free time and school be it in the more formalised structure of games in a school or club setting to the wet days of summer when there was little else to do other than plug in the Sinclair Spectrum and hope for the best with the graphics that were fashionable for its time. This journey was decided as an option as it would allow me to gain an insight into what is out there and what is going on in terms of games and youth culture. Can I use it for education purposes and to meet the learning outcomes of curriculums that are a little dated in terms of youth culture? Is there logic to spending time staring at a screen and twiddling your fingers, can this time be considered beneficial towards getting a young person to think logically and perhaps even shape their learning and their being. Is it a lonely way to pass time or is there social learning that can be achieved for a young person and behaviours that enhance their place in society? These were some of the questions that intrigued me before I embarked on this journey and these were some of the areas that I was hoping to observe.

The Artefact

This dissertation aims to create a usable game for educational purposes that has the Sustainable Development Goals (SDG's) as the main focus of the game. Players will be made aware of the Sustainable Development Goals and will become aware of the challenges, trade-offs and policies that governments and policy makers face when seeking to strive towards a society that meets the targets set out in the Sustainable Development Goals. This game is a board game with many different players. Each player represents a country, each country has a set of resources in the form of fake monetary assets. Participants who are playing the game will represent a country or countries.

This artefact is a development education tool and it aims to give participants an understanding of global issues that are faced by societies and to highlight the need for equality between players that are representing countries. The issues in the game are real and focus on the resources or resource crisis that exist for a state and also to highlight the need for policies that have the SDG's integral to their development. This game is a development education tool and thus seeks to encourage an understanding and to further explore the issues that are at play.

The target audience are students in high school and the resource can come under the umbrella of Geography, Political Science, Social Education, Vocational Preparation and Guidance as well as History. This resource can be used as a teaching and learning tool in formal or non-formal learning and also as a tool to pursue curriculum and non-curriculum learning. The resource can be used as a stepping stone or introduction for a student to find out more and to assist a student to become more aware of global issues and thus encourage a student to self-direct. Some of the issues that the game might link to are

The rationale behind the development of this game is to make people aware of the links that exist between policies, governments and how people can, if mobilised and encouraged, can make a difference to the political and social changes that occur in our societies.

Literature Review

We are a nation which is sandwiched between the superpowers of the world; we are experiencing seismic changes in our educational landscape due to the globalised nature of industry which is influencing the direction of our collective consciousness. Where we have come from and where we are today are worlds apart. In today's modern Ireland there exists a country whose past shadow still lives and breathes as there is evidence of a virtual wrestling match between old and new cultures. We live in an era where turf cutters and farmers are trying to coexist with semi-conductor software designers and mega-data industries. People are reverting to growing their own and country markets and home produce is returning to kitchen tables where agriculture has seen its best returns in decades. Coupled with this is the rising tide of the knowledge economy and the information super highway. Industries and technology that are at the forefront of revolutionising the global digital generation exists in Ireland and are coexisting with our agricultural base with a backdrop of poor recent educational performances.

The rising tide presents us with new dimensions and divides. Trying to capture the balance between the two divergent trends and keep a population trained and skilled to cater for remarkably different industries means that people will have to take choices that are very different to each other. It is akin to the urban rural divide which has always been a part of our cultural make up. The ship has set sail and making sure our citizens are on the ship is vital to our success. The consequences of not adapting and changing are found in many corners of our country. Low literacy levels and a population of 1.1 million people who haven't received upper secondary education resulting in poverty, disadvantage and cultural divides exists here. Emerging from all of this is the Further and Adult Education sector in Ireland and Youthreach falls under this umbrella.

This literature review aims to provide the links that exist for this project which is called 'Sustainability'. This game is designed as an educational tool you a Youthreach centre. This game is based on the 17 UN Sustainable Development Goals (SDG's). The educational theories focused on in this theses have their basis in the philosophies of adult education as Youthreach sits in the adult education sector. The main philosophy of adult education is the theory of andragogy and self-directed learning. This artefact also aims to focus on social

inclusion and the theories that exist surrounding games and social inclusion as well as providing an insight into early school leavers in Ireland.

Youthreach

Youthreach centres of education are distributed throughout the country mostly in disadvantaged rural and urban areas. Youthreach is funded through the Department of Education and Science through SOLAS and managed by the ETB's. Youthreach is based around two distinct phases: a phase which helps participants to overcome learning difficulties and develop self-confidence and improve self-esteem and a second phase which provides for a more specific development in terms of preparing participants for further training and or work. The programme provides a strong emphasis on personal development, literacy, numeracy and communications and is currently developing ICT and flexible learning options. The centre models lifelong well-being through integration of sport, outdoor activities, healthy eating options as well as it being at the start of the lifelong learning cycle where work placements throughout the year give the students a sample of career options available. The centre also caters for special educational needs of individuals with one to one literacy and numeracy provisions, there is a counsellor on site as well as an advocate who represents the students needs. The Student Council meet staff and management to voice their interests and needs and plan trips and outings as well as discussing policy documents. The organisation in South Tipperary is 20 years old and caters for 35 early school leavers and caters for the participants in a formal and non-formal learning curriculum that bases part of the programme on fairness and attendance as well as assisting the participants in completing their levels 2,3 and 4 QQI. The centre is managed by a team consisting of three Resource Persons and a Coordinator as well as part-time staff, in total a staff team of 14.

Youthreach is a second chance learning environment for students between the ages of 15 and 21 in the Adult Education Sector in Ireland. The learners come from a diverse range of backgrounds and have left the traditional education system for an equally diverse range of reasons. Youthreach is described as an:

Alternative pathway to education, training and employment for young adults who have not benefitted from schooling' Youthreach (2000, A Consultative Process).

