Does the oculus rift add to the experience of fear in gameplay over traditional/conventional play methods in the horror genre

Aims and objectives

This project is to investigate is the oculus rift virtual reality headset (OCVR) contributes to the experience of game play in the horror genre. The aims and objectives have been created with reference to the methods and background sections and referred to throughout.

1. Research into the relevant literature and methods of producing the project

* To do this, previous research, like immersion, fear, virtual reality, level design, emotion in game design, project management and tool and assets evaluation, will be conducted

1. Create a plan with project management to help maintain manage and organise to project

* Project management plans and charts will be implemented to help maintain the project, along with a game design document and time scales.

1. Design a game level

* Using a game engine and research, design a game level that will include set pieces that will allow talking points to analyse.

1. Preform tests using subjects

* In a controlled environment, users will be put through tests, some using the Oculus rift others using conventional methods.

1. Collect data from the test subjects using varies methods of data collection.

* Using focus groups, questionnaires and many other data collection methods, the test subjects thoughts and answers will be collected.

1. Correlate the data

* The data collected will be analysed while reviewing how effective the test was.

1. Produce a report that defines the data

* The data will be put into a report that will include charts and graphs to show what the data provided in reference to the project aims of does he oculus rift add to the experience of gameplay.

# Background

The point of this project is to find out how much more immersive experience the ORVR adds to the gaming experience in horror games.

This topic is interesting as the OCVR is relatively new, this means that research isn’t fully available for the ORVR. So it is suitable to look into a new area of the gaming experience while looking at a common genre.

To find out about the background we have to look into many areas of research already conducted but also why the project is useful and interesting.

Virtual reality has been around for a few decades, and became commercially available with the Nintendo virtual boy, though a commercial failure, a new virtual reality headset came around, the Oculus rift, now with this new virtual reality around, that was crowd funded, research is still new into the system and virtual reality. This project highlights the areas of gameplay and immersion in the horror genre and what the oculus adds to the experience.

## Fear

“If fear is to be used as the fun element upon which a video game is constructed, it is important that we choose the correct fear mechanism for exploitation. Gray (1971) assigns fears to one of the two categories: learned or innate. Learned fears are those that we can attribute to a previous experience. A fear hamsters; for example may occur is bitten by a hamster during childhood. Because learned fears are directly linked to an individual’s experience, they are not prevalent throughout society. In contrast, those fears which Gray argues to be ‘innate’ are found to affect a sizeable proportion of the population. Such phobias include fear of snakes, spiders, the dark, strangers, loud noises, falling, heights, death, imaginary creatures, etc. Because mass media, such as film and computer games, attempt to appeal to the widest possible audience, it is ‘innate’ fears that are typically exploited.” (Wiseman, Sykes, 2006)

The author’s point here is that some fears are learned to an individual while other fears are naturally occurring, these fears are what media exploit to gauge a wider audience, it would be wise to take this information into account while the test game is being created. The emotion of fear is easier to measure than other emotions due to the innate nature of certain fear provoking ideologies. While happiness has a few innate beings, fear covers a wider range that is easier to replicate and would be a good emotion to measure, to see if the OCVR adds to the experience, as defined by the aims.

The OCVR has a port of Doom 3, known as Doom 3: BFG edition, a horror game, the port of the game includes extra horror scenes. The game adds to the horror experience and is one of a few AAA titles to get support for head mounted displays like the OCVR.

"DOOM 3 was enthusiastically embraced by gamers worldwide at its release," id's technical director (and Doom co-creator) John Carmack said in today's press-release. "Today, the full experience has been enhanced and extended to be better than ever, and is delivered across all the platforms with a silky smooth frame rate and highly responsive controls. New support for 3D TVs, monitors, and head mounted displays also allows players to experience the game with more depth than ever before. We think shooter fans everywhere will love it." http://kotaku.com/5914239/new-doom-3-for-xbox-360-and-playstation-3-supports-head+mounted-displays

The game slender uses a wide open dark space with only a flash light for light, though you find a creature in the dark, unseen, depths.

