



Mobile Data Secured Limited

Barrier Breakers (UK) Limited

The HQ Project

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V1.3

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Background

Penelope Tobin of Barrier Breakers approached MDS to provide advice and expertise with regard to the development of an interactive website, the HQ Project. This was intended to be an environment that is not just a classic website but an interactive, stimulating and secure gaming experience tailored to the needs of 15-18 year old girls.

The system needed to incorporate the Barrier Breakers' soft skills development process (BBM®) within a fun, inspirational game environment. It needed to be a secure, motivating space in which girls would be encouraged to discover and follow their own path in life, and where they can develop and receive accreditation for the soft skills they develop during the game.

We were asked to prepare a document that would provide the necessary technical information that would enable Barrier Breakers to seek funding for a prototype of The HQ.

This document represents the MDS response and the final report.

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1. Research and analysis

We began our research with a review of the current market demands for soft skills, existing games incorporating soft skills and concluded with scholarly articles on game theory and gamification.

There are two key factors that motivate girls to play games: context and relationships. Girls enjoy games that allow them to solve problems in context and they prefer games with real world applications. They are also more drawn to games that include the collaborative aspects of social media and help them achieve something they see as making a positive difference in the real world. While drawn to games that include crossover characters from other media such as books or movies, girls also prefer games that closely simulate the real world.

Allowing students to engage with a subject through a game prior to instruction on the topic actually increases student interest and engagement in the lesson. Games designed to appeal to girls may help interest them in soft skills and in STEM subjects, but will also help them develop the problem solving and collaborative skills they will need to function in the workplace.

1.1 Market for Soft Skills

Soft skills enable the qualities, behaviours and attributes needed to succeed in the workplace. They encompass an individual's ability to listen well, communicate effectively, be positive, manage conflict, accept responsibility, show respect, build trust, work well with others, manage time effectively, accept criticism, work under pressure, be likeable, and demonstrate good manners.

Soft skills sit alongside and complement other types of skills, including technical or job-specific skills, literacy, numeracy and information technology skills. *Soft skills are relevant to all workers and employees of all occupations and staff grade levels, including senior executives.*

The National Association of Colleges and Employers (NACE) ran a survey from mid-August through early October 2014 where it asked hiring managers what skills they plan to prioritize when they recruit from the class of 2015 at colleges and graduate schools. Cutting across all majors and degrees, employers want new hires who can work well on teams, and who are decisive problem-solvers. The 10 soft skills employers say they seek, in order of importance include:

1. Ability to work in a team structure²
2. Ability to make decisions and solve problems (tie)²
3. Ability to communicate verbally with people inside and outside an organization²
4. Ability to plan, organize and prioritize work²
5. Ability to obtain and process information²
6. Ability to analyze quantitative data²
7. Technical knowledge related to the job²
8. Proficiency with computer software programs²
9. Ability to create and/or edit written reports²
10. Ability to sell and influence others

The Confederation of British Industry – the country's peak employer organisation – has affirmed that many of the UK's businesses place more value on skills and achievements that boost someone's attractiveness as a potential employee or candidature for career advancement and progression.

Policy objectives set out in the Rigour and Responsiveness in Skills policy paper (jointly published

by the Department for Education and the Department for Business, Innovation and Skills in April 2013) identified the need for soft skills as follows:

“We need to offer high quality training in the skills people need entering employment, and to provide a platform for acquiring new skills throughout their working lives. In addition, the offer for unemployed people needs to be genuinely responsive, giving them the mix of education and training that fits their needs and supports them into work, rather than what is convenient for the provider. This must include developing the essential ‘soft skills’, such as team working, collaboration and punctuality, which are needed for the workplace. This will only happen where providers are truly responsive to the needs of employers, engaging them fully to ensure that the education and training provided will genuinely equip the trainee for the workplace.”

However, soft skills are also important to any business and organisation where teamwork and worker interactions are important, even where the opportunities for customer interaction are minimal or absent. This includes sectors such as manufacturing, construction and transportation, where collaboration between workers is increasingly vital to safe, efficient and productive working.