Youthreach learners usually attend a centre for two years but often for longer, especially when they begin at a centre without a Junior Certificate. A typical Youthreach centre will offer training and work experience placements to early school leavers who are unemployed and have little or no formal training or qualifications. Nationally there are approximately 6,000 students in more than 100 Youthreach Education Centres.

Games and YouthReach

The game that has been designed has been designed for Youthreach students. Youthreach delivers programmes with aims of getting young adults to progress to further or higher education centres and or employment. Our organisation offers a programme of integrated general education, vocational training and work experience. A training allowance is paid to the participants on the programme. There is a strong emphasis in our organisation in training young people for the labour market in their local environment and having them prepared for working environments. The centre serves the needs of early school leavers within the context of the Irish educational system.

In the midst of the cultural and historical background that has been mentioned earlier there emerges the growth of games and the games industry

The Irish game industry is thriving, passionate and driven and is comprised of everyone from award-winning freelance game makers to massive multi-national companies like Demonware, Blizzard, Activision, Bethesda and Zynga

(Imirt,2018).

Ireland has emerged in recent years as a digital economy with many of the largest tech companies like Facebook, Google and Apple basing their European headquarters on these shores and over 1,200 other companies that are tech based basing themselves here. Having a workforce that are trained and skilled to meet the nuance requirements of these companies means that our education system needs to shift from a rigid points based scheme to a thinking outside the box system. Laurillard (2002) 'Suggests that a balance of media is essential to make learning and teaching effective' Macdonald (2008, p3). Weddeymeyer wrote as far back as 1981, that 'The traditional ways of learning do not satisfy urgent needs rapidly and equitably enough' Peters (2011,p234).

Laurillard's (2002) Conversational Model focuses on 'ways of seeing the world' and is thus not about how the individual sees things but also focuses on how others see the world. This is supported by Garrison and Archer (2000) who maintain that there is a necessity to encourage collaboration and interaction if 'deep and meaningful outcomes are to be achieved' (2008, p31). According to Elias and Merriam (2005) in the humanistic education philosophy the tutor doesn't necessarily know best, the tutor acts as a facilitator where they are responsible for creating a learning space that caters for self-paced learning, openness and different learning styles. Wlodowsky states that cooperation and collaboration 'is an effective and motivating format for non-traditional students' (2008,p141). These findings with regards to students benefitting from others work is supported by Brookfield as he states that the defining principles of education lie in the fact that

Learners meeting in small groups to explore issues and concerns and then to take action as a result of these explorations' (2010,p14).

This implies that the self-directed nature of a students learning where they research topics related to the learning outcomes in what Knowles (2005) suggests is learning which 'is under conditions of full learner control'. The aims that underpin Irish educational policy are laid out in the 2020 strategy with 'aims of achieving smart, sustainable and inclusive growth'. In achieving its aims they plan to reduce

School drop-out rates below 10% and aiming for at least 40% of 30-34-year-olds completing third level education'(European Commission, 2012).

As Youthreach comes under the Further and Adult Education sector in Ireland many of the pedagogies and methodologies come from an andragogical approach to learning. In Youthreach our students are deemed at risk students, Early School Leavers attending a second chance education centre. Unlike pedagogy, andragogy moves the focus of the learning onto the learner and moves the teacher from the front of the room to a role that is termed the 'guide on the side'. As cited in Terry Mayes *Worrying Knowledge and Vicarious Learning* 'the very best tutors very rarely provide answers to problems' Lepper et al (1991).

Unlike pedagogy, andragogy is centred on the idea that the lecturer does not possess all the knowledge and that students are encouraged to participate in the classroom by utilising their own experiences.' (McGrath,2009).

The Youthreach programme aims to give the students the opportunity to direct their own learning. The students choose their own projects and tasks and are assessed and interviewed about the tasks and projects that they undertake.

Self-directed Learning

In this environment the teacher is facilitating the learning process. This is further supported in research carried out by Laird (1998, p. 126) who stated that 'the andragogic model holds the view that the instructor should guide and not manage the content, which is the traditional approach in pedagogy.' In terms of delivering an artefact that is for developing students social empathy and social awareness it is important that the students don't become over reliant on the teacher as a source of information, this will become counter- productive and little self-directed learning will take place. Brookfield (2010) described self-directed learning in adults as a shift in learning that involves learning that incorporates a change in our perspectives, where the learner replaces 'one way of interpreting the world with another'. The definition of self-directedness as cited by Knowles (1975) is

A process in which individuals take the initiative in designing learning experiences, diagnosing needs, locating resources and evaluating learning

Brookfield (2010,p40).

Cornelius and Cordon (2009) say that adults clearly demonstrate self-directedness when the resources they chose to learn from match their learning needs. According to Zimmermann and Schunk (2001) the more self-regulated the learner is this can create a more confident student who end up becoming 'higher achievers'. Others such as Cercone (2008) have suggested that self-directed attributes of a learner is a natural progression in a learner as they approach adulthood or are adult learners as long as structures exist. Merriam and Cafarella (1999) contradict this point maintaining that individuals from childhood are self-directed and become more reliant on the structures such as tutors and systems and thus self-directed learning is weakened as adulthood approaches. According to Brookfield (1986) the mix of self-directed learning and group learning enhances adult learning.

The political reasoning behind the concept of self-directed learning has been questioned by Richard Taylor who is questioning the individual being put at the centre of a learning experience. This, he finds is at odds with the collective needs for education. Taylor was referring to the need for society to move forward together and that caution must exist in not being left behind and the dangers that come with that.

Education and learning are about more than individual personnel development, it is concerned in the broad sense with social purpose, with organic growth, through education and learning, of participatory democracy' Taylor (2011, p209).

