

Developing a Sustainable Design Fiction for  
Fasnakyle Church

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## MSc dissertation check list

Milestones	Date of completion	Target deadline
Proposal	06/05/2020	Week 3
Initial report	29/06/20	Week 7
Full draft of the dissertation	10/08/20	2 weeks before final deadline

Learning outcome	The markers will assess	Pages <sup>1</sup>	Hours spent
<p><b>Learning outcome 1</b></p> <p>Conduct a literature search using an appropriate range of information sources and produce a critical review of the findings.</p>	<p>* Range of materials; list of references</p> <p>* The literature review/exposition/background information chapter</p>	<p>Pg 77 – 84</p> <p>Ch 2 pg 21 - 27</p>	200 hours
<p><b>Learning outcome 2</b></p> <p>Demonstrate professional competence by sound project management and (a) by applying appropriate theoretical and practical computing concepts and techniques to a non-trivial problem, <u>or</u> (b) by</p>	<p>* Evidence of project management (Gantt chart, diary, etc.)</p> <p>* Depending on the topic: chapters on design, implementation, methods, experiments, results, etc.</p>	<p>Ch3 pg 28-32</p> <p>Ch4 pg 33 - 44</p>	350 hours

<sup>1</sup> Please note the page numbers where evidence of meeting the learning outcome can be found in your dissertation.

undertaking an approved project of equivalent standard.		Ch5 pg 45 -64  Ch6 pg 65 - 72	
<p><b>Learning outcome 3</b></p> <p>Show a capacity for self-appraisal by analysing the strengths and weakness of the project outcomes with reference to the initial objectives, and to the work of others.</p>	<p>* Chapter on evaluation (assessing your outcomes against the project aims and objectives)</p> <p>* Discussion of your project's output compared to the work of others.</p>	Ch7 pg 74 - 76	30 hours
<p><b>Learning outcome 4</b></p> <p>Provide evidence of the meeting learning outcomes 1-3 in the form of a dissertation which complies with the requirements of the School of Computing both in style and content.</p>	<p>* Is the dissertation well-written (academic writing style, grammatical), spell-checked, free of typos, neatly formatted.</p> <p>* Does the dissertation contain all relevant chapters, appendices, title and contents pages, etc.</p> <p>* Style and content of the dissertation.</p>		20 hours
<p><b>Learning outcome 5</b></p> <p>Defend the work orally at a viva voce examination.</p>	<p>* Performance</p> <p>* Confirm authorship</p>		1 hour

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## Abstract

Climate change poses a serious threat to the future of the planet and individuals have a duty to be looking for new and sustainable ways to live and work (Armstrong, 2016; Nunez, 2019; Thunberg, 2018). “Although the magnitude of climate change may make individuals feel helpless, individual action is critical for meaningful change.”

— Mia Armstrong (Armstrong, 2016)

Can a semi-derelict, disused, secluded church become an iconic landmark and valued building in an isolated, rural community by integrating eco-friendly technologies with historical architecture, creating a sustainable retrofitting design fiction for Fasnakyle Church (Dunham-Jones & Williamson, 2008)? This project explores how the principles of permaculture, blended spaces, and user experience can be brought together as a way of creating a sustainable design fiction to explore the potential development of Fasnakyle Church. The local community are engaged throughout the project to inform how the building can once again serve the community now it is no longer a place of worship. The report used an iterative design process which is a common tool for user experience and aims to use a constant feedback loop to improve and develop the space design over time. This project highlights the value of combining these techniques in creating a valuable resource in the community, enhancing the experience of a beautiful piece of Highland history, and standing as a beacon of sustainable retrofitting design for the future.

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# 1 Introduction

User experience (UX) is about designing the experience users have whether that be with a product, system, web application or physical environment (Benyon, 2019; Hassenzahl, 2013). It is a far-reaching principle which applies to more than just the design of mobile and web applications (Benyon, 2019; Hassenzahl, 2010; Hassenzahl, 2013). This project follows the UX method of iterative design to create a design fiction for Fasnakyle Church underpinned by a combination of permaculture principles and blended spaces (Benyon, 2014; Egan, Benyon, & Thompson, 2017). The dissertation explores how UX can be used to enhance the re-design of an old, previously abandoned building and demonstrates the value of the UX approach to even the most unconventional of subjects.

## 1.1 Background to the Project

Fasnakyle Church has been brought back from the point of dereliction through careful restoration works. Up until 1999 the building served the community as a place of worship, however it fell into disrepair and all maintenance stopped after this point. After being allowed to erode for over 10 years the building was bought in 2010 by a local man who had an ambition to turn it into an art studio and gallery. The Church underwent major repair works, including re-slating the main building roof and the reconstruction of the vestry roof. The main body of the building had to be stripped back as there were many damaged structures inside, including the balcony. This was due to the amount of water leaking in over the years. The grounds needed a lot of care and attention, as trees had been allowed to grow up to the walls of the building and there was a burn flooding a large area of the garden. Ten years later the Church is now watertight, and it has an electricity supply. Despite not having a water supply it is ready for development. This project started as the building owner wanted to bring purpose to the Church again and share it with the local community. It is ripe for development, but the problem is knowing the right way to do this, as first and foremost the owner wanted this space to be for everyone in the community and provide something for all age groups. Even though the Church and local Glen Affric area receive a high volume of

tourists every year, it is important to the owner that the building space is designed with the local community in mind (Visit Scotland: Insights Department, 2019). It is also important to the owner that Fasnakyle Church is developed in a sustainable way (Appendix 6).

Inspired by the Lions' Gate Project at Edinburgh Napier University, the goal of this project is to develop a design fiction for Fasnakyle Church. This design should allow for contributions from the community, whilst also respecting the wishes of the building owner to ensure it is done in a sustainable way. The images below show the improvements made to the Church and grounds over the last ten years - Figure 1.1 shows the Church in January 2010 and Figure 1.2 shows the Church in July 2020.



**Figure 1.1 - Photograph supplied by building owner, taken in January 2010**



Figure 1.2 - Photograph supplied by building owner, taken in July 2020

## 1.2 Research Aims

The overall objective of this work is to understand how permaculture, user experience, blended spaces and design fiction can be used to develop a plan for restoring Fasnakyle Church to bring value to the community. The project engages with the local community to help shape the research and create an understanding of what the local community would like to see offered in the space. Permaculture is applied in terms of making the location as sustainable as possible, so it is sympathetic to its surrounding and not a drain on local resources. The local community research helps to shape the development of an online platform that aims to engage them even more in the creation of a design fiction for the building.

The research is designed to answer the following questions:

- Can design fiction and user experience be combined to research and develop an engaging design for a space which fulfils the expectations of the local community?
- Does permaculture play an important role in developing sustainability practices when undertaking a restoration project and if so, what is the value that permaculture adds to the project?

- Will a small Highland community engage in a project of this nature and is it important to have the community perspective included?

### **1.3 Report Structure**

This report begins with a review of existing literature in the main areas of focus for the project. The following chapter discusses the research method for collecting and analysing primary research. Chapter Four is an analysis of this data and the implications for the project. Chapter Five shows the design approach taken for developing an online engagement tool, while Chapter Six details the process for developing a design fiction for Fasnakyle Church. The project concludes with an analysis of whether or not the project aims were met and recommendations for future research.

## 2 Literature Review

This chapter reviews literature covering the four main topics being examined in relation to this project. These topics are as follows: user experience, permaculture, blended spaces, and design fictions. The aim of this chapter is to review the existing literature in order to provide a foundation for how this project develops. The final section of this chapter is a discussion of how the areas of research interlink, how that could benefit the project aims and how they influence the development of the research questions.

### 2.1 User Experience

When investigating experiences in relation to design it is important to consider user experience. User experience (UX) encapsulates every thought, feeling, sensation and action involved in undertaking an activity (Benyon, 2019).

When computers were first introduced they were designed for data-processing and little thought was given to the usability for non-experts (Dourish, 2001; McKay, 2008). The initial focus was on saving the computer's time rather than saving people's time (Dourish, 2001). However, with the mainstream adoption of technology into everyday lives, the functionality and usability of systems and software needed to be developed (Benyon, 2019; Dourish, 2001; McKay, 2008). The focus began to shift away from saving computer's time to saving people's time by enhancing system usability (Benyon, 2019; Dourish, 2001). The International Standards Organisation defines usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO, 2019). Don Norman, who is often credited with developing the concept of UX, took this notion of designing usability for end users one step further by saying "True user experience goes far beyond giving customers what they say they want, or providing checklist features. In order to achieve high-quality user experience ... there must be a seamless merging of the services of multiple disciplines..." (Nielsen & Norman, 2014).

Don Norman introduced the concept of UX in the 1990s and although there is not a definitive agreed description of UX, it is often associated with a variety of concepts including, usability, hedonics, fun and beauty (Forlizzi & Battarbee, 2004; Hassenzahl, 2013; Law, 2011; Nielsen & Norman, 2014; Norman, 2013). The ISO describes UX as "perceptions and responses that result from the use of or anticipated use of a product,

system, or service” (ISO, 2019). User experience is now a widely accepted term and has been embraced by the human - computer interaction (HCI) community (Hassenzahl & Tractinsky, 2006). User experience design can be applied to everything, not just technology, and the overall goal of UX is for designers to create high-quality interactive systems, products or services which are enjoyable and useful for the user (Benyon, 2019; Kujala, Roto, Väänänen-Vainio-Mattila, Karapanos, & Sinnelä, 2011). Given the term is so broad and far-reaching there is controversy over the measurability of UX (Law, 2011). When trying to determine seemingly intangible aspects of design such as perceived fun or beauty it is particularly difficult (Law, 2011; Law, Van Schaik, & Roto, 2014), it is challenging to quantify emotion or feelings which are fundamental to the UX concept (Forlizzi & Battarbee, 2004; McCarthy & Wright, 2004). UX research can be divided into two main categories, “design-based UX research” and “model-based UX research” (Law, 2011; Law et al., 2014). Design-based is focused on qualitative research while model-based uses quantitative research (Law, 2011). Law and Van Schaik (2010) claim quantitative measures are essential to UX as they inform the structural “...relations between its components and of these components to characteristics of users and computer systems; consequently, they can inform the design of interactive computer systems.” (Law & Van Schaik, 2010, p. 313). Whereas Swallow and colleagues argue that “...qualitative data provides a richness and detail that may be absent from quantitative measures.” (Swallow, Blythe, & Wright, 2005, p. 92). There are compelling arguments on both sides and the issues arise from the merging of two very different disciplines in one concept, as UX brings together engineering with psychology (Law, 2011; Law, Roto, Hassenzahl, Vermeeren, & Kort, 2009; Law et al., 2014).

It is widely agreed that UX is deep rooted in various frameworks, including theories of emotion (Law, 2011). Emotion is a vital piece of UX as it impacts “...how users understand, interpret, experience, and interact with technology” (Paul & Komlodi, 2014, p. 2504). Research undertaken by Boven and Gilovich, and Carter and Gilovich asserts that experiential purchases bring people more pleasure than material purchases (Hassenzahl, 2013). According to Carter and Gilovich experiences “...become parts of our autobiography and, hence part of us. We are quite literally the sum total of our experiences” (Carter & Gilovich, 2012, p. 1304). Hassenzahl believes society is more interested in meaningful experiences and that there is a disassociation with experience and expenditure, he refers to this as the ‘Experience Society’ (2013). Experience

Economy is another term used to describe the demand from consumers for unforgettable and unique experiences (Oh, Fiore, & Jeoung, 2007; Pine & Gilmore, 1998). As Pines and Gilmore say in their book ‘Welcome to the Experience Economy’, “Commodities are fungible, goods tangible, services intangible, and experiences *memorable*” (Pine & Gilmore, 1998, p. 98). This research helps demonstrate the potential power of experiences and good user experience design. The concept of an experience economy has interesting implications for Fasnakyle Church as the refurbishment could be developed in a way that allows the space to become an experience for people (Benyon, 2014; Hassenzahl, 2013).

### **2.1.1 Interaction Design**

Interaction design and user experience are often interlinked (Goodman, Stolterman, & Wakkary, 2011). While user experience is concerned with the emotion and overall experience, interaction design “...is the creation of a dialogue between a person and a product, system or service” (Kolko, 2010, p. 12). As UX arguably found its roots in usability it is important to consider interaction design alongside UX but as a separate entity (Hassenzahl, 2013; Kolko, 2010; Law et al., 2014). Interaction design is associated with interface design and having an understanding of behaviour both reactionary and anticipatory (Kolko, 2010). In order to achieve engaging interaction design, a human – centred approach should be taken (Benyon, 2019).

## **2.2 Permaculture**

“The climate crisis has already been solved. We already have all the facts and solutions. All we have to do is to wake up and change.” – Greta Thunberg, 2018.

Climate change is a real and serious threat for the environment, and as Greta Thunberg says it is time for action to be taken (Thunberg, 2018). By 2050 sea level could rise between 1 - 2.3 feet and the rise in greenhouse gases is causing the climate to change “...faster than some living things can adapt...” (Nunez, 2019).

The Coronavirus pandemic has had an overwhelmingly negative impact on mental health in the UK (Holmes et al., 2020); however, it has given the earth a much-needed break from pollution (Cuthbertson, 2020; Gardiner, 2020; Thomas, 2020). The

incredible impact that coronavirus and the April lockdown has had on air pollution in the UK can be seen in Figure 2.1 (Cuthbertson, 2020).

## Average NO<sub>2</sub> levels 2019 vs 2020

UK regional averages of nitrogen dioxide (NO<sub>2</sub>) levels in April of each year.

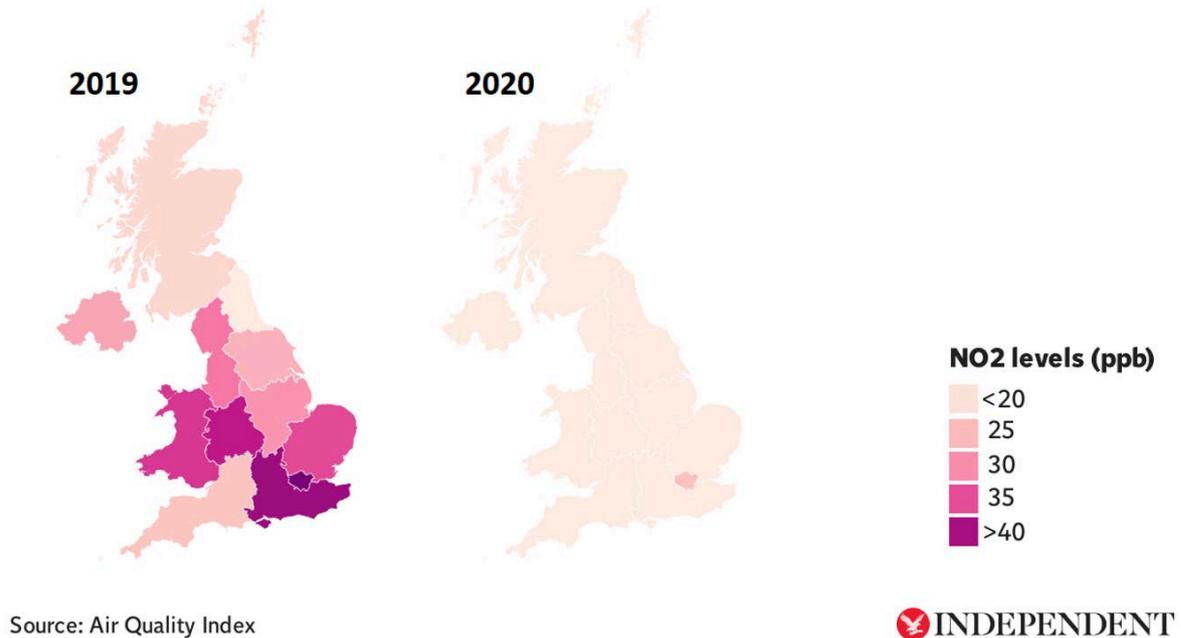


Figure 2.1 - Average NO<sub>2</sub> levels 2019 vs 2020 (Cuthbertson, 2020)

This image helps illustrate the need for humans to change the way they live on the planet and presents an opportunity to create more sustainable ways of living in a post-coronavirus world (Cuthbertson, 2020). One of the ways in which humanity can respond to climate change and devise new ways of using technology to live more sustainably is by adopting the principles and practices of permaculture (Egan et al., 2017). Permaculture focuses on whole-system design of spaces both urban and rural to create sustainable living (Egan et al., 2017; Taylor Aiken, 2017). “The word 'permaculture' comes originally from 'permanent agriculture' and 'permanent culture' - it is about living lightly on the planet, and making sure that we can sustain human activities for many generations to come, in harmony with nature.” (Permaculture Association, 2020). The permaculture framework has the potential to be part of the solution to climate change as it is centred in living and developing sustainable practices and culture for all aspects of life and is not solely applicable to sustainable agriculture (Issa, 2015; Permaculture Association, 2020; Taylor Aiken, 2017).

Permaculture is being explored in many areas out-with agriculture as it provides a design structure (Veteto & Lockyer, 2008). The concept tasks people with taking responsibility for themselves and the economy which provides for them by designing practices in harmony with nature and knowledge of the local environment (Veteto & Lockyer, 2008). Permaculture provides a model for innovation in the HCI community (Vitari & David, 2017). Sustainable HCI is repeatedly viewed in terms of correction and control whereas permaculture highlights a different lens which can combine cutting edge technology with philosophy and moves the focus away from behavioural change to working with nature to achieve sustainability (Liu, Bardzell, & Bardzell, 2018). In terms of Sustainable Interaction Design (SID) permaculture provides an ecological and ethical tool which shows humans how to work with nature and the limited natural resources remaining without draining these resources (Egan, Thompson, & O'Dowd, 2019; Monbiot, 2019). The ongoing coronavirus pandemic alongside the Australian bush fires and other natural disasters have delivered a compelling message "...telling us that we need an entirely new economic model and new way of sharing this planet" (Klein, 2015, p. 25).

### **2.3 Blended Spaces**

Blended spaces theory was first coined by David Benyon (Imaz & Benyon, 2007). Benyon describes blended spaces as "where a physical space is deliberately integrated in a close-knit way with a digital space" (2014, p.79). To understand the theory of blended spaces it is first important to understand what is meant by the term "space". The definitions of "space" and "place" is an area of research that is much debated. In 1996 Dourish and Harrison defined "space" as the geometrical measures that provide the structure for activities that are undertaken and "place" as the socially constructed and understood meaning given to the space. They formed the catchphrase "space is the opportunity; and place is the (understood) reality" (Dourish, 2006, p. 1). However, ten years later Dourish revisited this concept and gave more importance to the term "space". He emphasised that space cannot be denoted as purely a physical location (Dourish, 2006). He believes both "place" and "space" are products of social construction, and the difference is in the way these social practices are developed (Dourish, 2006).

Drawing on this work it is possible to argue that a physical space can have other spaces embedded within it, which leads to blended spaces theory (Benyon, 2014). The

concept allows for technology to be used as a way to enhance the capabilities of physical space. Mobile applications which draw on the use of augmented reality (AR), such as Pokémon GO and bus trackers, are examples of blending technology with a space (Benyon, 2012, 2014). According to Benyon the four characteristics which make up the generic space for both digital and physical spaces are, ontology, topology, volatility and agency (Benyon, 2012, 2014). Ontology is the objects within a space; topology is the spatial relationship between objects; volatility is how fast objects change and agency is what people or artificial agents can do within the space (Benyon, 2014). Blending these four characteristics lays the foundations for creating a good user experience (Egan et al., 2017). Figure 2.2 shows a blended spaces conceptualisation developed by Benyon (Benyon, 2014).