Underinvestment in soft skills is expected to contribute to skills shortages where employers are unable to fill workforce vacancies because they cannot find recruits with sufficient skills. At the Gartner Symposium/ITxpo, CIOs and Executives confirmed the industry is entering the Nexus of Forces, which includes a confluence and integration of social skills, cloud, mobile and advanced information technologies.

1.1.1 Related Links (Links Verified)

Why soft skills are key to everyone’s employability and career progression

<http://elearningindustry.com/soft-skills-key-everyones-employability-career-progression>

Why soft skills are more important than a great CV

<http://www.telegraph.co.uk/women/womens-business/11326058/Forget-the-CV-Why-soft-skills-are-more-important.html>

The Value of Soft Skills to the UK Economy

<http://www.backingsoftskills.co.uk/The%20Value%20of%20Soft%20Skills%20to%20the%20UK%20Economy.pdf>

The Case for Soft Skills Training

<http://www.monarchmedia.com/case-soft-skills-training/>

Independent research and policy documents from a wide range of sources, confirm that soft skills shortages are a long-term problem for employers.

1.2 Barrier Breakers Soft Skills Methodology (BBM)

Barrier Breakers Methodology for Soft Skills Development and Evaluation (BBM®) is an award-

winning process that identifies and removes the five barriers that block all soft skills, which include:

- Backward Focus
- Inward Focus
- Downward Focus
- Left Focus
- Right Focus

BBM is based on the premise that everyone has soft skills, to some level. Therefore if we're not using our soft skills it is not that we do not possess them, it's because barriers block our capacity. Its benchmarks can be used not only for the specific purpose of soft skills delivery but as data for future studies as a means to track reasons for non-completion or to ascertain the impact of soft skills on retention. The more we can identify and remove these barriers, the more adept users will become at soft skills.

BBM's credibility has been confirmed and analyzed as an effective mechanism to manage soft skills training. The methodology will form the basis of the HQ Project in various contexts, scales and structures.

Key references related to the BBM constructs include:

- DISSERTATION Conclusions [Penelope Tobin 2008]
- BBM_HQ_InBrief

1.3 Existing Games

There is a huge gap in the availability of soft skills games. Searches against AOL, Ask, BING, ChaCha, Google and Yahoo produce very limited active links. The few active links reflect 5 valid games of which only 2 target 15-16 year old girls. **None address the HQ Project specific 15-18 year old profile or include the differentiating concepts of the Barrier Breakers Methodology.**

The following represent current market leading soft skill video games:

- Schools 26
- EverLove
- Give Girls Power
- Dragon Age
- Meet Let (Social Media employing gamification)

1.3.1 Related Links (Verified)

Time Management, Negotiation and Leadership

<https://game-learn.com/>

The Last of Us from Naughty Dog-Ellie

http://www.naughtydog.com/games/the_last_of_us/

Silicon Sisters (Note the additional YouTube interviews on the right)

https://www.youtube.com/watch?feature=player_detailpage&v=YUbhByfX-J0

https://www.youtube.com/watch?v=NF3I-iJ3Sc8&feature=player_detailpage

Using Online-Role-Play to Promote Soft-Skills Development for European Social Enterprises
<http://www.s-cubeproject.eu/S-Cube%20Project%20Online.pdf>

Meet Let Social Network

<http://wersm.com/meet-let-the-teen-social-network-based-on-gamification/>

1.4 Gamification

Game-based learning presents solutions that facilitate student engagement because they emphasize continual improvement of skills, self-discovery of information, learning from trial and error, and they focus more on processes and skills than just content. Game players figure out what information is needed for the next move and that there may be different ways to achieve it. Learning is thus from within the game itself as well as, outside sources of information. They combine this to create effective strategy- following scientific methods.