“You can escape it for a day or two, sure – maybe a week – but it will never stop showing its face, and you’ll forever be stuck in a state of paranoia fearing every corner and even turning around; and this rough indie game captures the tone of it perfectly to the point where you’re unlikely to boot it up again once you undoubtably fall victim to its expressionless, foreboding implied glare” http://thegamershub.net/2012/07/slender-proof-of-the-power-of-survival-horror/

Other game like dead space and amnesia use the environment to create a scary atmosphere, using minimal light and sound effects to ensure a tense dark atmosphere. This, combined with multiple Hollywood horrors, like the paranormal activity series, the grudge, the chucky series and the Halloween series, all the scary fear provoking stuff happen at night in the dark, where figures and shapes cannot be made out by the naked eye

All of these horror games use Sykes and Wiseman’s idea of innate fear, using the dark, and low lighting levels with unimaginable creature. The whole idea of the games is to produce fear. These games have the same concepts and would be a good guide to use as on how to create a fear producing element in a game. With use of Sykes and Wisemans report, all of the fear concepts are useful to the aims and objectives of this project of creating fear to be able to see if the oculus adds to the fear element.

A Problem with fear is that people can become too scared and might not want to continue through the level. This can be a problem for the project if the test users pull out they might not be able to give answers on certain set pieces and won’t have experienced more of the game level or game play as the others.

## Project management

**A GAME THEORETIC OPTIMIZATION**

**MODEL BETWEEN PROJECT RISK SET**

**AND MEASURE SET**

“Project risk management, as a subjective and dynamic decision method of avoiding project risk, plays an important role in selecting appropriate control measures (i.e. measure set) to handle multiple emerging risks (i.e. risk set).”

The author has summarized what project management is in a short sentence, the point of this is to provide a professional view on what project management is. But also to define what basis is needed for game development projects. Project management is needed for this project to avoid the project failing. Project management is interesting as it allows plans and graphs with time scales, which will help this project as stated by the objectives. A good project management strategy will be needed.

**There are many project management strategies like Princ2 and DSDM, these can be used but are designed for large scale projects and wouldn’t be recommended for a small project like this. An Agile methodology would work here. It can be put to any project and will allow development of a game and time strategies.**

**The problem with project management is that it has to be followed along to the plan as delays can put that plan out of action. Putting in contingency plans and extra time to stop any delays that may occur then it is well planned and problems like this can be avoided.**

## Immersion

Immersion is important because it is what adds to the experience which is what is being analysed by the project and the project aims. Looking into to the pros and cons of immersion would benefit the project because it is what the project is about and the issues can be added to the plan when creating the content for the OCVR.

**10 scientific problems with virtual reality**

“Is it possible to (digitally) model any given object in the physical world? The problem of whether an object can be digitized is related to such factors as the developer’s understanding of that world, the complexity and computability of a particular model, and a typical user’s expectation of the resemblance of the model to its real counterpart. For example, experienced developers easily model rigid objects with great precision but find it extremely difficult to model fluids; fluid simulation equations are still far from reflecting a fluid’s natural variability.”

“What standards are available for evaluating image similarity and image quality? As in model similarity, image similarity represents a fundamental problem in image recognition and retrieval, and is thus important in VR. Humans generally recognize similarity between images and degree of image distortion, but, for computer vision, such recognition remains unsolved; for example, there is no universal efficient measure of image similarity or universal way to evaluate image clarity and distortion.”

The problems raised by the author show that the problems mainly come in development of content for virtual reality. The author states that poor design will me a poor immersion with the technology and game experience.

The whole extract is interesting as it shows that there can be issues which will need to be addressed while creating games for virtual reality. It is interesting as it shows a problem area which I need to be aware of along with project management strategies the issues raised can be implemented into a risk assessment and quality assurance scheme to make sure problems suggested don’t arise.

## Unity

**Virtual Hand Modelling and Simulation Based on Unity 3D**

Unity is a popular game creation kit. It has many applications and is widely popular due to the fact it is easy to use. Using the academic litriture below to look at the back ground and application of unity while applying it to a relevant project (Virtual hand modling), unity is shown to be a very useful and important tool in the creation of content and ease of use.