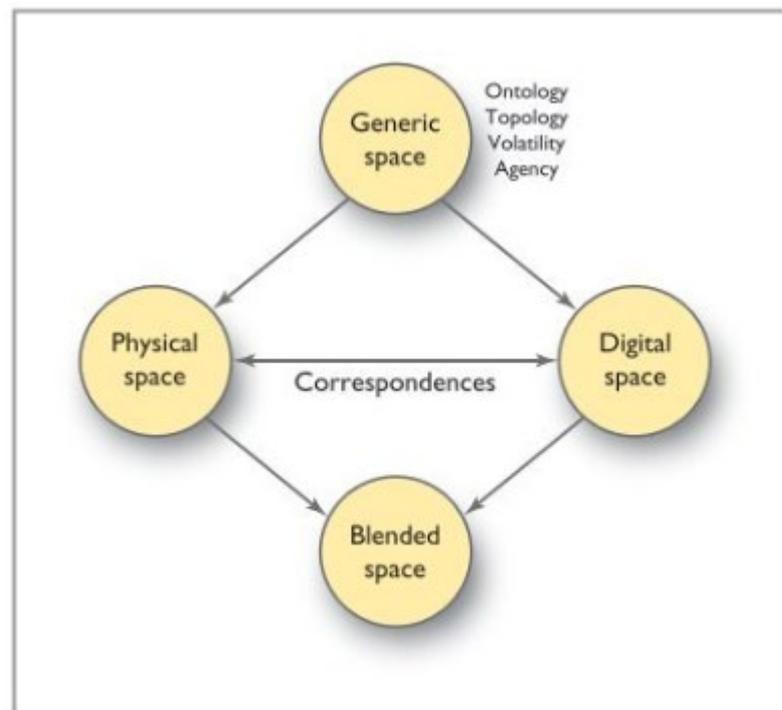


Figure 2.2 - Blended Space Conceptualisation (Benyon, 2014, p. 81)

## 2.4 Design Fictions

The term 'design fictions' was defined by Bruce Sterling as, "the deliberate use of diegetic prototypes to suspend disbelief about change." (Sterling, 2013). Design fictions blur the boundaries of traditional design thinking with a narrative of potential futures (para phrased from Tanenbaum, Tanenbaum, & Wakkary, 2012). "...the goal of design fiction is to use speculations, metaphors, and explorations of desired futurities to explicate and inform material design practices" (Tanenbaum et al., 2012,

p. 347). Design fictions are utilised through the research project as a technique to explore the possible value of new design concepts using different narratives and a reality that may not exist yet (Blythe, 2014; Rapp, 2019; Wakkary, Desjardins, Hauser, & Maestri, 2013). Traditionally, design has been viewed as a way of solving problems as designers are often tasked with fixing issues that appear unfixable (Dunne & Raby, 2013). A potential solution to this is allowing for speculative design or design fictions (Dunne & Raby, 2013). This way of design allows for the imagination to run wild and creates a space for designers to discuss and debate new ways of being or living (Dunne & Raby, 2013; Tanenbaum et al., 2012). “Design speculations can act as a catalyst for collectively redefining our relationship to reality” (Dunne & Raby, 2013, p. 2). This is a similar principle to phenomenology which argues that although factual scientific evidence is important, research can also be conducted using a narrative which aims to understand experiences (Eberle, 2014). This is a philosophy which is complementary to the design fictions framework (Wakkary et al., 2013). Husserl developed many methods of phenomenological analysis, one of which he called ‘free imaginative variation’, the idea that people can imagine anything that is logically possible even if the thing itself does not yet exist (Eberle, 2014).

## **2.5 Discussion**

Bringing together these four main areas of research provides a different refurbishment approach for the Fasnakyle Church project. Permaculture is applied in terms of retrofitting the space with new sustainable technology. Retrofitting is the process of refurbishing a place with equipment not available during its initial construction (Dunham-Jones & Williamson, 2008). Blended spaces theory when combined with permaculture as the lens for retrofitting allows the space to be redesigned using technology to enhance the building’s sustainability. Design fiction allows for a narrative to be used for designing the space, which is not limited by current technological advancements, and it allows the project to fully incorporate the next generation of sustainability within existing structures. Design fiction also allows for the community aspect of the project as it develops different narratives from different perspectives which are influenced by the research generated in the next chapter of this report. These concepts interlink well with user experience and sustainable interaction design, and together with blended space theory they provide a holistic overview for the project.

## **3 Research Method**

This chapter defines the research methods selected for gathering primary data that is analysed in conjunction with the secondary data outlined in the literature review. Primary data plays a vital role in a research project as it provides first-hand information which can be utilised to draw meaningful conclusions (Webb, 2002). The rationale and justification for the research methods chosen is given along with details of the selected sample groups, the structure of the data collection and the ethical implications that were considered. A mixed methods approach was utilised in order to provide the project with both qualitative and quantitative data for the discussion and analysis.

### **3.1 Mixed Methods**

Mixed methods involves undertaking both qualitative and quantitative research approaches and combining them in order to achieve broader and deeper understandings (Johnson, Onwuegbuzie, & Turner, 2007). This methodology can provide “a deep understanding of survey responses, and statistical analysis can provide detailed assessment of patterns of responses” (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007, p. 26). This was determined to be the best approach for this research project as it allows for data to be collected from a large sample population in the local community, but by mixing the question styles between open and closed it is possible to draw out opinions as well as statistical data (Driscoll et al., 2007; Kolb, 2008). As previously discussed, UX research is often categorised into design-based UX research or model-based UX research, by combining qualitative and quantitative methodologies both of these UX methods can be explored for the different parts of the project. The quantitative data collected from the survey informed how the community would like to engage with the project, while the qualitative data collected informed the design fiction portion of the project and allowed for a design-based model to be undertaken (Law, 2011).

### **3.2 Survey**

A survey was developed to gauge the interest in developing Fasnakyle Church, and to understand what the local community knew about the building already, their feelings on the eco-friendly technology solutions and their feeling on this type of integration with a historical building.

### **3.2.1 Survey Design**

A number of demographic questions were included to establish if the participants were local and how opinion varied across age groups and generations. The survey mixed closed and open questions, however only the statistical questions were marked as required (McNeill, 2006). Free text boxes were left as optional in order to ensure maximum engagement with the survey and allow participants to only leave comments if they desired. The full list of questions asked can be found in Appendix 4. The survey was open for two weeks and the total number of responses was 65, however upon further analysis the total number of completed survey responses was actually 50.

### **3.3 Interviews**

Two similar projects in the immediate local area were identified, The Trees for Life initiative, and the Bunloit Estate project which is still under development. The Trees for Life initiative has the ambition of “rewilding the Scottish Highlands” (Trees for Life, 2020). Although the project does not feature on the Permaculture Association website, the initiative does follow the same principles of permaculture by planting native trees in an attempt to restore natural balance to the area (Bentley, 2017; Trees for Life, 2020). The Bunloit Estate Project is attempting to rewild 500 hectares of land into an “open natural laboratory” (Cockburn, 2020) making it “a holistic biodiverse carbon-sink project” (Leggett, 2020). Attempts were made to contact both these projects to arrange interviews, yet due to limiting Covid-19 restrictions this could only be done online and unfortunately, they did not respond to any correspondence attempts (Scottish Government, 2020). The plan had been to conduct a thirty-minute semi-structured interview with each project. However, given the time constraints and inability to approach in person, documentation made available online was utilised for understanding the projects.

### **3.4 Design Brief**

For the design brief an online interview was conducted and recorded with the Fasnakyle Church owner for the design fiction aspect of the project. The interview was semi-structured with the three level hierarchy model for interaction design being used along-side probing questions to make sure enough details were given by the owner (Hassenzahl, 2010). The full transcript of the conversation can be found in Appendix

6. Transcription was used in order to ensure more accuracy so that the interviewer was able to participate fully in the interview without the need to take detailed notes of the answers given (Opdenakker, 2006). It also allowed the discussion to be revisited throughout the design process.

### **3.5 Sample**

When undertaking a research project it is important to define the target population for the research (Daniel, 2012; Jobber, 2020; Wilson, 2016). One of the main research aims of the project is to engage with the local community to find out what they would want to see from the restoration of Fasnakyle Church. Therefore, the target population for the research were people that live in the local communities surrounding Fasnakyle Church which includes villages such as Tomich, Cannich and Drumnadrochit. A convenience sampling method was used, convenience sampling involves a non-probability method where the researcher uses accessibility to select respondents (Malhotra, 2012). In an attempt to ensure that only the local community had access to the survey developed for this study, the survey was posted in three local closed-group Facebook community pages. An example of the post can be seen in Appendix 5. Additionally, a question was added into the survey to see if participants currently or had previously lived in the area. The same sample method was used when conducting user feedback for the online platform developed as the design is for the same group of potential users.

### **3.6 Ethics**

There were a number of ethical concerns to consider, the biggest being that Edinburgh Napier University (ENU) requires written consent for research participation. However as previously stated Covid-19 restrictions limited face-to-face interactions and thus for the timing of the research, it would not have been possible to get physically signed consent forms (Scottish Government, 2020). Therefore, the ENU consent form was adapted for the first page of all research conducted and a check box was added before participants were asked any research questions to confirm they had read and agreed with the consent statement (Appendix 3). Additionally, the researcher's contact details were made available throughout all the surveys conducted should participants have any questions.

Anonymity was an important ethical consideration for the project. All participants were made aware their anonymity would be maintained and the survey was designed in a way to collect no identifiable information. Where participants made themselves identifiable in comments the data was cleansed to remove these details. For the design brief with the building owner anonymity could not be upheld, however they were given a consent form and made aware that they could withdraw from the research at any point. The participant was also informed that the briefing interview would be recorded prior to agreeing to take part. They were emailed a link to an online form copy of the research consent form and asked to electronically sign it by writing their name and checking the box. They were told a copy of the consent form and the recording of the interview would be retained by the researcher until the project had been marked, at which point all copies would be destroyed.

Another ethical dilemma was whether or not to include a question within the survey in relation to gender. Gender can be a controversial question within research as it is often confused with sex, however it was felt to be important for the research so that analysis and comparisons could be made from different demographic points of reference (Westbrook & Saperstein, 2015). Research was undertaken to determine the best way to phrase this question and the options that should be presented to participants. There was also an option allowing participants not to disclose this information if they did not want to (Human Rights Campaign, 2016; Westbrook & Saperstein, 2015). It was believed that people should not be forced to disclose information and should therefore have the right to refuse, regardless of the fact that the survey was anonymous.

### **3.7 Data Analysis Method**

Data analysis is the way in which research data collected is coded and the method used for interpreting it (Ritchie & Lewis, 2014). Due to the nature of qualitative research it can be more challenging to code and has some limitations (Ritchie & Lewis, 2014; Taylor, Bogdan, & DeVault, 2015). As this research is interested in the thoughts, feelings, and desires for the building from a community perspective a thematic approach was selected for the analysis of the qualitative data provided in the survey (Lapadat, 2010). Interpreting the comments made in the survey in a thematic way allows for key themes, commonalities, relationships and patterns to be identified and analysed (Lapadat, 2010).

The quantitative data collected in the survey was used for statistical analysis (Bergin, 2018; Scherbaum, 2015). This allowed connections to be made between certain variables such as different demographics and their opinions on sustainable technology, how important sustainability is for the future and what they would like to see from the building (Bergin, 2018). The analysis adds another lens to the thematic analysis of the qualitative responses.

### **3.8 Discussion**

The research encountered some limitations during this stage of the project. Covid-19 restrictions limited the ways research could be undertaken face-to-face and so online methods were used for the primary research (Scottish Government, 2020). If the project had been conducted in different circumstances it would have been useful to host face-to-face community focus groups. These could have been split and half of the participants would have been taken to visit the building to get a better understanding of the space. Additionally, field research such as observation on-site could have been conducted and evaluations of certain design elements could have been undertaken in the University UX Sensorium lab. There would have also been more freedom to visit permaculture projects rather than relying on online communication methods to contact these projects.

Despite the challenges and limitation created primarily by Covid-19 restrictions the research conducted still met the aim of engaging with the community, perhaps just not in the way that was initially planned or expected. The survey returned 50 completed responses which in consideration with the population of these areas is a reasonable return. One of the closest villages to Fasnakyle Church, Cannich, is thought to have a population of just over three hundred (Cannich Stores, 2020).

Involving the building owner in a design brief for the design fiction allowed the overall design to be led in a way the owner was comfortable with. However, the design was also informed by the qualitative data from the survey which allowed comparisons to be made between the local community feelings and the building owner's perspective which overall were similar. This is discussed in more detail in Chapters Four, Five and Six.

## 4 Discussion and Analysis

This chapter focuses on the analysis of the survey results and discusses the implications of the responses in connection to the project. The analysis and discussion of the survey results are presented within the context of PACT analysis. PACT analysis is the analysis of People, Activities in Contexts and Technologies (Benyon, 2019; Rosson & Carroll, 2002). Put simply, “People use technologies to undertake activities in contexts” (Benyon, 2019, p. 26). In order to design for the UX of something, it is important to understand who the users are, the context in which they will undertake activities and the technologies available for them to use (Benyon, 2019). It is also important to note that as the technologies change it creates opportunities for the activities to change and as the context changes the technology can change and grow again. This is illustrated by Figure 4.1 (Benyon, 2019). The action of making a telephone call is not what it used to be when you compare the technology of a landline phone with a mobile phone. The technology changed which influenced the activity as well as the context in which this simple activity is undertaken by the users, the people (Benyon, 2019; Hassenzahl, 2010).

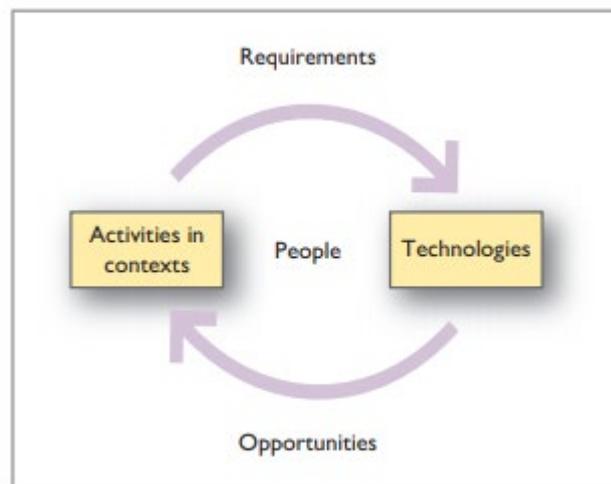


Figure 4.1 - Activities and Technologies (Benyon, 2019, p. 26)

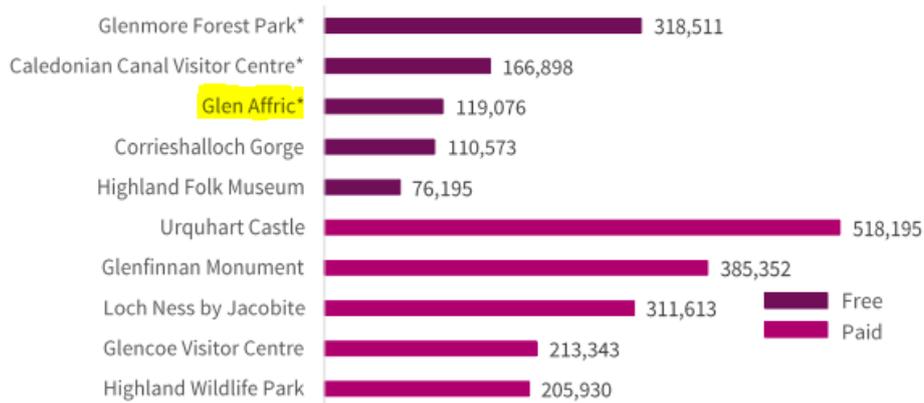
### 4.1 People

People are different physically, psychologically, socially, and culturally. Everyone has differences in their ideology and attitude towards things as well as different mental models for processing information (Benyon, 2019). When taking a human-centric

design approach it is important to try and balance all of these variables to deliver the best possible design for the most amount of users (Benyon, 2019; Forlizzi & Battarbee, 2004; Goodwin, 2009; Hassenzahl, 2013). People also have different skill levels when using technology so it important that the overall design of the space caters for all skill levels (Benyon, 2019; Rosson & Carrol, 2002).

It is undeniable that the Glen Affric area attracts huge numbers of tourists every year. Figure 4.2 shows a graph of the top five visitor attractions according to Visit Scotland and Glen Affric is third with an estimated 119,076 visitors in 2018.

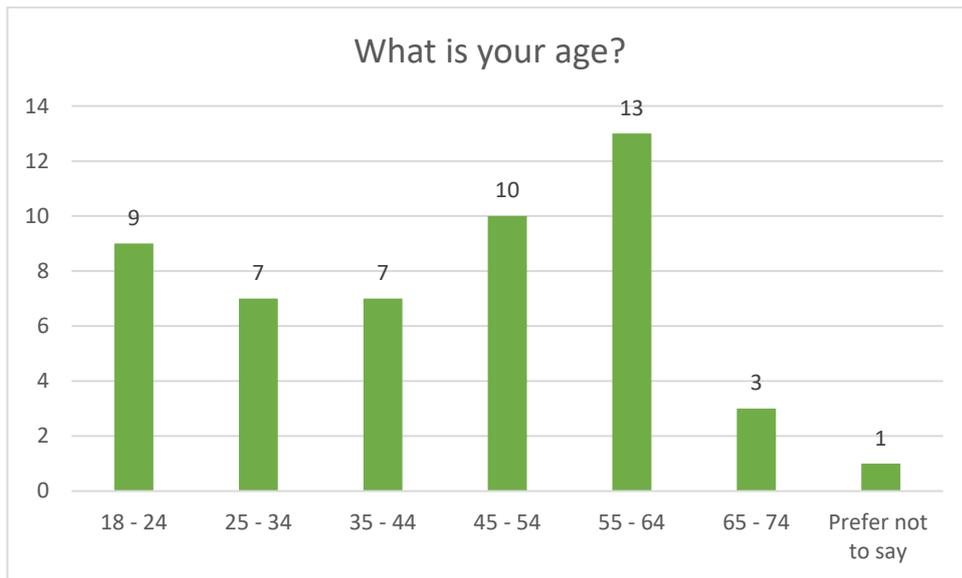
**Top Five Free and Paid Visitor Attractions in the Highlands (with Visitor Numbers), 2018**



Source: Moffat Centre Visitor Attraction Monitor, Glasgow Caledonian University, 2018. \*Estimate. VAM is solely owned and distributed by Glasgow Caledonian University Moffat Centre. If you are interested in participating in the accompanying survey or subscribing to the publication, please contact [info@moffatcentre.com](mailto:info@moffatcentre.com)

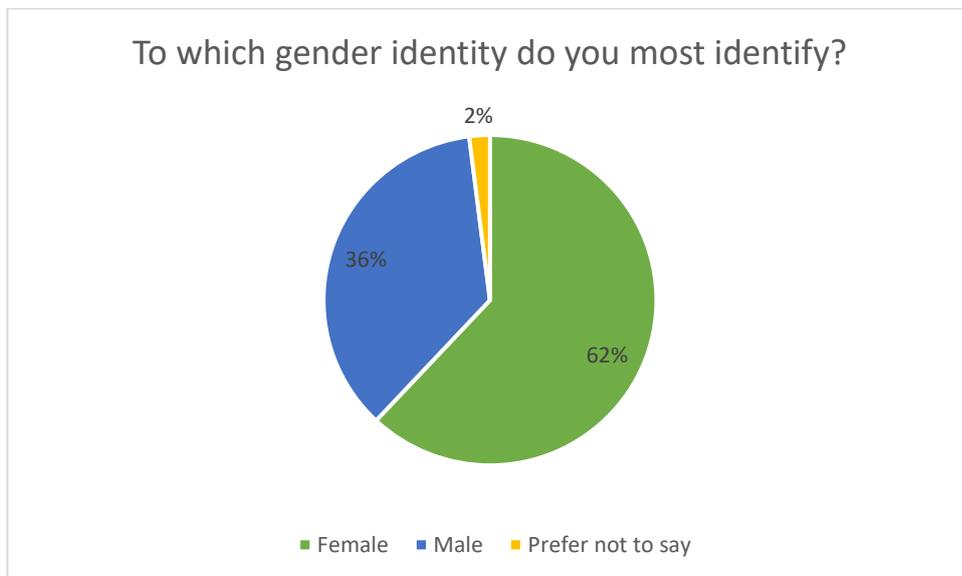
**Figure 4.2 - Top Visitor Attractions in the Highlands graph (Visit Scotland: Insights Department, 2019)**

Although tourism inevitably will play a role in the development of Fasnakyle Church, for the purposes of this report the main focus of the people element is the local community and what the building can offer them. Due to the fact that special consent is required to conduct research with anyone under the age of 18 all of the people that completed the survey research were over the age of 18 (Salkind, 2010). However, the potential design still aims to provide for those under the age of 18 that could not complete the survey as they are still fundamental to the community. The breakdown of the age ranges that completed the survey can be seen in Figure 4.3.