Gamification addresses the key needs for the target audience of 15-18 year old girls that include:

- The need for instant gratification
- Like interaction and socialization
- Content is essential in learning (Why do I need to know this?)
- Points value systems that track player achievements provide better motivation than prizes
- Makes failure interesting, encourages user to keep trying
- Non-sexual stereotypes
- Games make users happy because they are hard work, facilitating creative accomplishment and heightened functioning
- Games build stronger social bonds and lead to more active social networks

Gamification uses an empathy-based approach for introducing, transforming and operating a service system that allows players to enter a gameful experience to support value creation for themselves and other stakeholders.



Keep in mind that the HQ Project objective is to gamify the process of soft skills learning not the outcome. Gamification directly affects engagement and motivation and it indirectly leads to acquiring more knowledge and skills to solve serious problems. Gamification should be kept simple; if it requires too much explanation it is likely to turn people off. It is also likely to be particularly unappealing if people have to work too hard to get validation, points or prizes. Keeping it simple means the game is easy to explain and easy to understand.

1.4.1 Related Links (Links Verified)

The use of games and play to achieve real-world goals

<http://gamification-research.org/>

What is Gamification and Why Use It in Teaching?

<http://ii.library.jhu.edu/2014/05/13/what-is-gamification-and-why-use-it-in-teaching/>

Millennials and Technology: Addressing the Communication Gap in Education and Practice

<http://www.hpu.edu/CBA/block-left-column/gibsonPublication.pdf>

Experience Essential- Preparing the Next Generation of Business Leaders

https://whitman.syr.edu/alumni/pdf/WhitmanMagazine_Fall2014_web.pdf

“Pwning” in the Classroom- How Gamification can Enhance the User Experience

<https://prezi.com/kw9of4ycxgec/pwning-the-classroom/>

How to Make Video Games for Girls

<http://www.themarysue.com/games-for-girls/>

From our research, we conclude that gamifying soft skills training and incorporating the BBM concepts has significant market potential and is worthy of further development.

2. Technical Requirements for Prototyping

2.1 Static Web site or Gamified App

Conventional web site development is not applicable for the implementation of the BBM process. BBM requires a truly interactive, dynamic, user centric application. The HQ Project needs to use human-focused design to increase the involvement of users to drive, measure, and reward their behaviours. The app needs to include the following:

- Rich/interactive User Interface that mimics the users device of choice
- Advanced device capabilities- geolocation, camera, integration with w3C device
- Action orientation not information orientated
- Ability to work offline and to save data locally

Game Design is critical to the HQ Project App. Game Designers will need to know how to create a fun and rewarding experience. The Gamification Process involves the proper application of Game Mechanics, Game Features and Game Design with significant consideration given to the user experience and behavioural motivators.

In computer based learning like that envisioned for the BBM application, games provide the much needed interactivity between the participants and also the 'instructor'. Here, the instructor is not an actual person but game based logic that can help a participant when they do not understand something or need help.

The problem with most computer-based learning systems is that, while initially novel to students, they can become repetitive and disengaging after extended use. This is especially problematic when extended use is required for sufficient depth of understanding. Successful educational

games must:

- Identify the ability level of the player
- Provide rapid feedback
- Be slightly more challenging than the learner's skill

2.2 Difference between games and a gamification based App

The following highlights the differences between a conventional computer-based game and a gamified custom App.

Game	Gamification App
Games have defined rules & objectives	May just be a collection of tasks with points or some form of reward
There is a possibility of losing	Losing may or may not be possible because the point is to motivate people to take some action and do something
Sometimes just playing the game is intrinsically rewarding	Being intrinsically rewarding is optional
Games are usually hard and expensive to build	Gamification is usually easier and cheaper
Content is usually morphed to fit the Story and scenes of the game	Usually game like features are added without making Too many changes to your content

2.3 The HQ Project App

In order to trigger HQ Project user intentions, the App must explore the impact of user orientations. Gamification nowadays is one of the emerging strategies to entice user attention and involvement. Depending on how much game like features are required, one or more of the following should be included:

- Add points to tasks that need to be completed
- Define badges/rewards to be given out after a criteria is met
- Create a Leaderboard to show top performers
- Define levels to repeat tasks or to perform harder tasks
- Earning of badges can be tied to unlocking higher levels within the App

The HQ Project App should include three types of players, based on the different personality types:

- Achievers – Need to be at the top
- Explorers – Need to learn something new
- Socializers – Need to interact with others

For education-based games, only Achievers and Explorers are the primary types of players.