This is supported by Pratt (1988) as cited in Elias and Merriam that andragogy and self-directed learning 'is saturated with the ideals of individualism and entrepreneurial democracy' (2005,p134). Jarvis also holds reservations on the concept of self-directed learning when he writes

Self-directed learning is an ideological construct that mirrors much of the current thinking about an open society-but it has become fashionable in a society in which a great deal of public and private space is controlled by others.

Jarvis (1992,p142)

Hughes (1999) also criticises the concept saying that self-directed learning takes the power away from the collective as it focuses on the individual and in so doing has less of an impact when adult education departments are seeking resources.

Games and Pedagogy

Cognitive psychology has led to practical situations being the focus of most learning where the teacher designs material in a fashion that makes the learning experiences more practical.

Classes of words, pictures, and other categories of information that involve complex cognitive processes on a repeated basis activate the brain and make the class a more exciting and real place.

National Research Council (2000 p.125)

There is no comparison between the classroom of old, where rote learning and teacher knows best was exercised and today's classroom. In today's classroom peer work, problem based learning, learning by doing, discovery learning are all taking place within a multi-media framework creating a place where critical analysis is encouraged. These are all examples of how learning has become practical. How students are motivated within the setting comes down to the social rewards of learning together which in turn breeds self-motivation. John Dewey's vision that 'school should be less about preparation for life and more like life itself' National Research Council (2000 p77). Games that are designed to represent real life scenarios have the greater impact on a student and their learning. As pointed out in Civic Play and Civic Gaps that

Life simulation games have the potential to advance both equity and excellence in civic education, engaging males and females, and advantaged and disadvantaged students.

(Bachen,Ramos,Raphael,Waldron, 2015)

Today it's about redirecting the students and navigating them to the information you want them to have, they need help disaggregating the volume and then refining the thinking. It is a pedagogy where students play a pedagogical role orchestrated by the teacher. What is true is that there has been change and what will remain constant is that change will continue to happen and learning styles is a part of that change. We are not deskilling teachers but redesigning classroom discourse, discussion and by doing. These are becoming the foundation skills that teachers should have in order to instruct successfully. The teacher has to be able to juggle emotions, curriculum and diversity. This performance like the public speaker, requires style. The importance of the teacher's ability to communicate and to direct is vital. Teachers have

The advantage , possessed by no other teaching aid, of being almost infinitely inflexible. They can respond to questions, introduce a whole new topic because children show a sudden interest in it, express humour, excitement , encouragement, awe and any other human emotion.

Fontana.D (1995, p389)

Knowing when to use teacher talk at the required level and precisely when to stop and ask questions appeals to more learning styles. Modelling this type of instruction allows students to reflect, act, engage and be encouraged. The harmony of this learning environment and achieving success in assessment is where the gulf must be bridged.

As we have looked at how our students learn best from the andragogical approach to learning I will now focus on what a game is and how the game structure might fit into our adult education pedagogy. For starters we are going to look at defining a game as something you play. This definition cuts out the complexities of the various definitions that exist around the concept of a game. When we focus in on the detail and try to attain what is the concept of a game this task then opens a can of worms. There are many definitions of a game 'Games are an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produce a disequibrial outcome' (Shell,J.2008) Greg Costikyan goes on to describe a game as

An interactive structure of endogenous meaning that requires players to struggle 'toward a goal' and Tracy Fullerton sees a game 'as a closed, formal system, that engages players in structured conflict, and resolves in an unequal outcome' (Shell.J,2008).

If you are getting lost in terms of definitions then this definition of a game might be the one that comes to save you from over complicating matters and according to David Parlett 'the word game is used for so many different activities that it is not worth insisting on any proposed definition' (Salen and Zimmerman,2004).

Defining an Educational Game

What can be determined from most of the definitions and what authors agree on is that a game has some of the following aspects built into the game: goals, conflict, rules and can be won or lost, have start and end points, incorporate decision making, are interactive, have challenges and are closed formal systems. By having closed formal systems we are referring to the boundaries within which the game takes place i.e rules. So can games form a part of the learning in school? Games are not often recognised as a formal learning technique and this can be down to curriculum and learning goals but on closer inspection the education systems have all the ingredients of what defines a game.

Students (players) are given a series of assignments(goals) that must be handed in by certain due dates(challenges). They receive grades(scores) as feedback, assignments get harder (challenges) and harder, until at the end of the course when they are faced with a final exam(monster), which they can only pass(defeat) if they have mastered all the skills in the course(game).

Schell,J. 2008

As most educational outcomes are set by curriculum and assessment goals which games have not been designed to meet it is therefore only as a learning tool that games could be used to assist in the learning of some topics. For educationalists games can be used in the classroom to reinforce a learning topic. According to Rogers

An educational games primary intention is to educate while entertaining. These games are often aimed at a younger audience

Rogers,2014

It would seem that Rogers thought that educational games that are often aimed at a younger audience can be disputed when looking at alternative ways of using games in education.

Game-like simulations may start to serve as final exams in areas where multiple techniques need to be combined in a realistic setting, such as police work and rescue work.

Schell,2008

According to Braithwaite and Schreiber surgeons who play videogames at least 3 hours per week and perform laparoscopic surgery complete the surgery 27% quicker with 37% fewer

errors. The same author has experience of working with at risk young students and noticed that by playing games the students improved their cross curricular performance in subjects. Mary Flanagan supports this argument when referring to students that work with games in schools which helps students consider social issues into game projects

Students working in such context integrate values considerations into each step of the process and can take these procedures into other disciplines and practices'
Flanagan.M,2006

According to Flanagan she describes games as

An exercise in social engineering mechanisms for such social mechanisms are inherent in the game goals, interaction styles, and architecture of each and every game.

(Flanagan,2006)

Social Impact Games

In terms of the artefact that has emerged from this course much of the design has come from an educational background and for use in education and is thus designed as a social game.