**Figure 4.3 - Graph of 'What is your age?' answers**

The split was fairly even across the age brackets up to 64 and there was less representation for the over 65s. Only one person declined to disclose their age, and the same person decided against disclosing a gender as they felt the given answers were not accurate. Overall, the gender balance for this survey was slightly out with 62% of responses being from participants identifying as female (Figure 4.4). It is difficult to pinpoint how much influence this had in the overall results.



**Figure 4.4 - Graph of 'To which gender identity do you most identify?' answers**

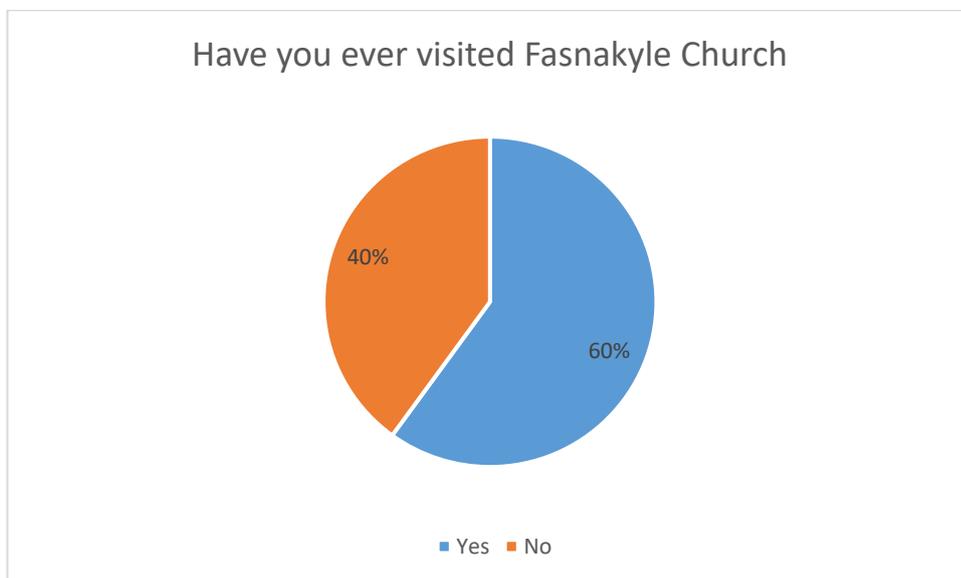
The majority of participants that completed the survey currently live in the Fasnakyle/Glen Affric area or within an hour of this area, 42 out of 50. Of the 8 that do

not currently live in the area, 6 indicated that they had previously lived within an hour of the area (Table 4.1).

If you do not currently live in the Fasnakyle/Glen Affric area have you ever lived in within an hour of this area?	
Highlands and Islands	1 – Yes
	1 - No
Scotland	3 - Yes
Elsewhere in the UK	2 – Yes
	1 - No

**Table 4.1 - Answers to ‘If you do not currently live in the Fasnakyle/Glen Affric area have you ever lived in within an hour of this area?’**

When asked, 60% of participants had visited Fasnakyle Church, however not everyone had visited since the restoration works started in 2010 (Figure 4.5). Regardless of when participants visited, as the majority had seen the building, weight can be given to the suggestions made in the survey as most participants had an idea of the space available. A full breakdown of ages, locations and whether or not participants have visited the building can be found in Table 4.2.



**Figure 4.5 - Graph of ‘Have you ever visited Fasnakyle Church?’ answers**

What is your age & Where do you live? (combined) Row Labels	Have you ever visited Fasnakyle Church?		Grand Total
	Yes	No	
<b>Fasnakyle/Glen Affric area</b>	<b>17</b>	<b>7</b>	<b>24</b>
18 to 24	2		2
25 to 34		1	1
35 to 44	5		5
45 to 54	3	5	8
55 to 64	4	1	5
65 to 74	2		2
Prefer not to say	1		1
<b>Within one hour of Fasnakyle/Glen Affric area</b>	<b>9</b>	<b>9</b>	<b>18</b>
18 to 24	3	2	5
25 to 34	1	1	2
35 to 44		1	1
45 to 54		2	2
55 to 64	4	3	7
65 to 74	1		1
<b>Highland &amp; Islands</b>		<b>2</b>	<b>2</b>
18 to 24		1	1
25 to 34		1	1
<b>Scotland</b>	<b>2</b>	<b>1</b>	<b>3</b>
18 to 24	1		1
25 to 34		1	1
35 to 44	1		1
<b>Elsewhere in the UK</b>	<b>2</b>	<b>1</b>	<b>3</b>
25 to 34	2		2
55 to 64		1	1
<b>Grand Total</b>	<b>30</b>	<b>20</b>	<b>50</b>

Table 4.2 - Pivot table for 'Have you ever visisted Fasnakyle Church?'

The overall design fiction aims to benefit the whole community, offering a space for people to learn about the local heritage or engage in creative pastimes. Building the service would involve local trades people and would hopefully provide a value for the local economy as well as providing another asset to the community. Restoring a building like Fasnakyle Church would require a lot of skilled workers.

## 4.2 Activities in Context

Activities can range from highly complex to very simple interactions (Benyon, 2019). People visit the Glen Affric area to take part in a number of activities (Visit Scotland, 2020). The survey responses have been categorised based on where the participants stated they lived in the table below (Table 4.3).

Lives in:	Previously lived within 1 hour	How often they visit	What do they do?
Fasnakyle area 24 responses		0 - Once a month	2 – Visit historic or cultural attractions
		0 - less than once a month	7 - Hiking
		1- A few times a month	4 - Mountain biking
		6 - A few times a week	0 -Fishing
		0 - once a week	4 - Work 4
		13 - Every day	14- Other 14: 1 - Horse riding 11 – Live in area 1 - Run a BnB 1 - Leisure
		4 - No response	
18 - Within 1 hour of Fasnakyle / Glen Affric area		6 - Once a month	6 - Visit historic or cultural attractions
		6 - Less than once a month	13 - Hiking
		4 - A few times a month	4 - Mountain biking
		1 A few times a week	0 - Fishing
		1 - Once a week	1 - Work

		0 - Every day	7 Other: 1 Swimming 1 - Horse riding 1 - cycling 2 - Visiting family 1 - Picnic/cafes
Highland 2	1- Yes	1 - Never	No response
	1 - No	1 - Never	No response
Scotland 3	3 - Yes 3	1 - Once a month	1 – Visiting family
		1 - Less than once a month	1 - Visit historic or cultural attractions
		1 - Never	No response
Elsewhere in UK 3	2 - Yes	3 - Less than once a month	1 - Visit historic or cultural attractions
	1 - No		1 - Property owner

**Table 4.3 - Answers to where do you live, how often do you visit the area and what do you do there combined**

The context in which these activities are undertaken vary with the time of year and other day-to-day variables. For example, running a small business like a B&B or café in the winter months will be a very different experience to running the same business in the summer peak of tourism. The priority of the design is to provide something that appeals to and engages with the local community, as the tourism in the area is seasonal. In terms of the development of Fasnakyle Church the activities that take place will be centred around what is created in the space. Table 4.4 shows the activities the participants suggested could be undertaken in the building.

If Fasnakyle Church was to be developed into a community space what would you like to see on offer?			
Crafts and art centre to showcase local talent and offer classes and place to exhibit or talks	14	Visitor centre	2
Plant swapping/recycling/renovating	1	Place to socialise	1
Place for kids or the elderly or all ages	4	A place to celebrate the Glen Affric area	1

Music/film workshops/retreat	1	Community space/hub for all ages	5
Honesty library	1	Communal garden for locals	1
Tourist information	1	Live music/drama venue including weddings/Ceilidhs	5
Sporting events	1	Museum for local area/history/heritage centre	5
No development as there is a village hall	1		

**Table 4.4 - Answers to ‘What would you like to see on offer?’**

The key themes that were apparent in the data were for the space to be:

- Creative i.e. music, artistic, workshops and classes
- Showcase local information and heritage
- Offer a community venue for social events

Fortunately, the themes identified were very similar to the views the building owner had in mind for the space, *“I would like to see it used for a range of different uses including as a venue for a social occasion, formal or otherwise, like a wedding or an informal social event...I’d also like to fill it with creative energy if I can, that be artists and musicians and whoever had something to do with the arts.”* Additionally, the owner stated they would like the space to grow as it develops, *“I would see it beginning as something but then I would see it growing.”* This works well with the PACT model as it allows changes to be made, people to feedback, technologies to change and decisions to be made in an informed way (Benyon, 2019; Rosson & Carrol, 2002). The themes of activities which were identified in the survey are the pillar themes for the design fiction. All activities will be based around heritage, creativity, and social events.

### **4.3 Technology**

For the purposes of this design the focus of the survey was on eco-friendly technologies that could be integrated with the building. The participants were asked how important they felt it was for the building to be restored in a sustainable way if further restoration works were undertaken. For every age group asked the majority thought it was either ‘extremely’ or ‘very’ important that the building be restored in a sustainable way (Table 4.5).

If Fasnakyle Church was to be developed into a community space how important is it to you that the space is restored in a sustainable way?	
<b>18 to 24</b>	<b>9</b>
<b>Extremely important</b>	<b>2</b>
Female	1
Male	1
<b>Very important</b>	<b>5</b>
Female	1
Male	4
<b>Somewhat important</b>	<b>1</b>
Female	1
<b>Not so important</b>	<b>1</b>
Female	1
<b>25 to 34</b>	<b>7</b>
<b>Extremely important</b>	<b>1</b>
Female	1
<b>Very important</b>	<b>6</b>
Female	3
Male	3
<b>35 to 44</b>	<b>7</b>
<b>Extremely important</b>	<b>2</b>
Female	2
<b>Very important</b>	<b>2</b>
Female	1
Male	1
<b>Somewhat important</b>	<b>2</b>
Female	1
Male	1
<b>Not at all important</b>	<b>1</b>
Female	1
<b>45 to 54</b>	<b>10</b>
<b>Extremely important</b>	<b>7</b>
Female	6
Male	1
<b>Very important</b>	<b>1</b>
Female	1
<b>Somewhat important</b>	<b>1</b>
Female	1
<b>Not so important</b>	<b>1</b>
Male	1
<b>55 to 64</b>	<b>13</b>
<b>Extremely important</b>	<b>4</b>
Female	2
Male	2

<b>Very important</b>	<b>6</b>
Female	3
Male	3
<b>Somewhat important</b>	<b>3</b>
Female	3
<b>65 to 74</b>	<b>3</b>
<b>Extremely important</b>	<b>2</b>
Female	1
Male	1
<b>Somewhat important</b>	<b>1</b>
Female	1
<b>Prefer not to say</b>	<b>1</b>
<b>Somewhat important</b>	<b>1</b>
Not sure what the other listings are for as they are made up, research chromosomes there are only 2 options XX or XY	1
<b>Grand Total</b>	<b>50</b>

**Table 4.5 - Pivot Table for ‘...how important is it to you that the space is restored in a sustainable way?’**

Overall, 76% of participants felt it was ‘extremely’ or ‘very’ important to be working towards sustainable restoration. Only 6% of the participants felt it was ‘not at all’ or ‘not so important’ (Table 4.6).

If Fasnakyle Church was to be developed into a community space how important is it to you that the space is restored in a sustainable way?			
Extremely important	18	36%	76%
Very important	20	40%	
Somewhat important	9	18%	18%
Not so important	2	4%	6%
Not at all important	1	2%	

**Table 4.6 - Answers to ‘If Fasnakyle Church was to be developed into a community space how important is it to you that the space is restored in a sustainable way?’**

This shows that participants are interested in the community development being undertaken in a sustainable way. When asked if they agreed with eco-friendly technologies being integrated with the building, 86% of participants agreed (Table 4.7).

Do you agree with the use of eco-friendly technologies such as solar panels being integrated with historical buildings?		
Yes	43	86%
No	7	14%

**Table 4.7 - Answers to ‘Do you agree with the use of eco-friendly technologies such as solar panels being integrated with historical buildings?’**

The 14% of people that said no stated concerns over how this could damage the look of the building and suggested looking for other ways to be sustainable (Table 4.9). The participants that agreed with eco-friendly technologies being used cited many reasons for this including reducing carbon footprints, reducing running costs and moving with the times to use technologies available, however a few did also raise concerns over how this could impact the buildings’ aesthetic (Table 4.8).

Why? (the 43 people who said yes)					
We should adopt renewable energies	8	18.6%	CoVid 19 has shown us that there is a better way	1	2.3%
Why not improve the building?	1	2.3%	benefits outweigh the negatives	1	2.3%
It is not a negative	1	2.3%	reality/progress	2	4.7%
It will help with running costs	2	4.7%	solar panels are not intrusive	2	4.7%
It will reduce the carbon footprint of the church	2	4.7%	They can be removed	1	2.3%
Every little helps	1	2.3%	sympathetically used	2	4.7%
We must use less fossil fuels.	2	4.7%	We have to think of the future.	2	4.7%
As long as it is not solar panels.	1	2.3%	Less pollution	1	2.3%
In developing solar power it could supply energy for the community.	1	2.3%	Green energy is an improvement	1	2.3%
Go with changing times	1	2.3%	Victorians used the latest technology, so we should too.	1	2.3%
only if it doesn’t detract from the church	1	2.3%	Only if truly sustainable	1	2.3%
no reasons given	7	16.3%			

**Table 4.8 - Answers to ‘Why’ sustainability is important**

Why? (the seven people who said no)		
aesthetics/spoils the look	3	43%
need to restore sympathetically	1	14%
other ways to be eco friendly	1	14%
no reason given	2	29%

**Table 4.9 - Answers to ‘Why’ sustainability is not important**

The building owner also had a strong desire for eco-friendly technologies being integrated with the building therefore these technologies will be explored in the design fiction for the building. Although not explicitly asked within the survey, other technologies were mentioned by participants including video content with the owner, virtual tours through the years and recorded stories. Additionally, participants also mentioned the building being used for live music events. The building owner also mentioned having an oculus rift, projection technologies and spaces to make and record music.

#### **4.4 Discussion**

PACT analysis is a useful way of starting a design process as it allows the designer to collect information about users, define the problem and create requirements for how to achieve an end goal (Benyon, 2019; Rosson & Carrol, 2002). The overarching ‘problem’ for this design is framed within the lens of global warming - the world needs to find more ways of living and working more sustainably in order to protect the planet (Nunez, 2019). Additionally, the user requirements for the design are to fill a desire from the community for a creative space which also offers access to local information and showcases the heritage, whilst also offering a venue for the community events. Of all the comments only one participant did not want to see the building being developed. Another participant described the church as *“A beautiful building which has been brought back from dereliction and has potential to bring something special to the community.”*

This project is a physical environment design rather than a product design; therefore, a list of traditional functional and non-functional requirements is not necessary. The overall design of the space has to fulfil the wishes of the building owner whilst

respecting and including the opinions of the community. As different technologies are recommended for the space, it would have been useful for the survey to ask participants what other types of technologies they would like to see available in the space. If further research were to be conducted in the future, it would be useful to find out the types of technologies people would like to see and how they would see the space divided to accommodate these technologies.

A final PACT analysis can be found in Table 4.10 and shows the information gathered from the survey, the design brief and the Visit Scotland website (Visit Scotland, 2020).

People	Activities	Context	Technologies
Locals	Hill walking / hiking	Weather conditions	Eco-technologies:
Tourists	Exploring the area / picnics / reading	Access to technology	<ul style="list-style-type: none"> <li>• Wind</li> <li>• Solar</li> <li>• Ground source</li> <li>• Air source</li> </ul>
Building owner	Mountain biking / cycling	Skill levels	Maps / GPS
Teachers	Drawing / writing / creating / painting	Language knowledge	Virtual reality
Nursery teachers	Singing / dancing	Access to power	Cameras / phones / tablets / mobile devices
Trades people	Photography / recording	Access to resources	Sound systems
Bands/musicians	Visiting historical or cultural landmarks / attractions	Water supply	Recording systems
Artists	Fishing	Familiarity with technologies	Projection system
Creatives	Working		Lights
Historians	Swimming		Electricity
Crafters	Visiting cafes / restaurants		Interactive displays
Children	Geo-caching		Digital zoning
Teenagers	Camping		
Adults			
Pensioners			
Professionals			

			Mobile application Social media Websites
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**Table 4.10 - Overall PACT analysis for Fasnakyle Church**

## 5 Design Approach

The design approach used for the two design elements of the project was iterative design (Figure 5.1). This is a user-centric approach for design development, which can be used for physical and conceptual designs (Benyon, 2019). This is why this method was chosen for this project as design fictions are conceptual and this approach allows for the same stages to be used when developing a website and the overall physical space design fiction. Evaluation and feedback are important aspects to any design process. For the development of the website, evaluation will be done through expert evaluation and other industry testing tools including a customised System Usability Scale (SUS) survey and an AttrakDiff survey (AttrakDiff, 2020; Brooke, 1996; Thomas, 2015). For the space design, the design brief from the building owner was created and further informed by the community survey results. Both designs started with the same understanding techniques. This included the PACT analysis in Chapter Four. Following the understanding stage, the development of the space design fiction can be found in Chapter Six. Meanwhile the website design process is explained throughout this chapter.