“Unity3D is one of game development software in current market, it is cross-platformed and now besides Mac OSX, Unity3D can fully support Windows operating system. Unity3D supports three scripting languages: JavaScript, C#, and Boo. All three are equally fast and interoperate, and can use underlying .NET libraries. Other than that, these three languages can also be used together in game development project. By using Unity3D, moving, rotating, and scaling objects just take a single line of code. Likewise, duplicating, removing, and changing object’s properties. Everything can be referenced directly, by name or hierarchy, tags, proximity, or touch”

“Unity 3D can support various three dimensional file formats such as .mb from Maya, .max from 3ds Max, .jas from Cheetah 3D, .c4d from Cinema 4D, .fbx from Autodesk and so on. This feature makes virtual scene production easier, convenient and quick. Other than that it has a highly optimized graphics pipeline for DirectX and OpenGL, it makes the simulation more realistic. Unity 3D supports three scripting languages which are JavaScript, C#, and a dialect of Python named Boo. All three are equally fast and can interoperate. It makes Unity 3D more flexible to add special function on virtual reality application.”

The extracts show the importance of unity and how it incorporates with other software and many programming languages that are useful to designing a game. It is interesting as a game engine is needed to run the game that will be created and this literature is useful to show that the tool being used will be adequate for the job of producing a horror genre game for the OCVR.

A problem with unity is that it is all dependant on what content is created, from script to game art. The problem lies with what is created. Following a plan with quality assurance will avoid this problem.

# Summary

To summarise, the areas of virtual reality, immersion, and fear all can combine to create content for the OCVR. Though problem areas have been pointed out, a good project management strategie can help to avoid the problems and create a quality piece of work to find out if the new system of the OCVR adds to the experience of game play.

# Methods

This section of the project will show how the project will be managed and how the project will be executed.

A research method is needed

A project management methodology needs to be put in place to make sure the project has time basis and can follow a plan to make sure it is achieved.

a project management methodology has to be proposed, 2 examples of project management methodologies are given to justify the use of one and to show that research has been put into the decision of one over others.

Dynamic systems delivery model (DSDM) is a methodology which allows for the use of project management for a systems based product.

“ DSDM uses user-centered approach, and they steer the software development throughout the lifecycle. DSDM team is empowered to make decisions on where the system should be going. Fitness for business purpose is the essential criterion for acceptance of deliverables. Systems evolve through iterative development with focus on frequent delivery of products. It is important to ensure all changes are reversible. Requirements are baselined at a high-level, and once the detailed requirements become clear they are frozen. Testing is integrated throughout the lifecycle. It is important for ad stakeholders to agree on what the delivered system should have and what is left out.” [Dynamic Solutions Delivery Model (](http://ehis.ebscohost.com/eds/viewarticle?data=dGJyMPPp44rp2%2fdV0%2bnjisfk5Ie46bJQt6u1S7Kk63nn5Kx94um%2bSa6lsE%2btqK5JsZa0UrGuuEixlr9lpOrweezp33vy3%2b2G59q7SbauslC2rbdJtJzqeezdu33snOJ6u9jygKTq33%2b7t8w%2b3%2bS7Sq%2bur0%2byqrQ%2b5OXwhd%2fqu37z4uqM4%2b7yPuXr44vys9KK89sA&hid=104" \o "Dynamic Solutions Delivery Model (DSDM). )**[DSDM](http://ehis.ebscohost.com/eds/viewarticle?data=dGJyMPPp44rp2%2fdV0%2bnjisfk5Ie46bJQt6u1S7Kk63nn5Kx94um%2bSa6lsE%2btqK5JsZa0UrGuuEixlr9lpOrweezp33vy3%2b2G59q7SbauslC2rbdJtJzqeezdu33snOJ6u9jygKTq33%2b7t8w%2b3%2bS7Sq%2bur0%2byqrQ%2b5OXwhd%2fqu37z4uqM4%2b7yPuXr44vys9KK89sA&hid=104" \o "Dynamic Solutions Delivery Model (DSDM). )**[).](http://ehis.ebscohost.com/eds/viewarticle?data=dGJyMPPp44rp2%2fdV0%2bnjisfk5Ie46bJQt6u1S7Kk63nn5Kx94um%2bSa6lsE%2btqK5JsZa0UrGuuEixlr9lpOrweezp33vy3%2b2G59q7SbauslC2rbdJtJzqeezdu33snOJ6u9jygKTq33%2b7t8w%2b3%2bS7Sq%2bur0%2byqrQ%2b5OXwhd%2fqu37z4uqM4%2b7yPuXr44vys9KK89sA&hid=104" \o "Dynamic Solutions Delivery Model (DSDM). )