Serious Games, Social Games and Social Impact games have all emerged as initiatives whereby the main purpose of the game is other than to provide entertainment'

Keating,P.2016

Thus a focus on real life issues and events and looking at games to transform culture and collective consciousness as it had once played a strong part in activist movements of the 1960's Californian counterculture.

Members of the movement believed that the types of games people play, as well as the way they play them, were culturally significant. Many involved in the movement developed games informed by critical analysis of anti-racism, anti-sexism and social justice'(Keating.P,2016) .

Thus social awareness games are essential in a learning environment and may also contribute to highlighting issues that exist globally. 'When Dying for Darfur' was released no one enjoyed

playing the game..the game was created in order to draw attention to the plight of the people in Darfur' (Braithwaite and Schreiber,2009)

The Sustainable Development Goals

The Sustainable Development Goals (SDG's) is a to-do list for societies and nations to reduce poverty, inequalities and reduce climate change. The SDG's are not to break the different issues into the traditional sectors such as environment, health, development, economics. The Goals are intended as a way to recognise the interlinkages between and interdependence of the Goals. For instance, our agriculture and economic policies need to take into account the impact they will have on the climate, emissions etc.The aim of creating a resource that addresses Sustainable Development Goals is to increase the understanding of global human issues. This resource is aiming to get the participants to recognise the Sustainable Development Goals and to learn more about the Goals. There are many opportunities within the structure of the game to self-direct the players learning as there are opportunities to experience real events through the app feature of the game.

John Dewey maintained that if learning is real, it will create a purpose and direction. That direction will lead to change and then to transformation.

McCarthy (2006 ,p4)

Having a game that focuses on the Sustainable Development Goals highlights issues such as poverty, health, quality education, equality and many other issues. Many of these issues have been faced by the students in Youthreach who have had their own personal hurdles to education, poverty, equality in their own communities and to superimpose these hurdles to other communities on a global level will ensure to develop empathy and make them more informed of global issues and assist in developing civic responsibilities. According to Dochas,

Education is critical to the development and well-being of individuals and societies. For individuals, a good education ensures a higher quality of life by providing information, skills and knowledge for successful personal development

Dochas: Laying Foundations For Development

Creating an awareness of the Sustainable Development Goals and making students aware of global issues goes towards putting them on the learning path and meeting Goal 4 achieving quality education and bringing 'a deeper understanding of the world around us and provide better opportunities for everyone' (UN,2016) Achieving the targets set out in the Sustainable Goals would also go a long way in meeting the goals of Development Education set out in the 2002 Maastricht Declaration of Global Education which states that 'Development education is education that opens peoples eyes and minds to the realities of the world, and awakens them to bring about a world of greater justice, equity and human rights for all'.

The Development of the Artefact

It is obvious from an educational point of view that alternative learning methods are emerging from the shadows of the rote learning past. Students are 'digital natives' and seek instant gratification. My aim with this learning tool is to provide interest and curiosity around many important global issues as well as an alternative learning tool for the classroom as we have seen a growing number of students playing games and getting involved in games.

Interest is growing in gamification, the use of game techniques and mechanics to engage and motivate. Future predictions suggest that this interest will continue to grow especially in the use of games to change individual behaviour.

Schoech,Boyas,Black,Elias-Lambert,2013

This game was designed because the Sustainable Development Goals cover so many different social issues. To get students speaking about these issues and to get them to have the Sustainable Development App on their phone has the students closer than before to these issues. In many ways this game aims to be a 'game for good' in terms of creating awareness of issues and assisting students in 'affirming human values like tolerance, equity and justice' (Belman and Flanagan,2015) as the facilitator or teacher can pin point attitudes and opinions based around conversations that emerge from the game play and other peoples points of view around the topics that emerge from the issues around the SDG's and this space can be managed by the teacher as players have an opportunity to 'challenge players social or political

assumptions by allowing them to see events or topical issues from perspectives other than their own' (Belman and Flanagan,2015)

As mentioned earlier and echoed again here and from my own experience on the ground in terms of delivering games to young socially disadvantaged learners that

Classes of words, pictures, and other categories of information that involve complex cognitive processes on a repeated basis activate the brain and make the class a more exciting and real place.

National Research Council (2000,p125)

Offering various teaching styles and pedagogies to students with different learning styles is paramount to learning in the classroom today. Working with students who have already dropped out of an educational system because their learning styles were not met by that system means that we must be able to offer something different.

Students who are low performing academically and less engaged in civic life tend to have the least access to the most effective civic pedagogies. These successful teaching methods include projects involving civic problem solving, discussions of current events, an open classroom climate in which students can voice differing perspectives on public controversies.

(Bachen,Ramos,Raphael,Waldron, 2015)

The game created allows us to offer more 'effective civic pedagogies' one which ensures group work, pair work and collaboration and builds strong classroom relationships. The social aspect of the learning experience through games is the very fabric that ensures retention rates are maintained where students meet like-minded individuals. Limitations did exist in reviewing this particular artefact due to the timing of summer holidays but throughout the academic year 2017/18 many games were explored.

Using Games in Youth Reach

From a teaching perspective it was interesting to observe the changing power dynamics in a classroom as those that were normally on the fringes in the classroom came to the fore as was often the case, they grasped the game constructs quicker. For those that found the rules

more complicated they would turn to a partner for peer support. The benefits of game options in the curriculum are reflected in the increased numbers of students undertaking courses and increased participation rates in the institutions that provide games. With regards to games delivery in our Youthreach setting, we will continue to explore different gaming options.

We have recently purchased an Oculus Go for virtual reality development education and we have created a suite of games for our computer room where games have been explored and chosen to suit the learning needs of our students. In conjunction with the digital games we have expanded the repertoire of board games and also included in that is the artefact for this project which is called Sustainability. When introducing a game into the classroom there are so many different roles that a player can take on as they firstly can role play a character but also from the initial stages of opening the box of a game learning how to decipher the rules, set up the game, helping others to understand the game and develop their skills in the game. Students work together to decipher and breakdown the rules of the games and also use youtube clips to help them to visualise the gameplay and the set-up of a board. Students would critique the game and on each game they would modify the game to suit their wants and assess the changes.