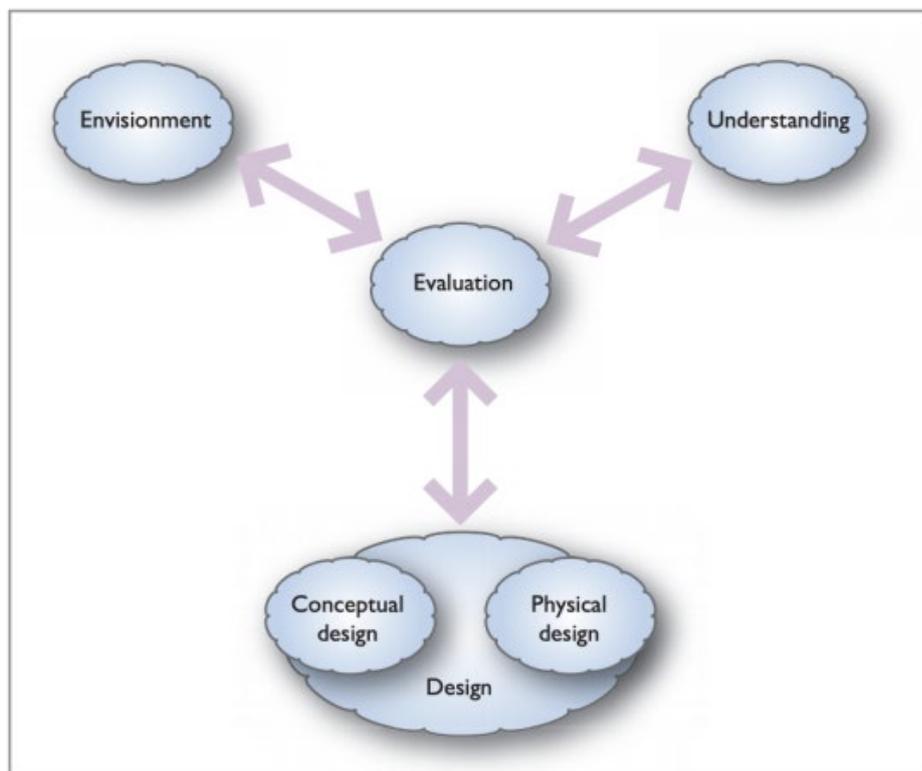


Figure 5.1 - Understand, design, evaluation, envisionment (Benyon, 2019, p. 49)

## 5.1 Understanding

Understanding is the process involved in deciding what the system or service is required to do (Benyon, 2019). It involves user research to comprehend the people, action in contexts and technologies that can be used to provide the necessary system or service and create a design that meets the requirements of the users (Benyon, 2019). In order to deliver a user centric design, understanding the end user is a vital part of the design process (Benyon, 2019).

Following the survey feedback, a website was identified as one of the most popular ways the local community would like to engage with this project (Table 5.1). If the other responses which indicated a multi-platform approach were added to the participants that identified a website the overall percentage that wanted to engage this way was 48%. As there was little that could be posted on a Facebook page it was decided at this stage not to take Facebook development further.

If there was a way to engage online with a potential development project for Fasnakyle Church how would you prefer to engage with it?			
Its own website	19	38%	48% when combined with 'other' responses
Facebook	23	46%	56% when combined with 'other' responses
Instagram	2	4%	12% when combined with 'other' responses
All platforms, most likely a website	1	2%	Combined to make 10%
multi platforms	1	2%	
any platform, but website most accessible	1	2%	
A range of platforms including social media	1	2%	
Facebook and a website	1	2%	
N/A	1	2%	2%

**Table 5.1 - Answers to 'If there was a way to engage online with a potential development project for Fasnakyle Church how would you prefer to engage with it?'**

As such a website was developed for the project and the next stage of this report will go through the design approach from understanding through to testing and expert evaluation. The experts identified are either industry professionals or fellow UX students and their answers and opinions will be treated with the same anonymity as all other participants in this study. They were also sent the same consent form before taking part in the evaluation.

### 5.1.1 Brainstorming

Using the comments in the survey as a starting point, brainstorming website designs using Pinterest was the initial stage of the website design process. A board of modern website designs was created (Figure 5.2)

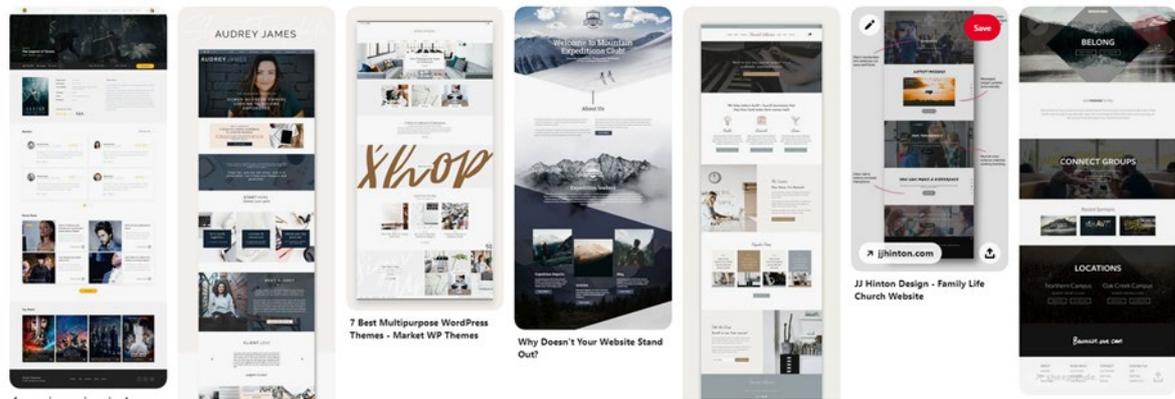


Figure 5.2 - Pinterest brainstorming web designs

Additionally, the website for Kilmorack Church was used for brainstorming as it is an old church building in the local area that has been turned into an art gallery (Figure 5.3).

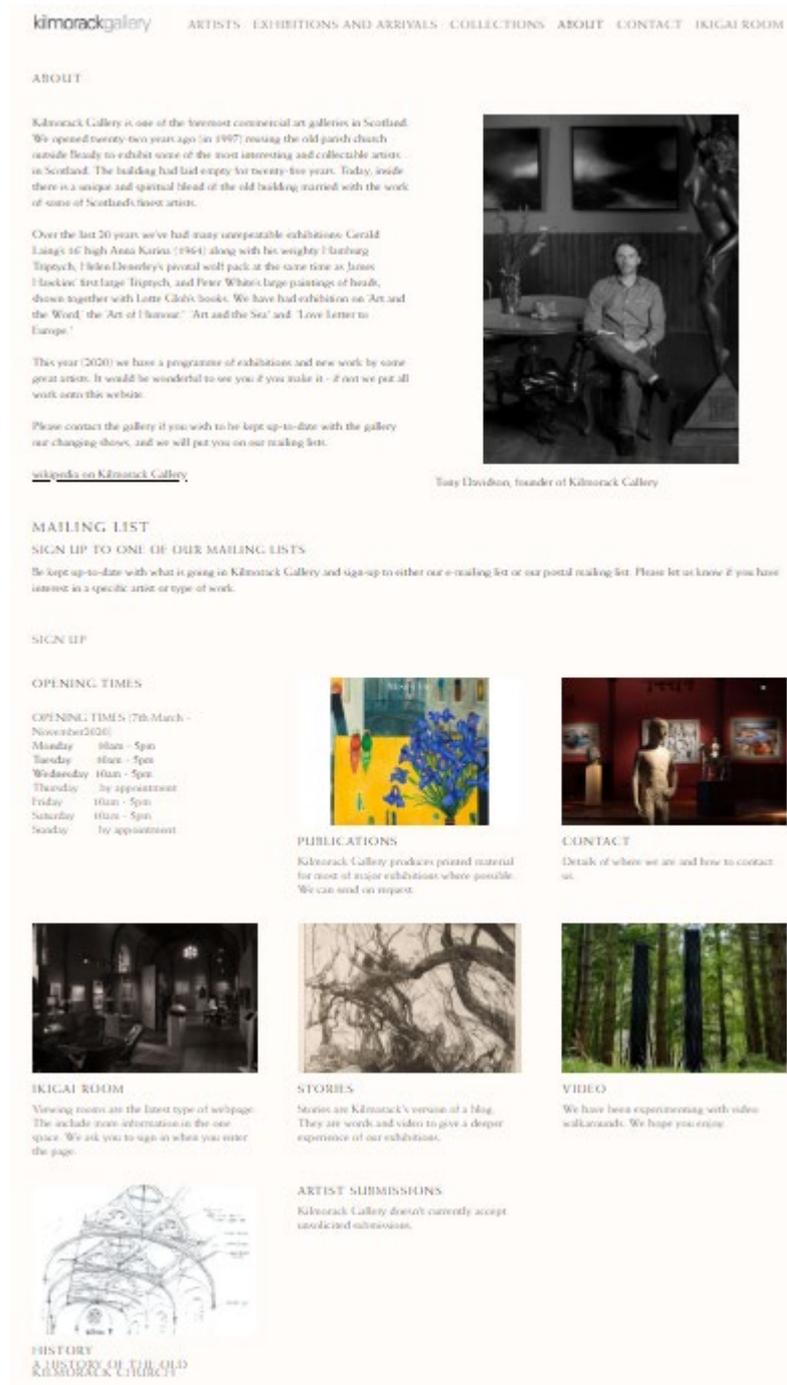


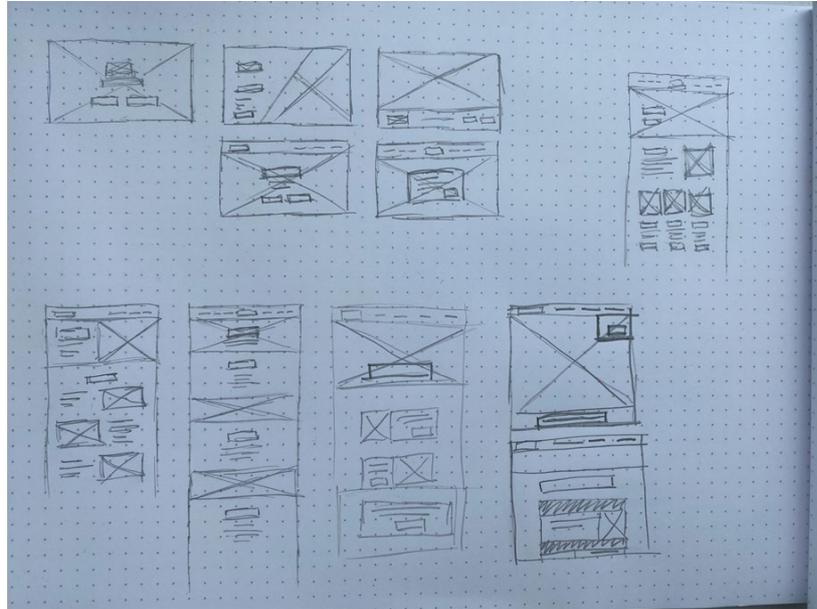
Figure 5.3 - Kilmorack Gallery website (Kilmorack Gallery, 2020)

This research into website design inspired some of the wireframes which were developed as part of the envisionment stage of the design.

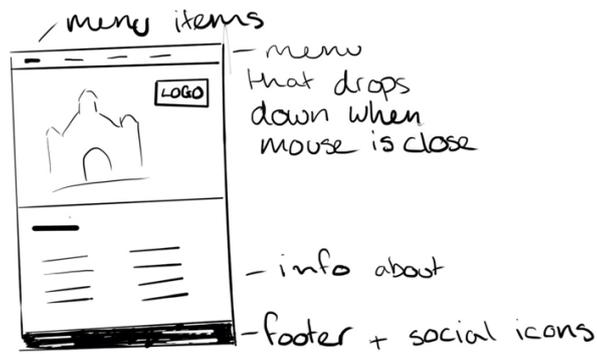
## 5.2 Envisionment

For the envisionment stage various wireframes were developed in order to map out the website page layouts as well as the interactions. Envisionment is an important stage of the design process as it starts to bring together the user research and the

identified goals of the design in a visual way that can then be used to gather further feedback (Benyon, 2019). The brainstorming undertaken and research into modern website designs were used as inspiration for the website wireframes (Figure 5.4, Figure 5.5, Figure 5.6).



**Figure 5.4 - Initial wireframes**

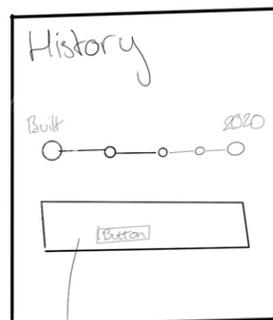


Information about restoration to date and pictures of transformation



Figure 5.5 - Developed wireframes

Post with option to add photos



hover nav bar throughout

timeline style history of the building showing known key dates and info

link to forum page

Figure 5.6 - Developed wireframes

## 5.3 Prototyping

Following the creation of the envisionment stage the wireframes were developed into two website concepts that were prototyped on Axure. Prototyping is an important step as it allows users to experience the proposed usability and interactions (Benyon, 2019). The prototypes can be accessed via the links below.

### 5.3.1 Concept One

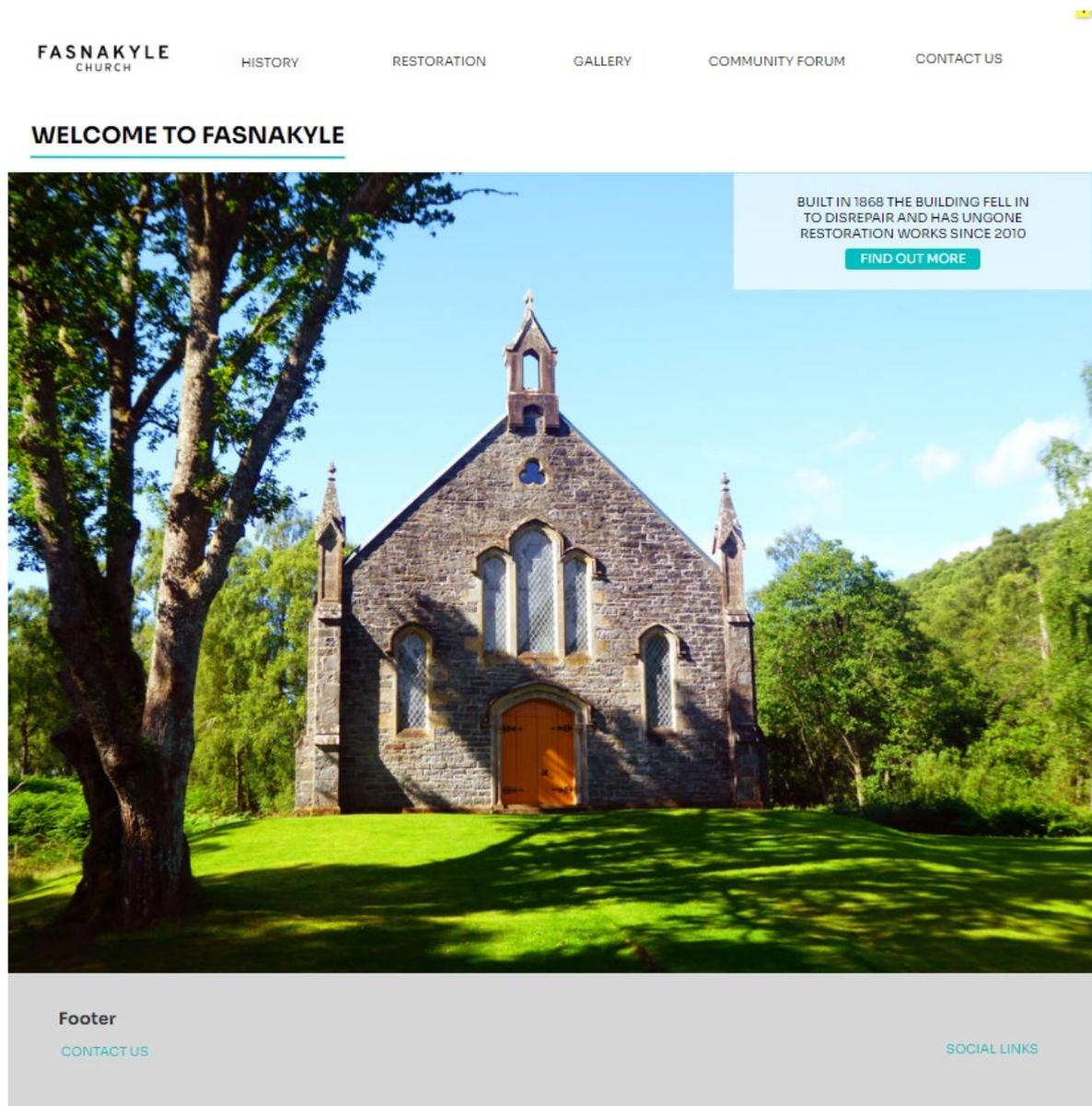


Figure 5.7 - Prototype one is available to view at: <https://ch3x49.axshare.com>

## 5.3.2 Concept Two

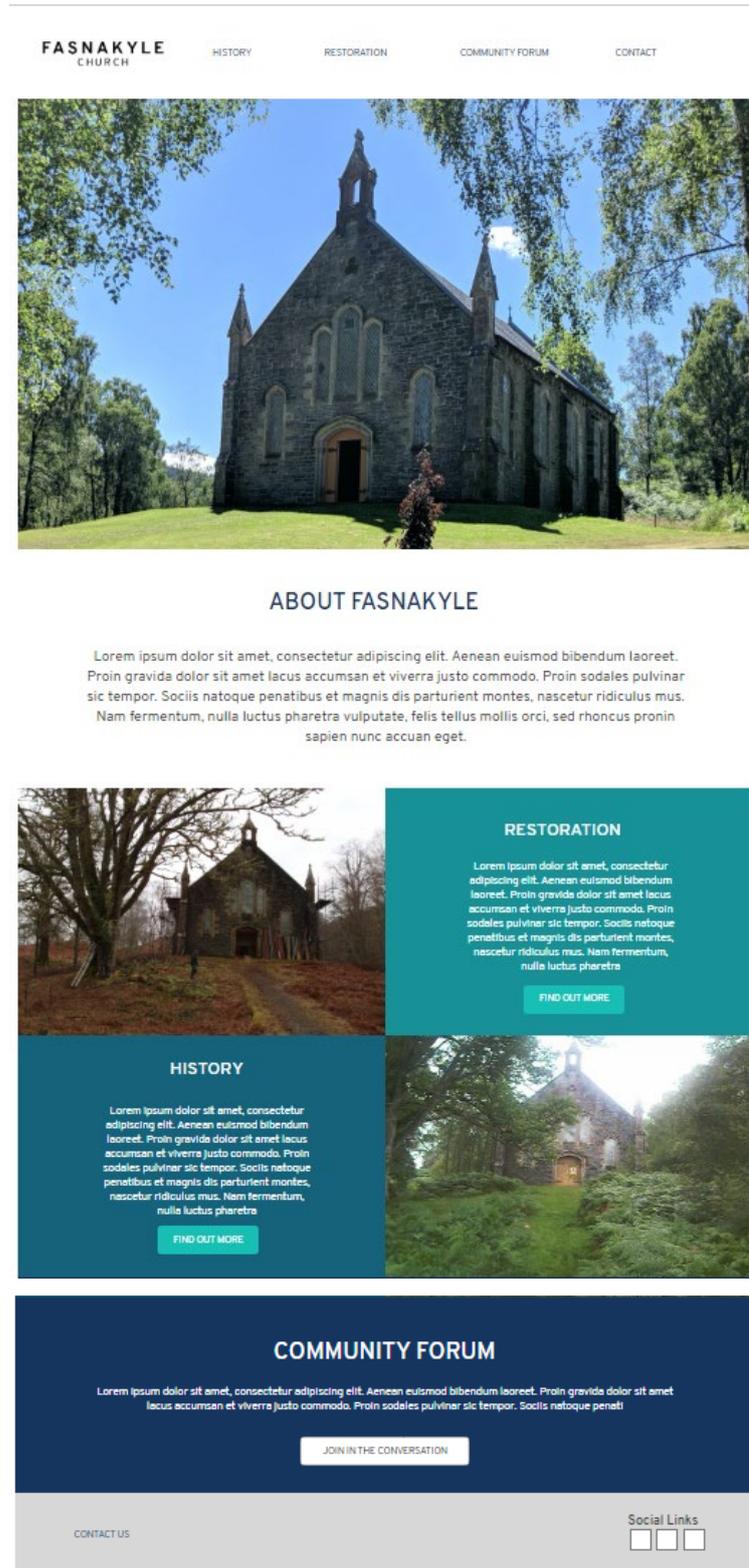


Figure 5.8 - Prototype two is available to view at: <https://pmxfed.axshare.com>

## 5.4 Expert Evaluation

Four user experience experts were approached to undertake a heuristic expert evaluation using a scenario, twelve points of heuristic evaluation and a severity rating of 1 – 3, with three being most severe (Benyon, 2019). The heuristics were: visibility, consistency, familiarity, affordances, navigation, control, feedback, recovery, constraints, flexibility, style, and conviviality. The experts were also asked to pick their preferred prototype to be developed for the final website. The results of the evaluation are detailed below (raw data available in supplementary documents).