An Achiever will do whatever it takes to complete the course. An Explorer will explore all that the game has to offer thereby covering the whole course.

The Socializer will work with all the other players of the game but may not complete all levels of the intended training. The APP design should include ways to motivate the user to become an Achiever or Explorer.

From a Game Mechanics viewpoint, the HQ Project App should include the following:

- Achievements
- Appointment Dynamics
- Behavioural Momentum
- Blissful Productivity
- Bonuses for completing tasks or levels
- Community Collaboration
- Countdown for Completion
- Exploration
- Epic-meaning- something great, something awe-inspiring
- Infinite Gameplay
- Levels
- Ownership
- Points
- Progression
- Status
- Urgent Optimism

From a Game Features perspective:

- Customisable Avatars
- Female characters
- User Profile Dynamics
- Realistic settings
- Peaceful pace
- Instances
- Leaderboards
- Skill-growth trees
- Character Social relations
- Non-violence
- Cooperation
- Caring
- Alternative pathways

2.4 Next Steps in the HQ Game Design Process

2.4.1 Develop the Game Script

The script for a video game is very similar to that of a movie. You describe the scenes, plan the dialogue, describe the mood and set the background music. Flowcharts need to be developed to lie out the decision making of the game and show the various logical paths the user can take and there is the prose script that describes what happens.

References for details on this can be found in the following books ([Links Verified](#)):

- Professional Techniques for Video Game Writing
<http://www.amazon.com/Professional-Techniques-Video-Game-Writing/dp/156881416X>
- Writing for Video Games
<http://www.amazon.com/Writing-Video-Games-Professional-Practice/dp/0713677619>

- The Ultimate Guide to Video Game Writing and Design
<http://www.amazon.com/Ultimate-Guide-Video-Writing-Design/dp/158065066X>

2.4.2 Develop the Game Storyboards

The HQ Project needs to have game storyboards developed using tools to plan game projects. These storyboards need to be developed by the game Storyboard Designers and in parallel with Penelope Tobin to address the unique learning experience requirements and the BBM method to achieve them. Typically this process is very iterative and includes:

- Shot titles and descriptions, complete with planned lengths and edited order
- Indicate shot types: video, still, audio, music, or titles
- Film tips for the camera person or animator when creating the shot and editing tips to be used when editing
- Identification and importing of existing animations, video clips, still pictures and sounds to better illustrate each shot
- Print blank storyboard worksheets for brainstorming new ideas

References for free storyboarding application software ([Links Verified](#)):

Toon Boom

https://www.toonboom.com/free-storyboard-software?gclid=CL3_j5u9gscCFRIJkQod52sGRw

- Storyboarding and timing software is designed specifically for the development of storyboards. You can create or import images, organize and arrange them, add text, and print professional looking presentation of your story.
<http://www.atomiclearning.com/storyboardpro>

Example Storyboard:

GAME TREE OF LIFE		SEQUENCE 2	SCENE 1	PAGE 1 /12
		BOARD ID TOL-0002-001	ARTIST D. KENNERLY	DATE 2/16/04

SHOT	IMAGE	DESCRIPTION / INTERACTION	TIME
1		<p>ESTABLISHING SHOT on BLACK CLOUD.</p> <p>FX: Lightning flicker inside cloud.</p> <p>SFX: Thunder subsides.</p> <p>CRANE DOWN from black cloud to TREE.</p> <p>Silhouette of LARGE BIRD glides down from a limb.</p> <p>SFX: Distant hawk screech.</p>	<p>6</p> <p>4</p>

3. Development Options and Costs

There are several tasks that will determine the cost to develop the HQ Project that include:

Prototype (Not a complete game; the concept demonstrator):