The basis for DSDM is that the approach is for frequent delivery of products, as this product will only have one deliverable, the project itself, it would be unsuitable to use this methodology, along with the fact that it is designed for a user centred approach and as the only user is of the people who are testing the project aims it would be unsuitable to use. Though it would be wise to take into account that it allows for the ability to change very quickly, even reverse the current iteration to the previous one, in case the current one isn’t appropriate.

Using an agile approach would be much simpler, as this can allow small scale projects with flexible time management and approaches.

“Agile development methodology provides opportunities to assess the direction of a project throughout the development lifecycle. This is achieved through regular cadences of work, known as sprints or iterations, at the end of which teams must present a potentially shippable product increment. By focusing on the repetition of abbreviated work cycles as well as the functional product they yield, agile methodology is described as “iterative” and “incremental.” In waterfall, development teams only have one chance to get each aspect of a project right. In an agile paradigm, every aspect of development — requirements, design, etc. — is continually revisited throughout the lifecycle. When a team stops and re-evaluates the direction of a project every two weeks, there’s always time to steer it in another direction.” <http://agilemethodology.org/>

This type of methodology will mean that time will be used well to get the project right, with time to change ideas if something goes wrong or doesn’t fit with the context of the game level.

The game needs to be thought through; it needs to be a horror game with elements that can be evaluated and analysed. To do this the game needs to have set pieces that can be discussed, these can be like a point that a Lewton Bus.

“Lewton Bus is a sound design term that originated from Cat People, a film produced by Val Lewton in 1942. the film sets out to be deliberatly shocking and tense, which led to the coining of the term. essentially a 'Lewton Bus' is where a built moment of tension is purposefully shattered by a single startling moment, generally something entirely mundane. the example from cat people is the hiss of a panther at the end of a long, creeping track, which turns out to just be a bus pulling up (hence the name, Lewton Bus). This technique has since been widely used in the industry. Famous examples include the moment where the human head pops up out of the bottom of the boat in Jaws, and the scene where the tension is startlingly broekn by the cat leaping out from the control deck in Alien.” <http://kayesoundskills.blogspot.co.uk/2012/03/lewton-bus.html>

Points, like the lewton bus, that can be created to cause a discussion or point of analyisis. It also needs to be designed with horror techniques. Looking at Sykes and Wisemans observations who found that fear was innate and in the environment, designing the environment with their ideas.

The game will be created in unity, as it is the most versatile engine and has support for the OCVR. when developing the game, as mentioned previously, support for various means of software and hardware is available and integrated. It also allows for 3D models created specifically for this project, to be imported into the game.

Next a series of test users will be given the game to play. Some users will play the game on the OCVR while the other users will play on conventional methods, E.g. a computer screen, In a control room with no distractions or anything to impair the results of the tests. A problem with this is that the users might become too scared and they may not wish to continue playing, what should be done is that the users allowed to stop playing, although their results might be more impaired than test users that play the full game, there data should still be used in a separate analysis to add to the report, thus avoiding and issues with authenticity of the test and data, yet adding to the report.

The next thing is to actually work out how the test users experience will be evaluated. I propose that after the game play test, a questionnaire based on the likert scale, thus reducing time and still getting effective quantitative data back.

“Likert Scales have the **advantage** that they do not expect a simple yes / no answer from the respondent, but rather allow for degrees of opinion, and even no opinion at all.  Therefore quantitative data is obtained, which means that the data can be analyzed with relative ease. However, like all surveys, the validity of Likert Scale attitude measurement can be compromised due the **social desirability**.  This means that individuals may lie to put themselves in a positive light.  For example, if a likert scale was measuring discrimination, who would admit to being racist? Offering **anonymity** on self-administered questionnaires should further reduce social pressure, and thus may likewise reduce social desirability bias.” <http://www.simplypsychology.org/likert-scale.html>

As shown an issue has been raised but the solution is also given. Due to the fact the ethical approval requires anonymity, social pressure will be greatly reduced, and such personal questions would never be asked, only that to their opinions on game play experience.

the next data to collect is to the qualitative data. This will be achieved by putting the test subjects into focus groups and discussing the game play experience with them, recording this session for the purpose of ease and the ability to look back upon answers given for the use of the project only will be required to analyse data.