Scenario:

*You are from the Glen Affric area but have not lived in there for over 10 years. You move back to the area and notice the Fasnakyle Church building seems to be well cared for compared to the last time you saw it. You decide to look it up online to find out more about the building, the work that has been undertaken to restore it and what it is being used for, if anything.*

### 5.4.1 Prototype One

The potential problem areas identified with prototype one are detailed in Figure 5.9 with the severity rating provided by each expert.

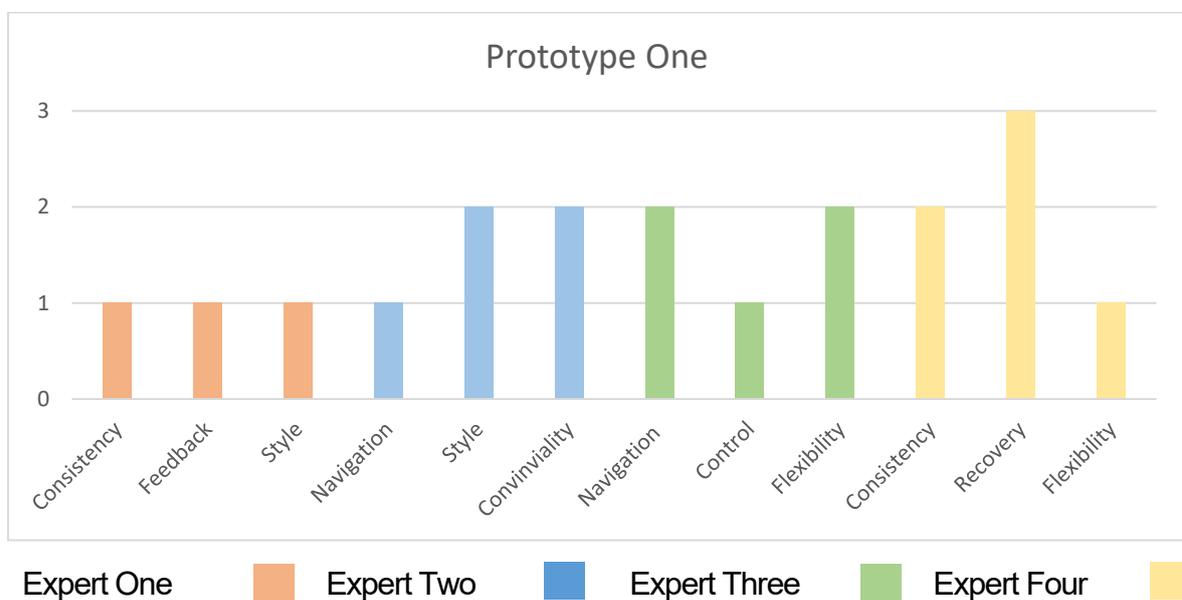
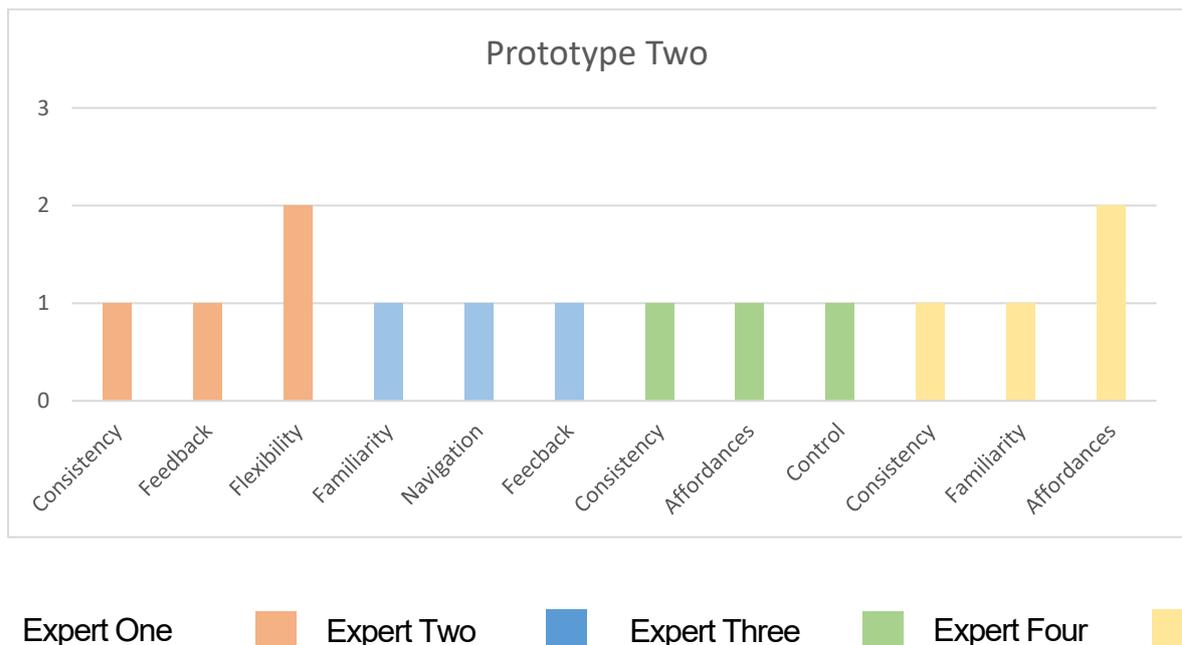


Figure 5.9 - Prototype one expert ratings

The experts felt the design was quite plain and there was a lack of interaction with the website. There were a couple of comments about small inconsistencies in styling across the website. One expert also identified issues with potentially allowing people to post in a community forum page without being able to edit or delete those posts.

### 5.4.2 Prototype Two

The potential problem areas identified with prototype two are detailed in Figure 5.10 with the severity rating provided by each expert.



**Figure 5.10 - Prototype two expert ratings**

According to the experts there was a lack of consistency across the prototype pages. One expert felt the top navigation bar should reflect the navigation on the landing page i.e. if the navigation bar said 'History' then 'Restoration' the boxes on the landing page should follow this order. It was felt that the History timeline page was too different in style to the rest of the prototype and experts recommended using the accordion style page in the final design as it had clearer legibility and it was more obvious to the user how to interact with this type of page. Additionally, there was a recommendation to put more space between the logo and the navigation bar to stop users accidentally clicking on 'History' thinking it said 'Home'.

### 5.4.3 Selected Prototype

Overall, every expert preferred prototype two which was then taken forward for final development. It is also clear from the severity ratings that the experts found less issues with prototype two (Table 5.2).

	Prototype One	Prototype Two
Expert One	<ul style="list-style-type: none"> <li>• Consistency: 1</li> <li>• Feedback: 1</li> <li>• Style: 1</li> </ul>	<ul style="list-style-type: none"> <li>• Consistency: 1</li> <li>• Feedback: 1</li> <li>• Flexibility: 2</li> </ul>
Expert Two	<ul style="list-style-type: none"> <li>• Navigation: 1</li> <li>• Style: 2</li> <li>• Conviviality: 2</li> </ul>	<ul style="list-style-type: none"> <li>• Familiarity: 1</li> <li>• Navigation: 1</li> <li>• Feedback: 1</li> </ul>
Expert Three	<ul style="list-style-type: none"> <li>• Navigation: 2</li> <li>• Control: 1</li> <li>• Flexibility: 2</li> </ul>	<ul style="list-style-type: none"> <li>• Consistency: 1</li> <li>• Affordances: 1</li> <li>• Control: 1</li> </ul>
Expert Four	<ul style="list-style-type: none"> <li>• Consistency: 2</li> <li>• Recovery: 3</li> <li>• Flexibility: 1</li> </ul>	<ul style="list-style-type: none"> <li>• Consistency: 1</li> <li>• Familiarity: 1</li> <li>• Affordances: 2</li> </ul>

**Table 5.2 - Comparison of expert ratings for both prototypes**

The changes to the 'History' page and the navigation bar suggested in the evaluation were implemented in the final website design. The 'Home' option was also added to the website navigation bar to allow users that are not familiar with clicking a logo to be able to navigate back to the main landing page. The website was created using a WordPress theme due to the time constraints of the project and the fact that only one web development module was undertaken throughout this programme of study. However, all aspects of the pages and the design language were developed by the researcher.

Following the expert comments and after reviewing the initial survey feedback again it was decided that a Facebook page for the building should be created rather than

developing an online community forum. The reason for this was two-fold: the survey respondents had indicated an interest in the building having a Facebook page, slightly edging the demand for a website by 8% (Table 5.1), and due to privacy, General Data Protection Regulations (GDPR) and the time constraints of the project it would have been too difficult to create a GDPR compliant forum that offered contributors data security (Information Commissioner's Office, 2019). Facebook pages allows people to contribute ideas, leave reviews and comments on posts, therefore allowing the community to feel involved in the project (Facebook Help Centre, 2020). For this reason, the 'Community Forum' tab on the prototype was changed to 'Get Involved' and included a direct Facebook feed and Instagram account for Fasnakyle Church. An Instagram account allows for users to share pictures using hashtags and mentions (Facebook Business Centre, 2020). This would allow the community to contribute to the development of future posts as 68% of participants indicated they would be willing to share photography etc (Table 5.3).

Would you be willing to contribute stories, ideas and/or pictures to an online platform for Fasnakyle Church?		
Yes	34	68%
No	16	32%

**Table 5.3 - Answers to 'Would you be willing to contribute stories, ideas and/or pictures to an online platform for Fasnakyle Church?'**

## **5.5 Design Language**

A design language pulls together all aspects of the design and sets rules and consistency for all of the physical attributes - this includes font, colours and icons (Benyon, 2019). A clear design language means designers can learn the main elements and then continue to add to the design in a consistent manner (Benyon, 2019). For the website design the fonts and colours were the main aspects of the design. As it stands there is no inclusion of icons.

### 5.5.1 Fonts

Two fonts were selected both of which are sans serif, they were selected due to their legibility and contemporary style as well as being consistent with the logo design. The fonts used throughout the website design are:

- Lexend Zetta – Regular
- Overpass – Regular

Lexend Zetta is used for all headings and Overpass is used for the navigation menu, sub-headings, buttons, and main body text. Particular attention has been given to creating contrast between headings, sub-headings, and main body content to establish a clear visual hierarchy ensuring good movement through the website. Text has been kept either black or white for maximum contrast. Headings, sub-headings, and buttons have been made uppercase for more impact and to differentiate from the body copy.

### 5.5.2 Colours

The building owner asked for the colours used to be modern and bright. The colour turquoise was identified as being a good blend of the nature element of the area with a modern twist. Four colour palettes were sent to the owner to select from and the following palette was selected:



Figure 5.11 - Colour Palette for Fasnakyle Website

- Turquoise: #1D9FE
- Dark Turquoise: #395469
- Dark Pink: #87356D
- Pink: #CE3A88

The website uses mainly the turquoise and blue colour, however the dark pink was used for the community call to action box in order to make it stand out from the rest of the website content.

## **5.6 Testing**

Testing of the website was undertaken using a System Usability Scale (SUS) questionnaire which was customised to the Fasnakyle website and an AttrakDiff survey. It is important for the designer to understand the perceived practical quality, hedonic quality, and the attractiveness of an interactive product according to the end users (Benyon, 2019; Brooke, 1996). The SUS questionnaire was developed by John Brooke and provides a simple ten-item scale of subjective assessments of usability (Brooke, 1996; Thomas, 2015). An AttrakDiff survey anonymously evaluates a product and the evaluation data gauges how attractive the product is in terms of usability and appearance (AttrakDiff, 2020).

The participants that undertook the testing surveys were from the same sample population and were again targeted through Facebook community group posts (Appendix 8). Additionally, they were asked for formal consent to the research before answering any questions.

### **5.6.1 SUS Results**

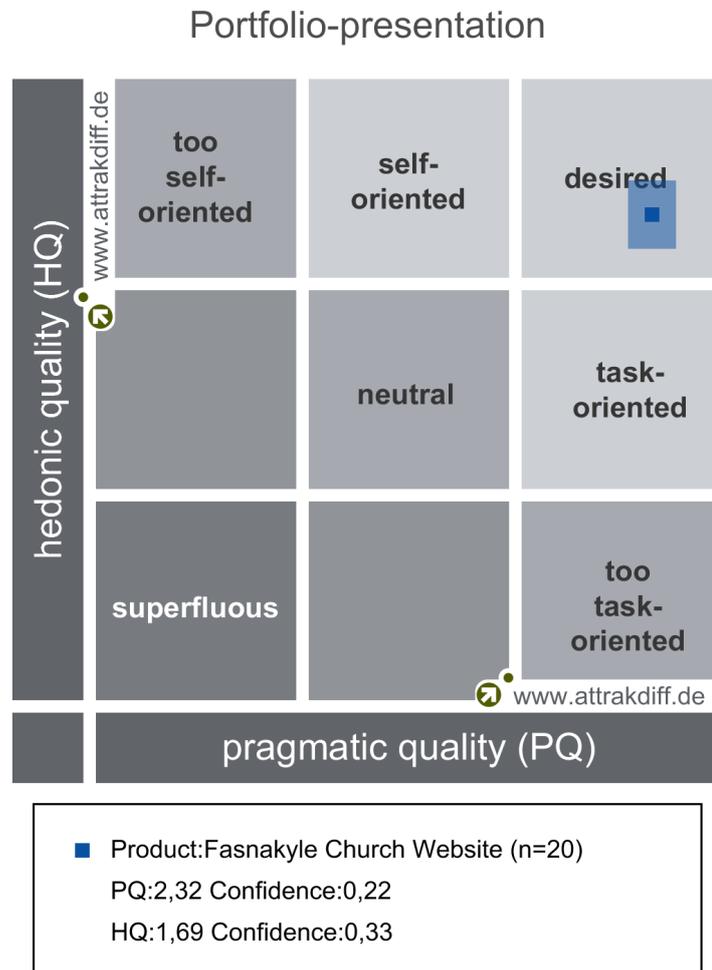
According to Jeff Sauro an average SUS score of over 68 demonstrates there are no major usability issues (Brooke, 1996; Thomas, 2015). Furthermore, if the average score is over 80.3 there is a higher chance the user will recommend the system or website (Thomas, 2015). The survey was completed by 20 people and the mean usability score overall for the website was 93.75. This shows that overall users found the website to be user friendly with no obvious usability issues. The lowest score for the website was 72.5 which is above the score that demonstrates any major issues. Further to this score, respondents commented that the website was easy to use and navigate and it worked well on smartphones.

### **5.6.2 AttrakDiff Results**

AttrakDiff evaluates a product or website on four key qualities, Pragmatic Quality (PQ), Hedonic Quality – Simulation (HQ-S), Hedonic Quality – Identity (HQ-I) and attractiveness (ATT) (AttrakDiff, 2005). PQ is the usability of the product and how easy it is for users to achieve their end goals. HQ-S is concerned with how stimulating the product is for users and if they find it engaging (AttrakDiff, 2005). HQ-I gives an indication of how much users can identify with the product (AttrakDiff, 2005). ATT is

the overall quality and attractiveness of the design and how users perceive it (AttrakDiff, 2005).

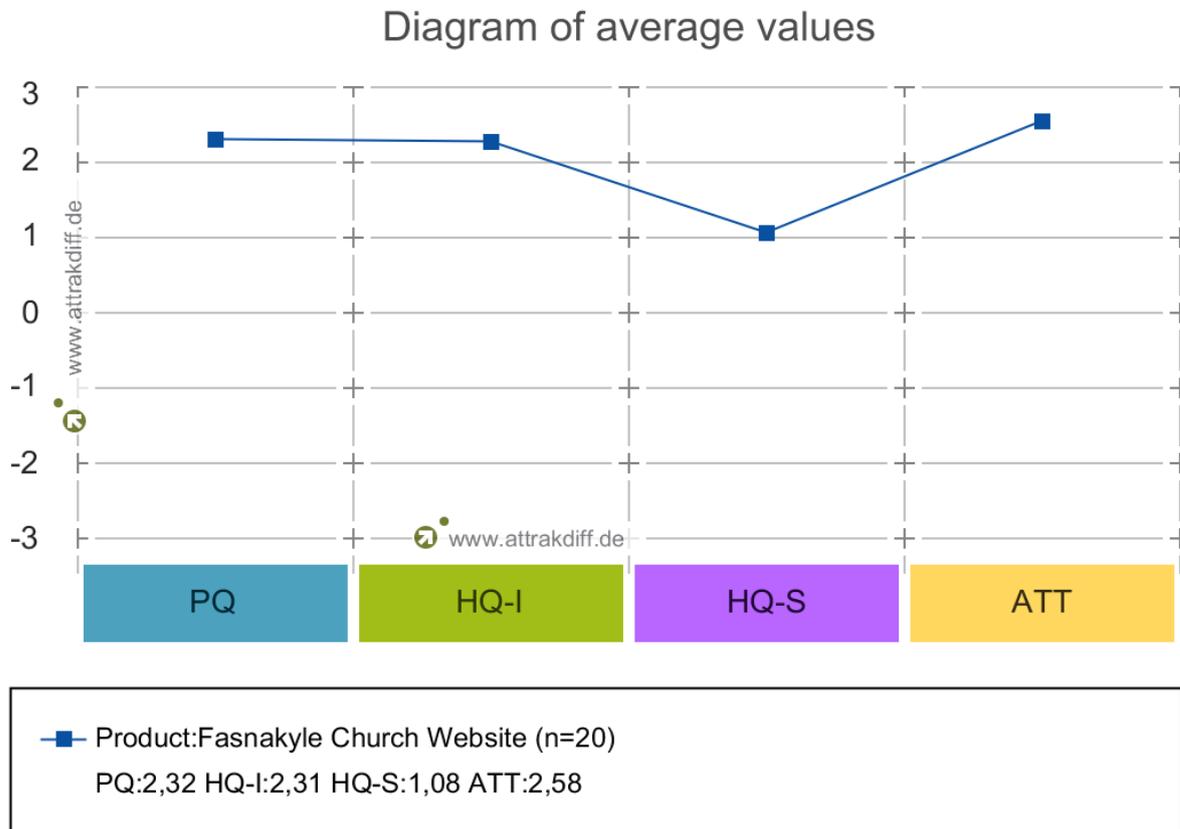
Figure 5.12 shows the confidence rectangle - the bigger the confidence rectangle the less reliable the data becomes (AttrakDiff, 2005). For the Fasnakyle Church website the confidence rectangle is firmly in the 'desired' quadrant of the graph. This shows that overall users found the website to be a desirable product to interact with.