Exposure to many games was to broaden the students opinions about the different types of games that are available and about getting the students to become aware of creating games by introducing new elements to an already existing set of rules and to see how the new rules would play-out. In the 2017-2019 the academic timetable and course provision was expanded to deliver Game Design as a subject. This came under the umbrella of craft and woodwork as there was no other formalised subject code that it could come under to achieve certification in either Leaving Certificate Applied or under the Leaving Certificate of QQI at level 3 and 4. The craft element of the course was where the students were to submit a board for design in a woodcraft class but the focus of the class remains on designing a game. The year plan was to guide students through various strategic board games they would not be familiar with and also the more common place board games. Games that were explored included Pandemic, Catan, Camel-Up, Ticket to Ride, Monopoly, Stratego and The Trading Game.

Reflection

Perhaps in the hours and minutes that pass waiting for the bus or travelling to and from school or perhaps while sitting in their local library students would access the app and read about the issues that exist around them. These issues might shape the essays and the topics that they decide to focus on for future projects and tasks as they direct their own learning. As I sit in a local rural library in Ireland all the computers that are available in the library are taken up by young students who are playing digital games. There is huge potential for games to be delivered to marginalised groups and to influence social change from the perspective of the learner. What is essential is to ensure that the delivery is enhancing the learning and meeting the learning objectives of the related subject matter as well as creating awareness of the global issues that are surrounding them.

Overview of the Game

This game is a board game with many different players. Each player represents a country, each country has a set of resources in the form of fake monetary assets. Participants who are playing the game will represent a country or countries. These countries will have a certain amount of assets and thus will have a certain amount of purchasing power that will allow them to buy or sell throughout the course of the game. The representation of wealth will reflect the real world and those participants that are representing developed countries will have more assets than those that represent players from developing countries.

The board layout will be akin to a monopoly board and in place of the streets on a monopoly board there will be the 17 colour coded SDG's as well as spaces on the board that may be advantageous to a player if they land on the space or may be a risk to a player. The spaces on the board that represent the different SDG's will be represented by the colour codes on the board. There will also be spaces on the board that represent Challenges, Policies, Actions and Trade-Offs these will be represented by the PACTO space and its corresponding card. There will also be an app space and also crisis spaces. These spaces will also have corresponding cards that a player must pick up.

Rules of the Game

Each player is asked how many countries they visited and name them. The player that has visited the most amount of countries plays first.

Before play commences each player is given a certain amount of money related to the GDP of that country(see below). Before playing a player will be given a country from a list or the teacher may have nominated a country for a group.

Each player will receive an amount of money to start off and this is called their GDP. Each player will also receive an SDG card where each player will be able to record which SDG they have obtained.

A sample of the real GDP rates are included below but for the sake of this game we will apply a certain currency to each country depending on which bracket they fall into. We have included trillion dollar states, billion dollar states and million dollar states to represent the different development stages of countries.

Countries from the trillion dollar states will receive 10 x \$100

Countries from the billion dollar states will receive 5 x \$100

Countries from the million dollar states will receive 1 x \$100

#	COUNTRY	AMOUNT
1	European Union	\$16.63 trillion
2	United States	\$15.68 trillion
3	China	\$8.36 trillion

4	Japan	\$5.96 trillion
70	Libya	\$62.36 billion
71	Cuba	\$60.81 billion
73	Dominican Republic	\$58.95
74	Sudan	\$58.77 billion
188	Somalia	\$917 million
189	Guinea Bissau	\$897 million
190	Djibouti	\$847 million
191	Grenada	\$789 million

The dice will be rolled by the first player and they will move their country icon the stated distance. If they land on a Sustainable Development Goal space SDG they have an option of buying it/ swapping it or selling it.

If they land on a crisis card they will forfeit \$100 dollars.

If they land on a PACTO card which represents Policies, Actions, Challenges and Trade Offs they must pick up the card and follow the instructions on the card. With this card they may have to forfeit money or they might potentially earn money. This will be denoted on the card via a positive or negative dollar bill. If it is negative they must pay into the World Bank (centre of board) and if it is positive they can take from the World bank.

All forfeited money goes into the World Bank.

If a player lands on a space and they decide to purchase a SDG they will receive a token and they place that token on their SDG Card. If a player decides not to purchase the SDG then other players can decide to bid for that SDG. If a player lands on the same SDG on the second time of going around the board they can purchase that SDG at half the price.

If a player has two tokens for the one SDG they can sell to another player or they can use it at a cost of \$100 dollars to obtain another SDG. All money paid out for the SDG's goes to the World Bank.

If a player lands on another player they both receive \$100 as this is seen as cooperation. If players land on the same space on the SDG 17 space they receive \$500 each.

The aim of the game is to obtain as many SDG's as possible. The game can be played under time limitations or until the player who has all the SDG's obtained and they are declared the winner.

If and when a player logs onto the SDG app and downloads the app to their phone they will immediately receive \$300 from the middle bank. In subsequent rounds when a player lands on the App space they must perform different actions:

1. First landing Pick an action of interest and join an action
2. Second Landing Invite all contacts that are playing at the table to join in
3. Third action go to the Goals section on the app and pick one and give a description of an action for the group that you have created
4. Each further landing on an app space will require a completed action for the group.

Each successfully completed action on the app space will earn for that player a further \$100.

If a player lands on a crisis space they must then put \$100 into the World Bank.

Why This Game?