The quantitative data will then be turned into charts and graphs to show how the data represents the answers to the project and then a reflection upon the data in comparison to the project aim will be submitted. The quantitative data will be collected and put into themes, these themes will be collected and put into a word wall, the more the theme is used the bigger the word. The data will also be used to right up an evaluation not only of the project reflection but that of reflection to the aims of the project.

This will leave the project with something more than a yes or a no, it will hopefully give a basis of what parts of the experience are improved and what needs to be worked on and looked into, hopefully helping other research projects in the subject area, or allowing research upon this project.

# Risk assessments

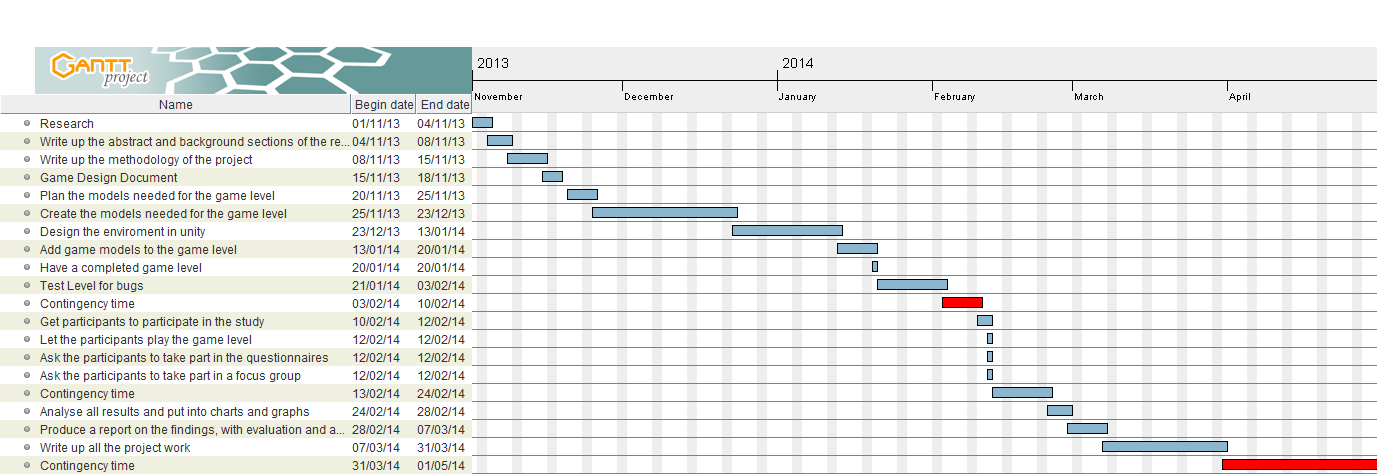
In this section, the project will look at possible areas of risk in each stage of the plan and give a factor to the risk of how likely it is to occur and how badly it can affect the project, along with possible contingency plans.

The risk assessment has been though through with background research in the sections above and the methods section to make sure those problems have been thought of and that they are included with a plan to avoid such problems and time allocated to allow contingency.

The “how likely is the problem to occur” and “how much will the project be affected if the problem occurs” sections will be filled out with a key:  
Very Low – the problem is very unlikely to occur/ the problem is very unlikely to derail the project  
Low – the problem is unlikely to occur/ the problem might push the project back a few days  
Moderate – the problem has a chance to occur/ the problem could cause 1-2 weeks’ worth of delays  
High – The problem is likely to occur/ the problems will cause major delays to the project  
Very high – The problem has a 90%+ chance to occur/ the problem could cause the project to fail