**Figure 5.12 - Attrakdiff portfolio presentation**

The diagram of averages (Figure 5.13) plots the PQ, HQ-I, HQ-S and ATT average scores. The HQ-S score shows that most users found the website to be stimulating. This is further evidenced by comments in the SUS survey that they found the content interesting. The HQ-I score is slightly lower showing users did not identify strongly with the website, perhaps due to a lack of calls to action for involvement. To improve this score in the future the website could be developed to offer more interaction or the social media channels could be utilised to encourage contributions from the

community. The PQ score indicates that users found it easy to achieve their required goals and the ATT score suggests that users found the website to be attractive.



**Figure 5.13 - Attrakdiff diagram of average values**

The description of word pairs graphs shows any extremes in the values users associate with the website (Figure 5.14). Overall, the results are reasonably consistent however the low score in the 'undemanding-challenging' word pair shows that users did not find the website to be particularly challenging. Again, this is a sign that more calls to action could be introduced over time as currently the website is setup as an information site showcasing the work that has already been carried out on the building. If the project were to develop over more time features could be introduced to make it more mentally challenging for users.

Description of word - pairs

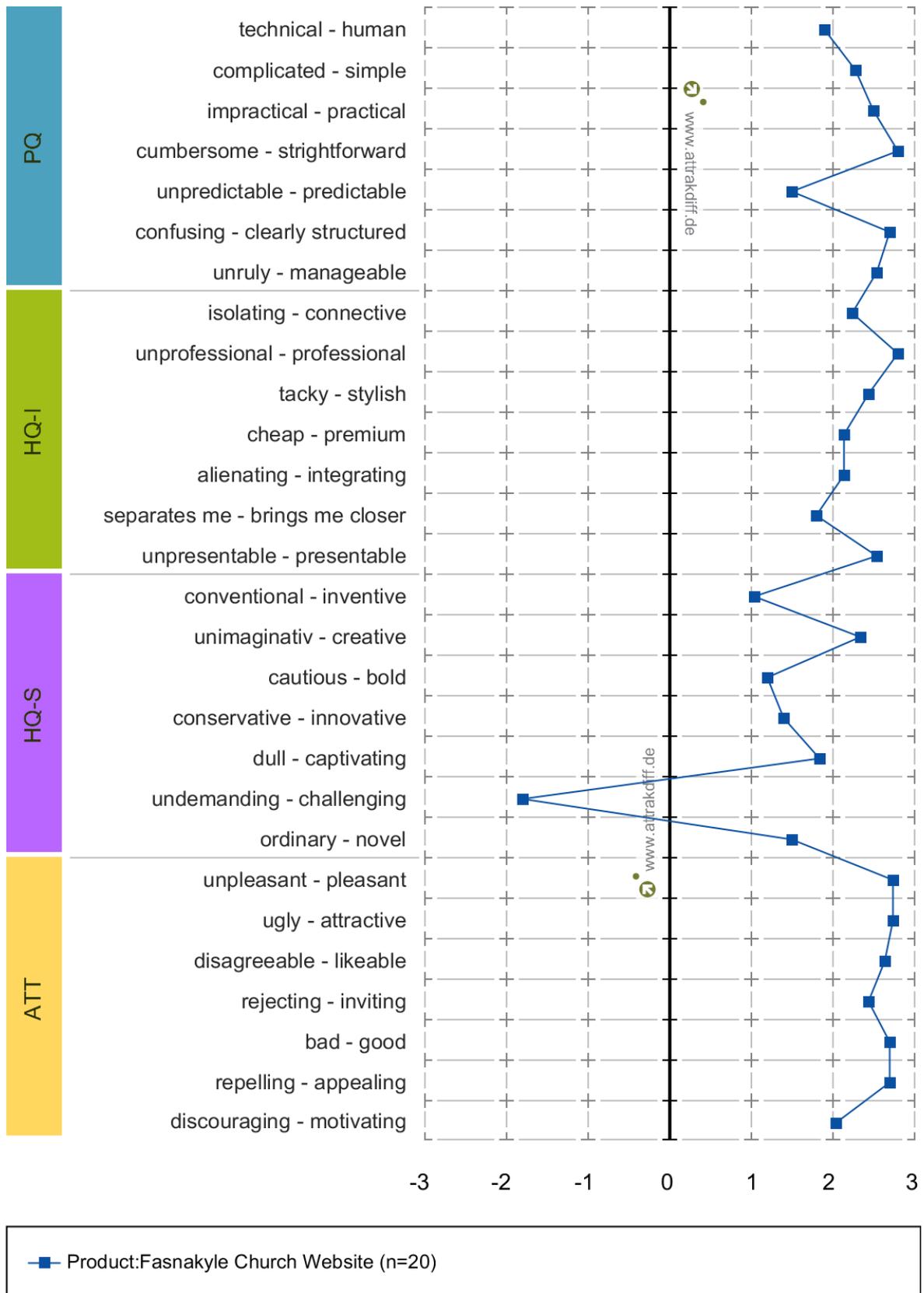


Figure 5.14 - Attrakdiff description of words

## 5.7 Discussion

Following the user testing, no further changes were made to the website other than slight changes to content to provide more information to the users about completed renovation works. In the future it would be good to add to this content to make it slightly more challenging. Additionally, the user feedback suggested video content from the building owner may also be of interest. If further renovation works were to be completed it may be of interest to users to see a time-lapse of the work being completed to give them a true sense of the scale of work being completed.

The final website is available to view at: <https://fasnakylechurch.co.uk>

## 6 Design Fiction for Fasnakyle

This chapter will explore the design process for creating a design fiction for Fasnakyle Church. The chapter will start by going through the design brief process and then move on to make the connections between the literature reviewed in Chapter 2. The chapter will make a recommendation for a design fiction which will provide a narrative for how the space could be used, linking the literature of phenomenology and design fiction together (Eberle, 2014). The final part of the chapter will be a discussion and evaluation of the design fiction.

### 6.1 Design Brief

The design brief took a holistic approach to the user experience design. The design had overall goals which were mapped on to a hierarchy model (Figure 6.1) (Hassenzahl, 2010).

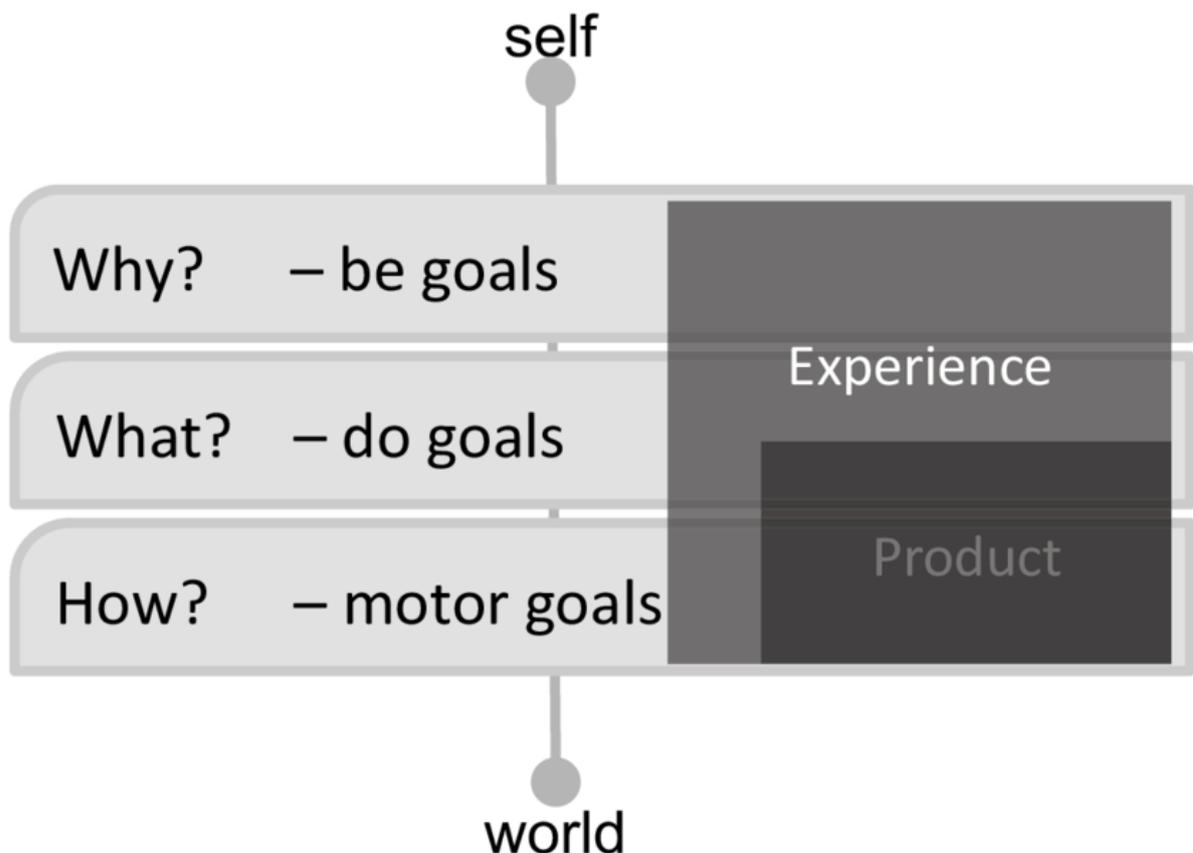


Figure 6.1 - A three level hierarchy of goals (Hassenzahl, 2010, p. 12)

The 'why?' focuses on 'be goals' which are the context and motivations for an action (Hassenzahl, 2010). The 'what?' is interested in 'do goals' which are tangible consequences of what a user might want to achieve, for example 'find out about the local heritage' (Hassenzahl, 2010). They exist in the most part outside of the available technology however they are not completely independent (Hassenzahl, 2010). The 'how?' is concerned with how the actual action is achieved and the points of interaction that occur. Hassenzahl describes these actions as 'motor goals' (Hassenzahl, 2010). This model was applied to the questions asked during the design brief session with the building owner and the responses were separated into why, what, and how. Understanding the 'why', the 'what' and the 'how' of interactions allows for these goals to be integrated "into a meaningful, inseparable whole" (Hassenzahl, 2010, p. 13). "Designing and evaluating experiences implies to take all three levels seriously" (Hassenzahl, 2010, p. 13)

### **6.1.1 Why**

'Be goals' influence decisions and in order to take a truly holistic approach to experience design, the motivations of users need to be considered beyond only the 'do goals' (Hassenzahl, 2010; Hassenzahl & Tractinsky, 2006). For the design brief the 'why's' for the building owner are: "to fill it (the space) with creative energy", provide a "welcoming" space that can "span the whole community", which will "grow" as it develops and be delivered sustainably.

### **6.1.2 What**

The 'do goals' were the types of activities that might take place in the space. The owner felt the space could be used for creating, whether that be drawing, painting, singing etc. They also thought it could be a place to find out about local heritage, give presentations, host a gallery showing, watch a movie, take part in a class, attend a meeting, or attend a social event. Given the multitude of potential 'do goals' it is important for the design of the building to be flexible to allow for changes to the purpose. As the building owner states the Church should be as "...flexible as it can be".

### 6.1.3 How

How these actions will be achieved depends on the technologies which are embraced in the design fiction. For example, finding out about the history of the building could take the form of offering a gallery of images which the user can browse at their leisure. Or it could be through a virtual reality headset that users have to wear, and it shows them the building through the ages and allows them to look around as if they were there at that point in time. There are many interactions available within the space and there should be a blend between the physical and digital spaces to deliver an engaging user experience (Benyon, 2014).

## 6.2 Design Fiction

When creating a design fiction, it is important to think about technologies that exist as well as future technologies that may exist (Dunne & Raby, 2013). The design should not be confined by the technologies that are only available now. Creating a design fiction allows the designer to go beyond the limitation of the current reality (Dunne & Raby, 2013; Rapp, 2019). A narrative of the design fiction was developed in line with the wishes of the building owner and the community. Diagrams have been created to show how the space could be developed (Figure 6.2, Figure 6.3, Figure 6.4).

Figure 6.2 shows the overall design fiction. The space could be developed to offer everything mentioned by the survey participants. The left side of the building could be turned into a gallery space where local artists and crafters could showcase their works. The right-hand side of the building could display items found at the site that were not wanted by Inverness Museum, including a number of musket balls. Interactive displays could be incorporated into the space to showcase the development and restoration of the building. This could include video content with the owner and a space for a virtual reality headset so users could truly experience the building through the ages. The back of the building could have a removable stage so local school shows or music concerts could be held in the space. Movies could be projected on to the wall if a collapsible screen was integrated into the building works. The middle of the building could have a pop-up café area which would provide snacks for locals and tourists alike, whether visiting the building to engage with what was on offer or just stopping for something before continuing on to Glen Affric. Throughout the building there would be a sound system to allow for social gatherings and presentations. All the furniture from the room

would be removable to allow for it to be a flexible space which can adapt to any request from the community.

The Vestry space could be turned into a music room and recording area. When not being used for this purpose it would be a small meeting area for groups and classes. By having this area as a more casual space used mainly by locals it may be possible to create the relaxed atmosphere the building owner wants to be established when they stated that they wanted people to “...ideally as comfortable and relaxed as they are in their own home.”

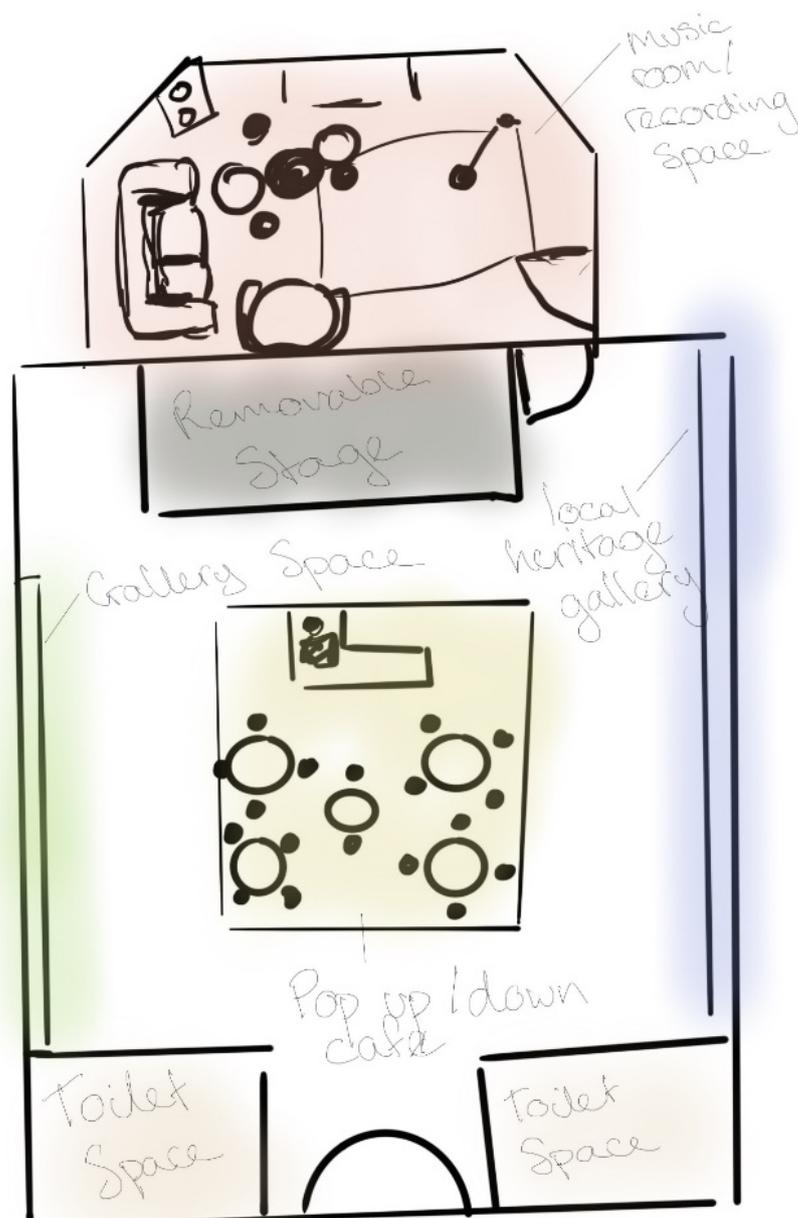


Figure 6.2 - Plan of inside Fasnakyle Church design fiction

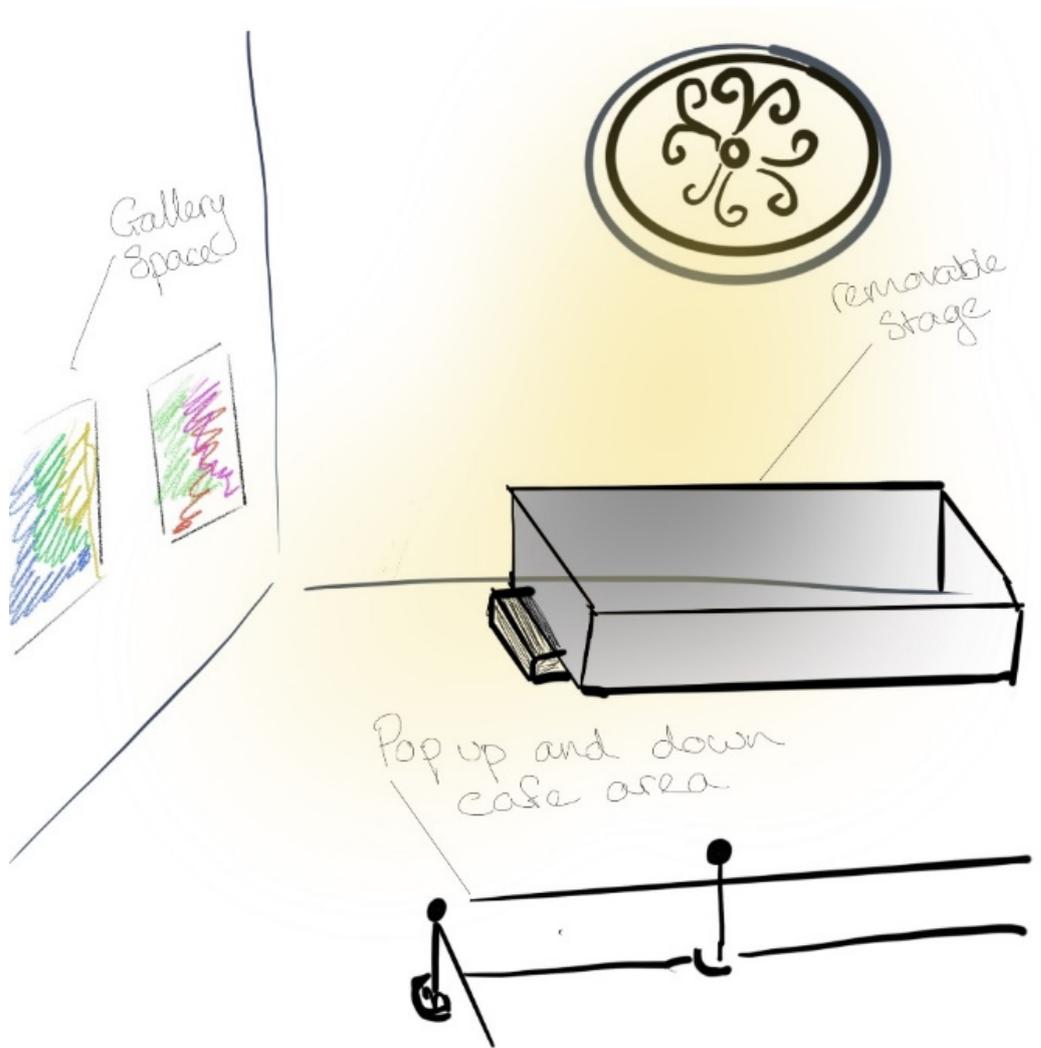


Figure 6.3 - A closer view of the gallery, stage and café space.