- Game Script- Using Professors and Students - **£20,000- 35,000**
 - <http://mashable.com/2013/12/24/video-game-writing/>
- Storyboarding- Using Professors and Students - **£25,000- 45,000**
 - <http://www.atomiclearning.com/storyboardpro>
- Prototype Modelling within an existing Game- **£35,000- 45,000**
 - <http://istqbexamcertification.com/what-is-prototype-model-advantages-disadvantages-and-when-to-use-it/>

Production ready:

- Developing a production ready BBM based Game by Modifying and existing game to address the BBM concepts- **£100,000- 150,000**
 - https://studentaid.ed.gov/sa/sites/default/files/WBS_7.4_PRR_Process_Description.pdf
 - <http://www.cgw.com/Publications/CGW/2010/Volume-33-Issue-10-November-2010-/Achieving-Production-Readiness.aspx>
- Developing a completely new production ready BBM based Game (Limited Object reuse, development of new characters, movements, etc.)- **£450,000- 650,000+**

4. Recommendations

The next stage of The HQ project is to secure funding for the development of the prototype. The information we have delivered will be valuable in creating a compelling application.

In addition to providing our technical expertise as requested, we have also offered some recommendations, based on our experience, about how The HQ Project could be developed, as well as, suggestions as to where appropriate help and/or funding could be obtained.

We understand the limitations of Barrier Breakers (UK) with respect to financing the costs to advance the development of a prototype and as such suggest the following options be explored (references are representative):



1. Partner with a Video Game Design and Development Camp (Links Verified)

<https://www.idtech.com/courses/game-design-development/>

<https://www.firetechcamp.com/courses>

<http://www.techcamp.org.uk/camps/upcomingcamps/tech-camp-uk>

<https://www.digitalmediaacademy.org/canada-tech-camps/university-of-british-columbia/>

<http://www.pcauthority.com.au/News/398726.game-development-course-for-girls.aspx>

<https://germanyclass-igmrit.rhcloud.com/>

2. Partner with an existing Video Game Organisation (Links Verified)

www.siliconsisters.ca/

www.teamcooper.co.uk/Games

<http://www.braziliangamedevelopers.com.br/en>

https://en.wikipedia.org/wiki/List_of_game_companies_in_the_United_Kingdom

<http://www.theguardian.com/technology/2014/jun/03/30-greatest-british-video-games>

3. Establish contacts with like minded gaming professionals (Links Verified)

<http://fortune.com/2014/09/23/10-powerful-women-video-games/>

4. Partner with an institution that is accredited under the Erasmus Programme (Links Verified)

www.rsm.nl/about-rsm/facts-figures/accreditation

https://europa.eu/youth/evs_database

www.edgesproject.eu/partners.7.it.htm

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Public Domain Articles (Links Verified)

<http://gel.msu.edu/investigaming.pdf>

<http://girlsmakegames.how/program.html>

<http://www.learninglandscapes.ca/images/documents/ll-no12/minnigerode.pdf>

<http://www.g4tv.com/thefeed/blog/post/716649/getting-girls-into-video-game-development-jobs-the-girl-scholarship/>

<http://www.metafilter.com/122411/The-Video-Games-Women-Make>

<http://www.elle.com/culture/tech/a11688/jane-mcgonigal-game-designer/>

Appendix 1- Potential Funding Programmes (Links Verified)

- **European Commission- H2020 Program for Advanced digital gaming/gamification technologies**

<http://www.egdf.eu/open-eu-funding-opportunities-for-game-developers-in-spring-2015/>

- **Tiga Creative Content Fund for UK game industry**

<http://www.develop-online.net/news/tiga-calls-for-3m-creative-content-fund-for-uk-game-industry/0197565>

- **Canadian Global Games Development Projects 2015**

<http://www.canada.gaa.ie/club-news-1/opencall-globalgamesdevelopmentprojects2015>

- **Irish Competitive Start Fund (CSF)**

<http://www.enterprise-ireland.com/en/funding-supports/Company/HPSU-Funding/Competitive-Start-Fund-CSF-.html>

- **EURIDA Research**

www.eurida-research.com/downloads/ict18_projects_8493.pdf

- **Activision**

www.activision.com