This artefact is a development education tool and it aims to give participants an understanding of global issues that are faced by societies and to highlight the need for equality between players that are representing countries. The idea of development in this game is to reflect the real world conditions that represent development and thus allowing the participants to

Realise the potential that is latent in something.. the creation of conditions that make it possible for people to realise their potential as human beings, or to live full human lives that they value...and while individuals may differ widely concerning the capabilities they value, it seems reasonable to suppose that most of us value life itself, good health and at least basic education.

(Harris.J,2013)

The issues in the game are real and focus on the resources or resource crisis that exist for a state and also to highlight the need for policies that have the SDG's integral to their development. This game is a development education tool and thus seeks to encourage an understanding and to further explore the issues that are at play. The target audience are students in high school and the resource can come under the umbrella of Geography, Political Science, Social Education, Vocational Preparation and Guidance as well as History . This resource can be used as a teaching and learning tool in formal or non-formal learning and also as a tool to pursue curriculum and non-curriculum learning. The resource can be used as a stepping stone or introduction for a student to find out more and to assist a student to become more aware of global issues and thus encourage a student to self-direct. Some of the issues that the game might link to are

The game will deal with controversial issues. Some of the issues that students will be able to further study and research after using this game as an educational resource are issues such

as child labour, child soldiers, conflict, poverty, violence, food, power, genocide, aid, trade, consumption, technology, migration, justice, gender, human rights, globalisation, fair trade, land, water, development, coffee, education, governance, democracy, Irish Aid, climate change, HIV, asylum seekers, young people, homelessness, austerity, debt, discrimination, young people.

Issues of justice and morality, of human rights and responsibility, of values and beliefs, of gender-based discrimination etc. These are unavoidable and offer a rich opportunity for learning and for challenging values, beliefs and perspectives.

Development Education, 2014

These are very broad topics for discussion and such topics seek to open discussions among young people and create an awareness for them and also to broaden their outlook on different issues. This game is to make our students more politically aware and that how the actions of one group of people can have an adverse affect on another group of people. This game aims to foster knowledge and ideas of the world. It aims to focus on developing empathy in the player in creating an awareness and general concern for the wellbeing of others and where they live. It aims to encourage students to self-direct their learning through further investigation into the topics that arise throughout the game.

The rationale behind the development of this game is to make people aware of the links that exist between policies, governments and how people can, if mobilised and encouraged, can make a difference to the political and social changes that occur in our societies.

By ignoring politics in our day to day youth work we may actually be restricting people's ability to meet their developmental needs'

Smith, M (2001, p1)

This game has its origins in marrying together parts of different games that I have played in childhood and also in more recent days both in board game format, digital and through active learning game based activities. The games that I refer to here are Monopoly, The Trading Game and a digital game based on the SDG's Hive 2030. What will be unique about this game is that it will be a board based game that will also allow for aspects of the game to link in with an online feature whereby all participants will have an option of downloading the SDG app and going into the NEWS feature on the app to obtain further values for their country thus

also seeing and learning about the diverse areas that the SDG's cover in very current global terms.

Limitations:

For a more extensive and comprehensive analysis of games design in a Youthreach programme a full two year of exposure for students and teachers would have allowed for more reliable feedback. The increased time would have allowed for extensive analysis of whether or not the learning outcomes were enhanced. Even though certain progress was noted in terms of the progression in collaboration and self-directed learning as well as discussions about new features to games and critical analysis of games. The times given to students for games design was limited due to timetabling issues connected to the programme curriculum. The level of engagement by students varied and some students saw it as a do or die class with little learning to be achieved but others embraced the games class. Students that were often on the fringes in terms of confidence and shyness found their niche and on many occasions the student that is often in the background would come to the fore as they mastered the rules and the strategies of a game before the other students and in this class and environment they came across as the leaders as they mastered the games quicker and often would assist those other students who normally have the confidence and leadership skills. In this respect, this games environment led to a change in the order of the class and I feel that this allowed for new bonds and stronger relationships as those that were lacking in confidence became more confident and more outspoken, balancing the power struggles that often exist in this environment.

In terms of delivery of this Games Design module I feel that there is an opportunity to reach out to more and more students by using games that have a focus on social change. There is an opportunity to provide for a greater choice of subject spectrum. There is an opportunity to utilise the educational facilities more. The reality for me and for other educational facilities that are at embryonic stages of introducing Games and Games Design into their programmes is that there is also a need to invest more and more in the up-skilling and investing in staff, equipment, timetabling allocation and hiring of trained staff. It is also imperative that the Coordinators and Educational Managers are exposed to the benefits of Games and Games Design in education. As a person that had little

exposure to board games in over 25 years and zero exposure to digital games. I have found both digital games and board games a wonderful aspect to making learning fun but also creative, innovative, social and extremely engaging. Mixing these elements with a strong social message will ensure that there is deep learning and perhaps change the learning path and career of a young person to become a vibrant civilian full of integrity.

Conclusion and Recommendations

This journey has allowed me to dip my toes into new knowledge and has given me an initial insight into the world of games. Since starting this course I have attended professional development conferences in the United Kingdom and Spain meeting games designers and gamers. I have listened to large companies and successful artists discuss the future of games from their perspective as to what is the next big thing in games. For me I am just trying to catch up on what has happened over the last 25 years since I moved away from the Sinclair Spectrum to other forms of entertainment and learning. What has me captivated right now is the virtual reality (VR) games. I feel that the sensation that exists in the virtual reality games with headsets is akin to the first cinema screenings when people started running out of the cinema on sight of a train approaching the camera. I had a similar sensation with the VR games.