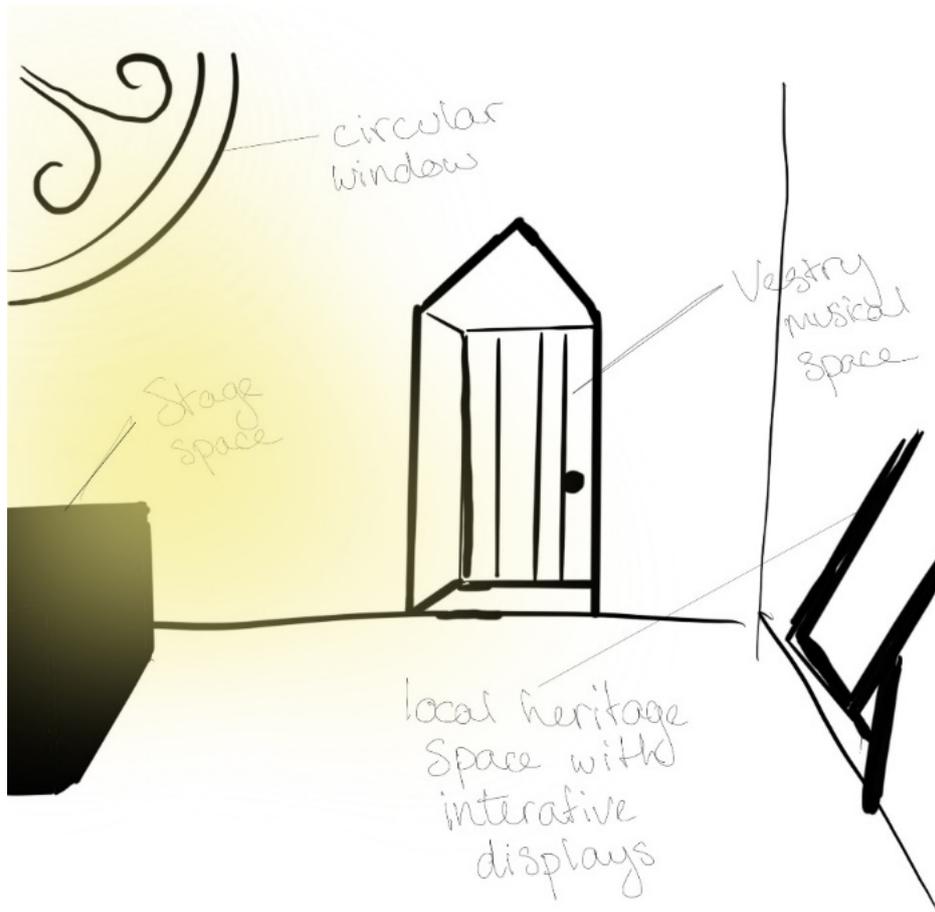


Figure 6.4 - A view of the interactive devices and link through to more casual music/creative space.

### 6.2.1 Permaculture

As previously discussed, permaculture provides a set of principles for developing sustainable ways of living (Benyon & Egan, 2017; Permaculture Association, 2020). When asked, the building owner showed great interest in developing the building in a sustainable way. There are various sustainable technologies available to the building and the owner highlighted options that they felt were best placed for the space (Construction Climate Change, 2019). These included solar panels, windmills, ground source heating, air source heating, a water treatment plant running to the river and a bore hole to deliver a water supply to the building. All of these options connect to the principles of permaculture and using a blend of a few of them would give the design fiction a distinctly sustainable edge (Egan et al., 2017). If the venue could not only be carbon neutral but provide energy back to the community it would be a service for the community in more ways than one. Figure 6.5 shows how the outside of the building could look with these technologies. Given the concerns about solar panels ruining the aesthetic of the building, solar tiles could be used to cover the roof so people would

not necessarily realise they were even solar panels without taking a closer inspection (Tesla, 2020). To keep in line with the principles of permaculture the current tiles could be upcycled or donated to other restoration projects to ensure no resources are wasted (Permaculture Association, 2020).

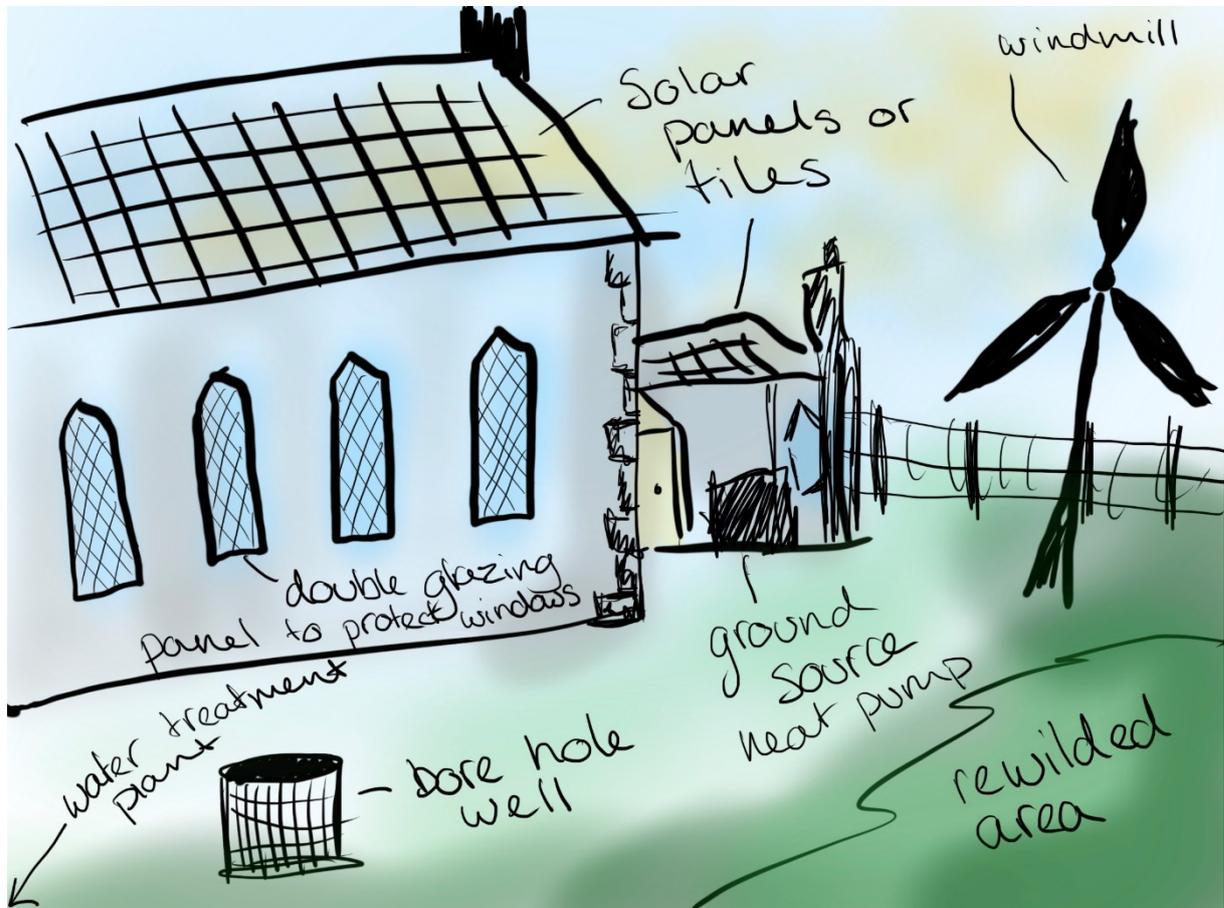
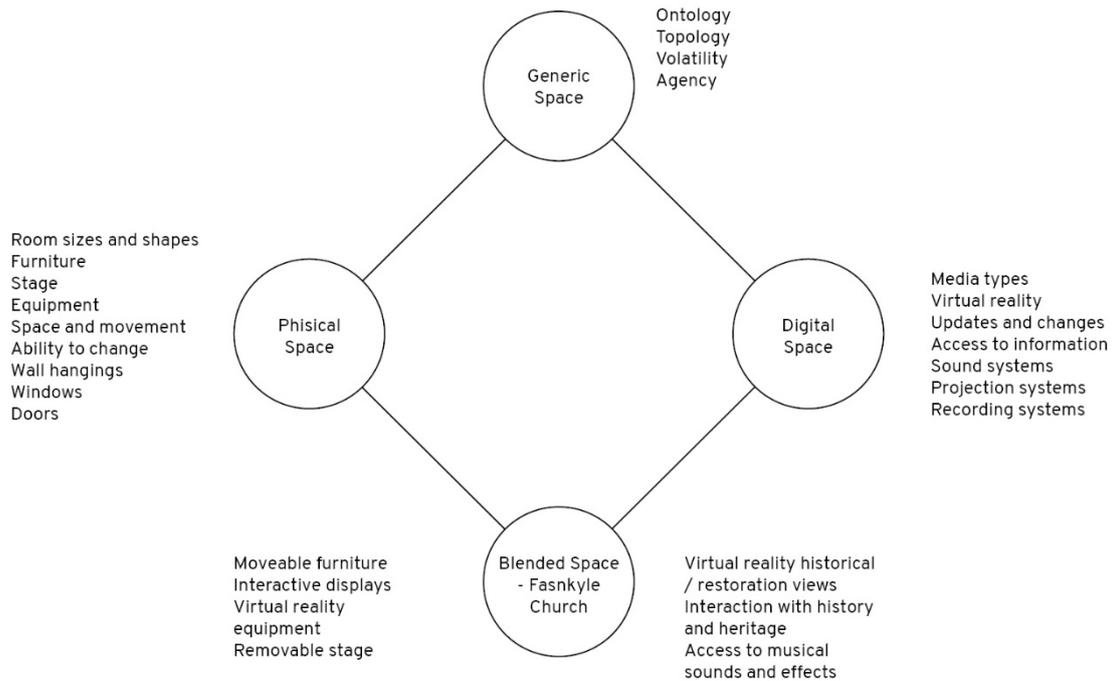


Figure 6.5 - Overview of eco-friendly technologies outside

## 6.2.2 Blended Spaces

For the design fiction, a blended space diagram was created to show the blend of the physical and the digital (Figure 6.6).



**Figure 6.6 – Blended spaces diagram for Fasnakyle Church**

Chiefly the design aim was to create a blend of the digital and physical space in a harmonious way to provide a new experience for the community. The physical ontology of the space allowed for different experiences to be divided in the space, the physical topology allows users to navigate around the space and interact with the different experiences (Benyon, 2014). As the spaces can be configured differently and have been designed in a way that they can be completely reset, there are issues with this conceptualisation and volatility as there is no way on the diagram to demonstrate the space is able to be reconfigured (Benyon, 2014). Additionally, the agency of the space is continually changing and evolving as new technologies are introduced and the space is reconfigured (Benyon, 2014). This links to the idea the building owner had of the space adapting when they said, “I would see it beginning as something but then I would see it growing”. This is only the beginning of how the blended space at Fasnakyle Church could be developed.

### 6.3 Discussion & Evaluation

Overall, the design fiction created provides a narrative for one way in which Fasnakyle Church could be developed to meet the needs of the building owner as well as the

requests from the local community. The design tries to incorporate existing technologies and eco-friendly technologies to comply with the permaculture philosophy (Morel, Leger, & Ferguson, 2019; Permaculture Association, 2020; Vitari & David, 2017). However, the boundaries of design fiction could have been pushed further as all of the technologies mentioned in the design fiction are already in existence. Furthermore, the design would have benefitted from testing with the local community and the building owner to ensure it met the brief and would deliver something the community could be excited about it. Unfortunately, due to the timing of the design fiction being completed this was not possible within the deadline of the project. Future research could investigate technologies the community would like to see in the building. These could then be added to the design fiction and taken back to community focus groups for feedback and testing (Benyon, 2019; Hassenzahl, 2013; Hassenzahl & Tractinsky, 2006). As user experience design shows, there is a constant feedback loop required to ensure user needs are being met and to help identify future opportunities through the advancement of new technologies (Benyon, 2019; Canziba, 2018; Goodwin, 2009; Hassenzahl, 2010; Hassenzahl, 2013).

## 7 Conclusion

This chapter will conclude this project by summarising the research that was completed, highlighting how the aims were met, if they were met, and offering recommendations for future work.

### 7.1 Summary of Work

This project undertook many different forms of research and evaluation to arrive at a design that could be presented back to the building owner and community. Several UX tools and techniques were used for testing and evaluation which informed the development of a website that could sit alongside this project. The next stage of this project could be to develop a project page within the website to showcase the design fiction and gain feedback from the community and encourage them to engage with the design process through the Facebook page already created. By gaining an understanding of what the community would like to see, it is possible to collaborate further and foster a long-term engagement with locals and this project through the website and social media channels. This project also helps to demonstrate that UX can be employed as an approach that enhances the design of even the most unlikely of projects. It showcases the depth that UX techniques can bring and why taking a human-centric approach is important for creating engaging designs that fulfil the needs of the users. Using the principles of permaculture and blended spaces brings a new dimension to the project and allows the space to be explored from a variety of perspectives to ensure it meets the brief given by the building owner and the desires highlighted by the community.

### 7.2 Aims

There were three key research questions this project aimed to answer:

- Can design fiction and user experience be combined to research and develop an engaging design for a space which fulfils the expectations of the local community?

- Does permaculture play an important role in developing sustainability practices when undertaking a restoration project and if so, what is the value that permaculture adds to the project?
- Will a small Highland community engage in a project of this nature and is it important to have the community perspective included?

After undertaking user experience research and design methods, the project has created a design that presents as meeting the expectations of the local community. However, without having the design fiction accurately tested by the local community it is impossible to say whether or not the first aim of this project has been fully met.

The second aim, to understand the role of permaculture in undertaking a restoration project, has also been partially met. This project shows how permaculture principles can be applied to a restoration project but if the aim could be changed, it would probably be changed to:

- Can the principles of permaculture be applied to a restoration project to enhance the overall sustainability of the project?

As this project does highlight the benefits of permaculture and provides a different lens for viewing how the remainder of the restoration works could be completed.

The final aim of this project was met through the engagement from the community with the initial survey to find out what the local community would like to see from the building and also through the action of testing the website developed. Given the linkages between what most of the survey participants highlighted as things they would want included in the building and the design brief from the building owner, it shows the importance of including the community in a project like this as without local buy-in, the project would not be able to develop further. It reinforces the feeling and belief that the community and owner are interested in achieving the same goal and the community could be a valuable source of support for the project.

### **7.3 Future Recommendations**

Recommendations have been made throughout this paper at the end of each chapter. This section will summarise them all to show the connections between them.

Future research could benefit from focus groups on site to show potential users the space and generate ideas in groups. Other permaculture projects could also be invited onto the site to make recommendations for how they would see the space developing and working in a sustainable way. Unfortunately, due to the Coronavirus these research methods were just not possible during this project (Scottish Government, 2020).

The project would also benefit from further analysis of the community and the technologies they would like to see as well as how comfortable they are with using modern technologies. It would also be useful to have the design fiction tested by the community and feedback and recommendations given to enhance the design, so it is truly reflective of the community and the building owner. Once tested a project page could be created on the website to give details of the design to allow for more comments and feedback from the extended community and even nationally as the building receives a lot of visitors throughout the year. The design fiction could have been pushed further by including technologies which are not yet developed based on the needs of the building and the community (Blythe, 2014; Dunne & Raby, 2013).

This project has shown that there is an appetite in the local area for Fasnakyle Church to serve the community once again. It was clear from the survey participants that sustainability is also important for how the Church is developed, but so is ensuring the aesthetic and history of the building are preserved. The project has the potential to continually evolve and grow through community input by drawing on the relevant aspects of UX and blended spaces to ensure Fasnakyle Church becomes a space that can be experienced by all.

## 8 References

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## 9 Appendices

### 9.1 Appendix 1 - Project Proposal

EDINBURGH NAPIER UNIVERSITY SCHOOL OF COMPUTING

MSc RESEARCH PROPOSAL

The process of completing and reviewing the contents of this form is intended ensure that the proposed project is viable. It is also intended to increase the chances of a good pass. Much of the material produced while completing this form may be reused in the dissertation itself.

#### 1. Student details

First name	Shannon
Last (family) name	Murray
Edinburgh Napier matriculation number	40124051

#### 2. Details of your programme of study

MSc Programme title	Computing (User Experience Pathway)
Year that you started your diploma modules	2019

#### 3. Project outline details

Please suggest a title for your proposed project. If you have worked with a supervisor on this proposal, please provide the name. You are strongly advised to work with a member of staff when putting your proposal together.

Title of the proposed project	Towards a sustainable future: how can using design fictions, blended spaces and user experience influence a historical building restoration project
Is your project appropriate to your programme of study?	Yes
Name of supervisor	Callum Egan

#### 4. Brief description of the research area - background

Please do not describe your project in this section. Instead, provide background information in the box below on the broad research area in which your project sits. You should write in narrative (not bullet points). The academic/theoretical basis of your description of the research area should be evident through the use of citations and references. Your description should be between half and one page in length.

“The climate crisis has already been solved. We already have all the facts and solutions. All we have to do is to wake up and change.” – Greta Thunberg, 2018

Climate change is a real and serious threat for the environment, and as Greta Thunberg says it is time for action to be taken (Thunberg, 2018). One of the ways in which humanity can respond to climate change is by adopting the principles and practices of permaculture. Permaculture focuses on whole-system design of spaces both urban and rural to create sustainable living (Egan, Benyon, & Thompson, 2017; Taylor Aiken, 2017). “The word 'permaculture' comes originally from 'permanent agriculture' and 'permanent culture' - it is about living lightly on the planet, and making sure that we can sustain human activities for many generations to come, in harmony with nature.” (Permaculture Association, 2020). The permaculture framework has the potential to be part of the solution to climate change as it is centred in living and developing sustainable practices for all aspects of life and is not solely applicable to gardening (Permaculture, 2020; Taylor, 2017; Issa, 2015) .