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **Stage of project** | **Problem** | **How likely is the problem going to occur** | **How much will the project be affected if the problem occurs** | **Contingency plan** |
| 01/11/2013 | Research | Bad research/ poor research technique | Low | moderate | Looking into how to research and good sources will avoid the chance of finding bad information. |
| 04/11/2013 | Writing the abstract and background | Bad spelling/ poor grammar | Very Low | Low | Using proof reading techniques and spell checkers to make sure the work is suitable. |
|  |  | Using the wrong litriture and academic references in the work | Very Low | moderate | To make sure all litriture is relevant and applys to the subject topic. |
| 08/11/2013 | Writing the methodology | Using the incorrect methodology | Low | Very high | Research into the most appropriate methodology and apply it correctly |
| 15/11/2013 | Design, development and evalutation |  |  |  |  |
|  | Game design document | Poor planning/bad quality of description | Low | High | Fill out the document using as much information as possible in as much detail as possible. |
| 18/11/2013 | Paper plan of the game | Poor quality of work | low | moderate | Again use as much information as possible |
| 20/11/2013 | Plan models to be created for the game | Bad planning and not including models into the plan | moderate | high | All models need to be considered, though in planning, the basic ones could be forgotten |
| 25/11/2013 | Create models for the game | Bad quality models | moderate | moderate | Models could be poorly made and ruin the effect of the game, so care into creation and include testing of the models |
| 23/12/2013 | Design the environment in unity | The environment might not match with the create models | Low | Moderate | The envirmoment needs to suit the feel and design of the environment to allow immersion |
| 13/01/2014 | Add models to the game level to create a completed level | The models might not be to scale. | Low | High | When creating the models in 3DS Max make sure the scale is set so that which matches unity |
| 20/01/2014 | Have a working game level | Contingency time might not of been long enough | Low | High | Contingency time has been well though of and 2 weeks should be enough though time from other areas may have to be reduced |
| 21/01/2014 | Test level for bugs | Bugs may occur often and can take a lot of time to fix | High | Low - high | Bugs can occur and need to be fix, testing time allows for this, as bugs can ruin the immersion |
| 03/02/2014 | Contingency time | Allows any work that has fallen behind to be caught up with. |  |  |  |
| 10/02/2014 | Get test users to play the game | Users might not be willing to participate | moderate | low | Persist in finding willing test users for the project. |
| 12/02/2014 | Use the test users to play the game | Some might not appear | moderate | low | Get other people in to fill in the place of their missing counterpart. |
|  |  | Some might pull out of the game due to fear | Low | Low | Still evaluate their experience butget in other test users |
|  | Get the users to fill in the questionnaires | Some users might not fill in the questionnaires properly | Very low | Very High | Clearly explain how to use the questionnaire and make help available if any test users struggle with the questionnaire |
|  | Ask the users to attend a focus group | Some users might be scared to voice their opinions | low | high | Ask each person their opinion on the matter |
|  |  | The focus group might be lead with bias questions | moderate | Very high | Ask open ended, neutral questions |
| 13/02/2014 | Contingency time | Again, more time to catch up with work that may have fallen behind with the schedule |  |  |  |
| 24/02/2014 | Analyse all results and put into charts | Might input data into the charts incorrectly | Low | Low | Double check the numbers that are put into the charts that correlate quantitative data. |
| 28/02/2014 | Produce a report on the findings including charts and graphs | Bad spelling | Low | Low | Again, use spell checkers |
| 07/03/2014 | Write up all work in the project | Parts might be missed out | Low | Low | Keep a diary/Log of what was done on each day to refer to upon creating a report |
| 21/03/2014 | Contingency time | This time is allocated to catch up on over runs in the project. |  |  |  |

# Indications of milestones and time frames

Using a Gannt chart, the milestones will be shown along with time frame. A Gantt chart is used because along with the risk assessment plan, they both convey a series of time frames (figure1), please find an enlarged view of this in the WORDED SECTION.(Figure 1)

# Summary

This proposal has been created to investigate if the oculus rift virtual reality headset, adds to the experience of fear in a horror genre game. Using a game level designed by research into horror techniques and design, a group of test users will play the game that has been created. Some participants will play the game on a OCVR while others will play the game using conventional methods of play. The participants will then be asked to partake in data collection methods, of which will be a questionnaire and focus group. The data collected will be put into a report to which will be analysed and evaluated to report back upon the findings in the data and research. The project will follow project management methodologies and have a time scaled plan.