In terms of our students, I support any class activity that allows a student to gain confidence and to flourish in a learning environment. It is the skills of a teacher that need to guide a student towards integrating their love of games into their subject and in many subjects many of the learning goals can be met through the use of games. Many of the games that I was involved with in the centre proved to be very sociable games that allowed for discussions and allowed for the teacher to pick up on new learning opportunities from the discussions that took place around the board which in itself proved to be a sociable way to engage students. Students, without realising it were role playing characters or themes within the game. A banker began to behave like a banker and a crook like a crook. The student that had lots of money or was winning in a game began to exude the confidence to

match that position. In terms of games for devices, the same sentiments ring through for our students. Games that are suitable and reviewed by a teacher would be a definite recommendation and thus creating a suite of games that are used by the student. Like all aspects of visual and social media it is recommended to use moderately and use as a part of a balanced diet. I will be using games again and I will continue to research and find new games that are suitable in a learning environment.

Bibliography

- Bachen,C & Ramos,P & Raphael,C &Waldron,A (2015) *Civic Play and Civic Gaps: Can life simulation games advance education equity?* Routledge Taylor and Francis Group
- Belman,J and Flanagan,M(2015) *Designing games to foster empathy* Cognitive Technology Volume 12 Issue 2
- Brookfield, S.D. (2010) *Understanding and facilitating adult learning* Maidenhead, Berkshire,U.K. Open University Press
- Cornelius, S. and Gordon, C. (2009) Adult learners' use of flexible online resources in a blended programme *Educational Media International* Vol. 46 (3) p.239-254
- Dewey, J. (1916). *Education and Democracy*, New York, The Free Press.
- Edwards, R. (1997). *Changing Places? Flexibility, Lifelong Learning and a Learning Society*, London, Routledge.
- European Commission *Europe 2020 Strategy (20-1-2012) Target 2020*
Available at: http://ec.europa.eu/europe2020/reaching-the-goals/targets/index_en.htm
[Accessed 24-8-2018](#)
- Flanagan, M. (2006) *Making Games for Social Change* Springer-Verlag London
- Fontana D. (1995) *Psychology For Teachers* 3rd Edition. Leicester, U.K.
- Garrison, R. and Kanuka, H. (2004) Blended Learning: Uncovering its transformative potential in higher education *Internet and higher education* Vol (7) p95-105
- Imirt (2018) <http://www.imirt.ie/> Accessed 25/08/2018
- Jarvis,P.(2011)*The Routledge International Handbook of Lifelong learning* Madison Avenue, New York,U.S. Routledge
- Keating,P.(2016) *Games for social change: Review of the potential for multiplayer online gaming to facilitate the emergence and growth of progressive movements for social change within youth and community work* International Journal of game based learning
- Knowles, M. , Holton, F.E. and Swanson, A.R.(2005) *The Adult Learner* 6th edtn Theobald's Road, London, U.K. Butterworth-Heinemann

- Lave, J. & Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- McCarthy B. and McCarthy D (2006) *Teaching around the 4mat cycle* London,U.K. Sage Publications
- Mcgrath,V.(2009) *Reviewing the Evidence on How Adult Students Learn: An Examination of Knowles' Model of Andragogy*
<https://eric.ed.gov/?id=EJ860562><https://eric.ed.gov/?id=EJ860562> Accessed 24/8/2018
- Macdonald, J. (2008) *Blended learning and online tutoring* 2nd edtn Aldershot, England, Gower Publishing Company
- Schoech,D & Boyas,J & Black,B & Elias-Lambert,N *Gamification for behaviour change:lessons from developing a social,multiuser,web-tablet based prevention game for youths* Routledge Taylor and Francis Group
- Vygotsky, L. (1962) *Thought and language*. Cambridge, MA: MIT Press.
- Wlodkowski,J.R. (2008) *Enhancing adult motivation to learn* San Francisco,C.A. U.S. Jossey-Boss
- Yapp, C. and de Freitas, S., eds. (2006) *Personalised learning in the 21st century*. London: Kogan Page.
- Development Education (2014) www.developmenteducation.ie/guidelines Accessed 23/08/2018e
- Mark Smith (1982) *Creators not Consumers. Rediscovering social education* 2e, Leicester: National Association of Youth Clubs.
- Bruce Currie-Alder, Ravi Kanbur, David M. Malone, Rohinton Medhora (2013) *International Development Ideas, Experience and Prospects* Oxford University Press

Box 1-10 left side of board

Box 1



Box 2



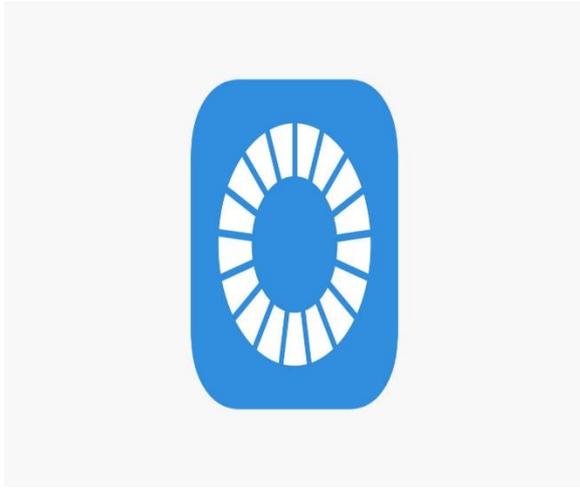
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4



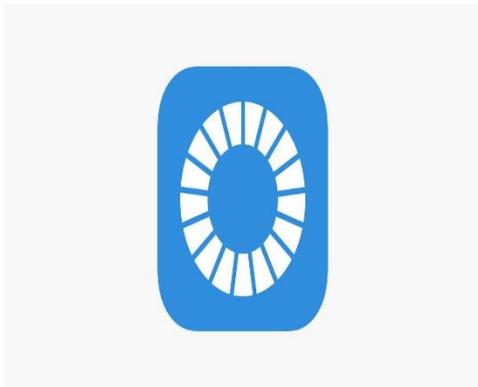
5



6



7



8



9



10



Top left corner

Top side of board

11



12



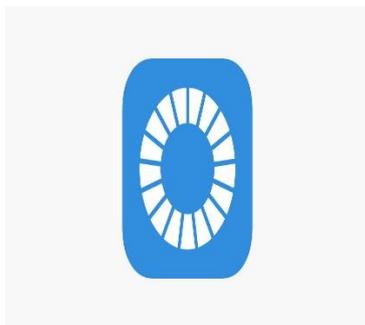
13



14



15



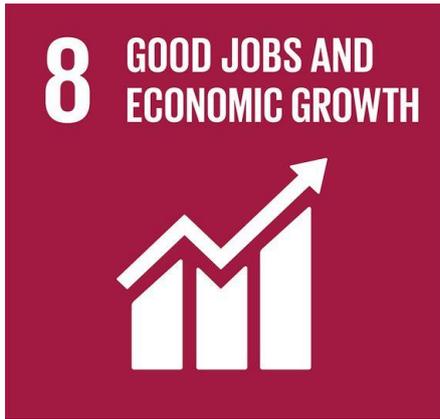
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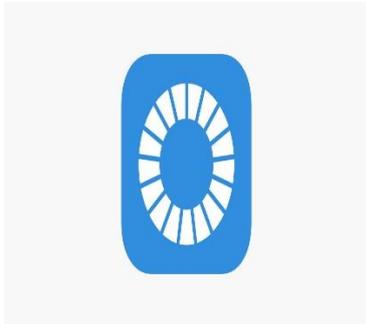
17



18



19



20



top right hand corner

Right hand side of board

21



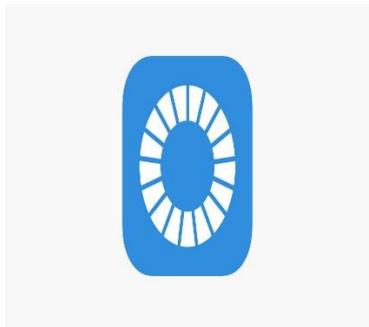
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29



Bottom right hand corner of board

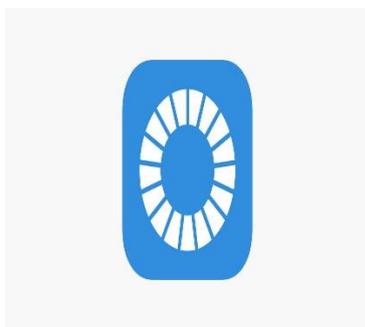
30

ATTENTION!
ECONOMIC CRASH
ATTENTION!

31



32



33



34



35



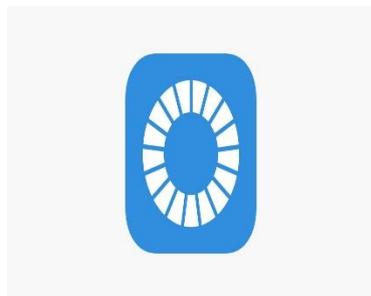
36



37



38







= Policy Action Challenge Trade Off Card

- Protect Forests \$100
- Investment in PSIA (policy Reform)\$100
- Spaces for Public Dialogue \$100
- Increase in Accountability \$100
- Increase and improvement in Accountability \$100
- Improvement in coffee production due to PSIA \$100
- Free primary education implemented \$100
- Sustainable cities improvements in accessibility to public buildings \$100
- Renewable energy investment \$100
- Improvement in water provisions \$100
- Reliable transportation network \$100
- Protect forests \$100
- International yoga day \$100
- Cycle to work scheme \$100
- World blood donor day \$100
- Beat plastic pollution \$100
- Plastic bag tax \$100
- Emissions policies enhanced \$100
- Privitisation of higher level education -\$100 -
- No to child labour
- Empowering youth
- Increase the voting age -\$100
- Early school year education investment
- Health for all
- Privitisation of health system -\$100

World peace day

Fall in gender ratio in government -\$100

STEM investment

Targets on energy not met -\$100

Droughts affect crops -\$100

Tax cuts for the rich -\$100

Wildlife habitats affected species in decline-\$100

Water scarcity and poor irrigation affects fertile lands-\$100

Fall in female participation rates in work force -\$100

Plastic in the oceans kills marine life -\$100

Increase in violent attack on women -\$100

Biodiversity day restoring ecosystems \$100

Investment in solar powered irrigation systems for smaller farmers \$100

Paris Agreement supported \$100

Promotion of joint action to improve infrastructure \$100

Strengthening collaboration post –crisis \$100

Improving national statistical systems to help policy developers \$100

Expand partnerships with others in society to develop policies \$100

Improve mobile connectivity-helps accelerate achievements of the UN SDG's \$100

Disability allowances reduced – affect on education -\$100

Disability allowances reduced – affect on inequality-\$100

Oil spillage cost -\$100

Riots in major cities affecting future investments -\$100

Increase in coal production -\$100

Deforestations affecting environment-\$100

Economic growth v environmental sustainability 1,8,9,12 V 15,14,13,12,9,

Build an infrastructure v reduce carbon emissions 6,8,9,11,12 V 15,14,13,7

Reduce manufacturing v increase employment 3,6,7, 11,13,14,15 V 12,1,4,8,9,12

Economic growth v widening gap of rich and poor 8,9,10 V 1,2,3

Extreme poverty -\$100

political instability -\$100

environmental deterioration -\$100
Natural resource depletion -\$100
soil erosion -\$100
loss of forests, habitats, and biodiversity -\$100
repay historical debt -\$100
climate change -\$100
HIV increases -\$100
population growth -\$100
debt burden -\$100
violent conflict-\$100
corruption -\$100
food insecurity -\$100
trade protection -\$100
investment in reskilling work force -\$100
declining government power due to TNC -\$100