Permaculture concepts can be applied to the concept of blended spaces. To understand the theory of blended spaces it is first important to understand what is meant by the term “space”. The definitions of “space” and “place” is an area of research that has seen much debate. In 1996 Dourish and Harrison defined “space” as the geometrical measures that provide the structure for activities that are undertaken and “place” as the socially constructed and understood meaning given to the space. They formed the catchphrase “space is the opportunity; and place is the (understood) reality” (Dourish, 2006, p.1). However, ten years later Dourish revisited this concept and gave more importance to the term “space”, he emphasised that space cannot be denoted as purely a physical location (Dourish, 2006). He believes both “place” and “space” are products of social construction, and the difference is in the way these social practices are developed (Dourish, 2006). Drawing on this work it is possible to argue that a physical space can have other spaces embedded within it which leads to blended spaces. Benyon describes blended spaces as “where a physical space is deliberately integrated in a close-knit way with a digital space” (2014, p.79). This concept allows for technology to be used as a way to enhance the capabilities of physical space and if the principles of permaculture are applied at this point, it allows the space to be designed in a sustainable way.

Understanding experience can a useful tool in the development of spaces (Benyon, 2014). Phenomenology is an area of philosophy which studies the structures of conscious experiences (Eberle, 2014; Woodruff Smith, 2013). Phenomenology argues that although factual evidence is important, research can also be conducted using a narrative which aims to understand experiences (Eberle, 2014). Phenomenology can also be used to develop design fictions.

The term ‘design fictions’ was defined by Bruce Sterling as, “the deliberate use of diegetic prototypes to suspend disbelief about change.” (Sterling, 2013). Design fiction can be utilised through a research project as a technique to explore the possible value of new design concepts using different narratives (Rapp, 2019; Blythe, 2014; Eberle, 2014).

When investigating experiences in relation to design it is important to consider user experience. User experience encapsulates every thought, feeling, sensation and

action involved in undertaking an activity (Benyon, 2019). User experience design can be applied to everything not just technology and designers should always be working towards and creating high-quality interactive systems, products or services which are enjoyable and useful for the user (Benyon, 2019). This can be developed with design fictions to create a space design and experience centred in a reality that may not yet exist (Wakkary, Desjardins, Hauser, & Maestri, 2013). Design fictions offer an interesting lens to use for the project as the concept links to user experience, sustainable interaction design and the blended spaces ideas which have already been explored.

##### 5. **Project outline for the work that you propose to complete**

Please complete the project outline in the box below. You should use the emboldened text as a framework. Your project outline should be between half and one page in length.

###### **The idea for this research arose from:**

The idea for this project arose primarily from my experiences during trimester one and trimester two from assessments undertaken in the Design Dialogues, and User Experience and Service Design modules. These modules introduced me to the Lions' Gate project at Edinburgh Napier which sparked an idea for developing a similar concept for a church my father has been restoring over the last ten years. The building is in a very rural area and lacks certain commodities such as a water supply. Instead of seeing this as a challenge, I decided to view it as an opportunity to restore the building in a sustainable way. The principles of permaculture can be applied to the project as well as blended spaces. I believe technology could be used smartly to enhance the project but also links to key user experience concepts, as user experience is fundamentally the focus of my degree pathway.

###### **The aims of the project are as follows:**

1. Apply the principles of user experience, interaction design and blended spaces to create a design fiction of how the space could be utilised
2. Use permaculture principles as a starting point to understand the steps that would be required to restore a building in a sustainable way using technologies available
3. Developing an online presence to engage the local community to help shape the future plans for the building

**The main research questions that this work will address include:**

- Can design fiction and user experience be combined to research and develop an engaging design for a space which fulfils the expectations of the local community?
- Does permaculture play an important role in developing sustainability practices when undertaking a restoration project and if so, what is the value that permaculture adds to the project?
- Will a small highland community engage in a project of this nature and is it important to have the community perspective included?

**The software development/design work/other deliverable of the project will be:**

Develop and design a website which outlines the history of the building, the fundamentals of permaculture that could be applied and encourages community engagement through submissions of drawings, photographs, or stories of the building.

**The project deliverable will be evaluated as follows:**

User testing through usability/design questionnaires. Usage statistics which demonstrate the engagement over the development of the project. Apply appropriate user experience research and evaluation methods.

**The project will involve the following research/field work/experimentation/evaluation:**

The project will conduct research in two key areas. Permaculturalists will be contacted for interviews, most likely semi-structured, in order to create a base level of understanding what is required when starting a project of this nature and to identify any common issues. Surveys will be conducted at a local level to understand what certain demographics would like to see offered in the space.

*If Covid-19 restrictions are eased, field research could be conducted at the building as social distancing rules could still allow for observations.*

**This work will require the use of specialist software:**

No

**This work will require the use of specialist hardware:**

No

**The project is being undertaken in collaboration with:**

N/A

**6. References**

Please supply details of all the material that you have referenced in sections 4 and 5 above. You should include at least three references, and these should be to high quality sources such as refereed journal and conference papers, standards or white papers. Please ensure that you use a standardised referencing style for the presentation of your references, e.g. APA, as outlined in the yellow booklet available from the School of Computing office and [http://www.soc.napier.ac.uk/~cs104/mscdiss/moodlemirror/d2/2005\\_hall\\_referencing.pdf](http://www.soc.napier.ac.uk/~cs104/mscdiss/moodlemirror/d2/2005_hall_referencing.pdf).

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## 7. **Ethics**

If your research involves other people, privacy or controversial research there may be ethical issues to consider (please see the information on the module website). If the answer below is YES then you need to complete a research Ethics and Governance Approval form, available on the website: <http://www.ethics.napier.ac.uk> .

Does this project have any ethical or governance issues related to working with, studying or observing other people? (YES/NO)	No
--	----

## 8. **Confidentiality**

If your research is being done in conjunction with an outside firm or organisation, there may be issues of confidentiality or intellectual property.

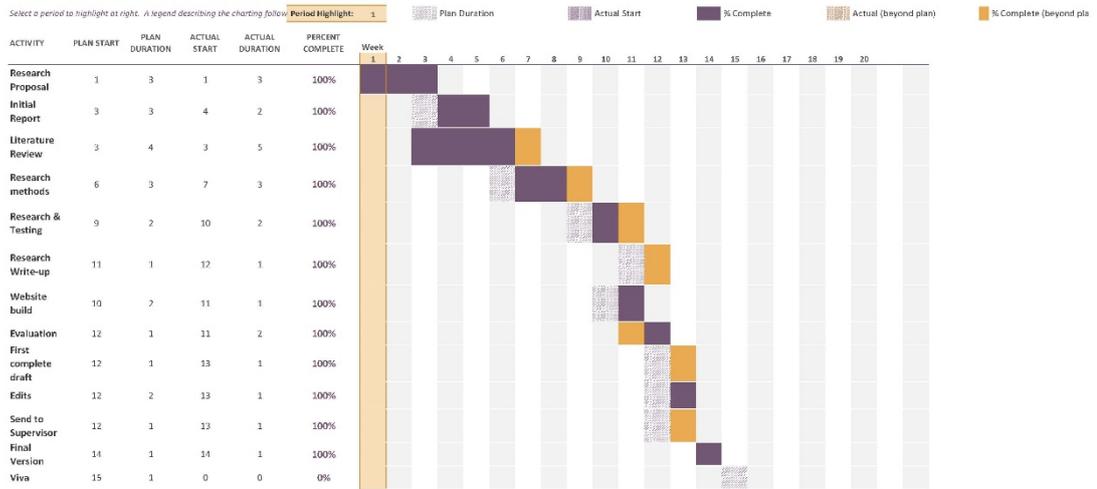
Does this project have any issues of confidentiality or intellectual property? (YES/NO)	No
--	----

## 10. **Submitting your proposal**

1. Please save this file using your surname, e.g. macdonald\_proposal.docx, and e-mail it to your supervisor, who will discuss it with you and suggest possible improvements.
2. When your supervisor is content with your proposal, submit it to the Research Proposal Upload link on Moodle, and email your internal examiner to notify them that you have submitted. They will leave feedback for you on Moodle.
3. Discuss your feedback from the internal examiner with your supervisor and if necessary make final changes to your proposal.
4. When you produce your dissertation, add your finalised proposal as an appendix.

## 9.2 Appendix 2 - Gantt Chart Project Planner

### MSc Dissertation Planner



### 9.3 Appendix 3 - Example of Consent Form

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so. Please read the following and confirm if you agree with what it says.

1. I freely and voluntarily consent to be a participant in this research to be conducted by Shannon Murray, who is a postgraduate student in the Edinburgh Napier School of Computing.
2. I have been informed of the broad goal of this research study. I have been told what is expected of me and that the study should take no longer than 10 minutes to complete.
3. I have been told that my responses will be anonymised. I understand that parts my comments may be used throughout the report but that such quotes will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher. I have been told that these data may be submitted for publication.
4. I also understand that if at any time during the survey if I feel unable or unwilling to continue, I am free to exit the survey. That is, my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the survey and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study. Confirming I agree is not a waiver of any legal rights. Furthermore, I understand that I will be able to ask for a copy of this consent form for my records.

Please confirm you have read the above and give permission for the data you provide to be used anonymously as part of this research project

Yes

No

## 9.4 Appendix 4 - Survey Questions

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so. Please read the following and confirm if you agree with what it says.

1. I freely and voluntarily consent to be a participant in this research to be conducted by Shannon Murray, who is a postgraduate student in the Edinburgh Napier School of Computing.
2. I have been informed of the broad goal of this research study. I have been told what is expected of me and that the study should take no longer than 10 minutes to complete.
3. I have been told that my responses will be anonymised. I understand that parts my comments may be used throughout the report but that such quotes will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher. I have been told that these data may be submitted for publication.
4. I also understand that if at any time during the survey if I feel unable or unwilling to continue, I am free to exit the survey. That is, my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the survey and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study. Confirming I agree is not a waiver of any legal rights. Furthermore, I understand that I will be able to ask for a copy of this consent form for my records.

**Q1. Please confirm you have read the above and give permission for the data you provide to be used anonymously as part of this research project**

Yes

No

**Q.2 Where do you live?**

Fasnakyle/Glen Affric area

Within one hour of Fasnakyle/Glen Affric area

Highland & Islands

Scotland

Elsewhere in the UK

**Q3. If you do not currently live in the Fasnakyle/Glen Affric area have you ever lived in within an hour of this area?**

Yes

No

**Q4. On Average how often do you visit the Fasnakyle/Glen Affric area?**

Every day

A few times a week

About once a week

A few times a month

Once a month

Less than once a month

Never (Please skip to question 6)

**Q5. What do you do when you visit the area? Select all that apply**

Visit historical or cultural attractions

Hiking

Mountain biking

Fishing

Work

Other (please specify)

**Q6. To which gender identity do you most identify?**

Female

Male

Transgender Female

Transgender Male

Gender Variant/Non-Conforming

Prefer not to answer

Other (Not listed – please specify)

**Q7. What is your age?**

18 to 24

25 to 34

35 to 44

45 to 54

55 to 64

65 to 74

75 or older

Prefer not to say

**Q8. How familiar are you with the history of Fasnakyle Church?**

Extremely familiar

Very familiar

Somewhat familiar

Not so familiar

Not at all familiar

**Q9. Have you ever visited Fasnakyle Church?**

Yes

No (please skip to question 11)

**Q10. What comes to mind when you think about Fasnakyle Church?**

Free text box

**Q11. If Fasnakyle Church was to be developed into a community space what would you like to see on offer?**

Free text box

**Q12. If Fasnakyle Church was to be developed into a community space how important is it to you that the space is restored in a sustainable way?**

Extremely important

Very important

Somewhat important

Not so important

Not at all important

**Q13. To what extent do you agree that people should be seeking sustainable ways of living or working?**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q14. To what extent do you agree green energy technologies should be embraced by the local community**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q15. Do you agree with the use of eco-friendly technologies such as solar panels being integrated with historical building?**

Yes

No

**Q16. Why do you feel this way?**

Free text box

**Q17. Do you have any other comments on the potential development of Fasnakyle Church?**

Free text box

**Q18. If there was a way to engage online with a potential development project for Fasnakyle Church how would you prefer to engage with it?**

Its own website

Through Facebook

Through Twitter

With Instagram

Other (please specify)

**Q19. Would you be willing to contribute stories, ideas and/or pictures to an online platform for Fasnakyle Church?**

Yes

No

**Q20. Is there anything else you would want to see from an online platform for Fasnakyle Church?**

Free text box

## 9.5 Appendix 5 - Example Survey Facebook Post

 **Shannon Murray** shared a link.  
11 July at 16:21 · 🌐

Hello everyone,  
I am conducting some research for my MSc dissertation and I would really appreciate it if you could take some time to fill in this survey - <https://www.surveymonkey.co.uk/r/fasnakyle-church-survey>. I have posted the survey on a couple of other community pages so if you have already completed it thank you! If you haven't it should take a maximum of 10 minutes to complete and it would be a huge help to me. I'm trying to collect ideas for how Fasnakyle Church could be developed and if it is possible to do this in a sustainable way. Please note this project is in no way affiliated with any electricity providers/operators. It is purely designed to gather thoughts and feelings from the local community and I have spoken to the building owner for permission to conduct this research.  
All responses are anonymous and if you have any questions about how the information will be used please feel free to drop me a message. I will be closing the survey on Friday 17th July.  
Thank you in advance!


SURVEYMONKEY.CO.UK  
**Fasnakyle Church Survey**  
Take this survey powered by surveymonkey.com. Create your...

## 9.6 Appendix 6 - Design Brief Transcription

### What would you like to see the space used for?

I would like to see it used for a range of different uses including as a venue for a social occasion, formal or otherwise, like a wedding or an informal social event. I don't want it to become a bar but a social event maybe for doing a class or a meeting space for local organisations or anything like that. I'd also like to fill it with creative energy if I can, that be artists and musicians and whoever had something to do with the arts. Then maybe something to do with the local heritage as well so that they have a space and are represented there in some way. I'd like it to be something original and different you know. I'd be open to suggestions, open to any suggestions within reason.

### How do you see people interacting with the space?

I don't really know how it will work. It depends what you've got to offer them in the building, I guess. If all you've got is a space, then it has to be a space that people want to be in. So, you make it open and light and airy, the spaces you can make open, light and airy and as welcoming as you can so the people want to hang there even if it's just for a coffee and somewhere to meet their pals or whatever. I can see older people using it as well if it is made welcoming. It should be able to span the whole community ideally. I don't want to exclude anybody, that means I don't want to exclude children or pensioners. I don't know how you do that, but I want everybody to think that they can use the building.

### What is the feeling you want the space to have? What do you want people to think when they are there?

I want them to be as comfortable as, ideally as comfortable and relaxed as they are in their own home. So, I don't want any kind of rules, I don't want a bunch of rules and regulations up on the wall. I want it to be as relaxed as it can possibly be. People will respect the place if they think they have a stake in it. Or they think it's in their interest to respect it. There might be food, but I wouldn't see it as being a big food outlet or trying to muscle in on anybody's ground. You wouldn't offer meals or anything. I can't see it going anywhere beyond coffee, tea and a snack and I would want the locals to get it for a reduced price.

### How would you know who is local and who isn't?

The people that work there would know. I would only employ local people as it needs to be bringing something to the community. They would know who the local people are. If the locals feel welcome and get a reasonable rate on these things or even if we give them to them for free, then they might want to put a donation in the box for the building. But I wouldn't want anyone to feel any pressure to do that. I wouldn't do an honesty box or anything like that. I wouldn't want people to feel obliged to donate. If they wanted to donate it needs to be a conscious effort on their part.

### Is there anything you would like to see in the building from a digital perspective integrated with the space?

I think something like an oculus rift that they had access to would be good fun. That would get the kids interested. I'd be into taking a bit of technology in, I would be into if it was possible, to have a small room where a movie could be projected or whatever. Or some kind of space where you can make presentations or film or music or whatever.

### What would you see the vestry space being used for?

I'm not sure, I see it as kind of separate. It could be a smaller more intimate space for a smaller group to meet like a meeting place for whether it be musicians or a small art group or something like that. Something that only had a small group, I mean it could be any size in there, you could probably comfortably put about 10 or 12 people in there. I don't want the bureaucracy that often comes with these types of venues, I don't want checklists and questionnaires about what people want to use the space for. I want people to be able to come to me and ask can we use the place for this, and I'll say yeah, leave the place as you found it and fill your boots.

### **How flexible would you see the building being?**

As flexible as it can be, but I would see it growing. I would see it beginning as something but then I would see it growing. There's enough space in there to create another floor above, to create a ground floor and a first floor and even an upper floor eventually. That space could be anything, it could be artist spaces or there could be a stage or it could be exhibition spaces. Or the ground floor could be exhibition spaces and the upper floor could be something else. I hope it could grow like that.

### **How would that growth be informed?**

I would probably be going by instinct on what was working and what wasn't and what I think people want. What I think bothers people about a lot of this stuff is how committees start to be formed around these types of places and start to exclude people based on nothing more than it's not "their thing". I would hope that we would be open to more radical ideas, for people that want to do something different.

### **What would you define as a radical idea?**

Em things that people might go somewhere else and they say "oh no we don't want to encourage that". Even if it something as simple as a life drawing class you know? Or someone says we want to have poetry readings there or whatever. I think I just want it to be as open as possible and to everyone. But it must be overseen by somebody who is wise enough to separate the time wasters from the serious people. Not that I want it to be a serious place at all, but I think the intent should be a serious one in as much as I want people to take it seriously. I don't care if somebody wants to do a comedy hour or something like that. I don't want it to be a bar but you could apply for a private function so people can bring alcohol. I want to be in charge of everything that happens there, but I hope I'm always going to be open to people coming to me and saying what about if we try this or do this. I'm open to any sincere and considered idea about what to do or what to use the building for. If people want to exhibit sculptures or artwork there, you know individuals that say can I show my art there for a week or a month then they can have the space, and without judgement. People will come at you with the most bizarre ideas so there has to be a filter, but I hope I would set the bar of rejection pretty low or high depending on how you look at it. I mean I get a lot of visitors there so there has to be a maximum; I don't want people using it as a sales point you know? But if someone says can I show my stuff here for a week and you say yes, and you don't charge them commission. The standard commission in an art shop is 50%, 60%, so if you can say put your stuff in here and then you can either leave it to them to make a donation based on what they sold or they can give you back nothing. If they give you back nothing and then they come to you again and ask if they can make use of the space again you would probably say no. Even if they only dropped a tenner in the box, I would let them come back but if they give nothing, they aren't respecting what we are trying to build in the space and community. There would be lots of people who would see it as an opportunity. They know how many visitors potentially that place can get, and we are talking about serious numbers. Again, you wouldn't put any pressure on the tourists

coming in. You would just there is a revolving exhibition there where you would just say the maximum, they can exhibit for is say a fortnight. So the artist can take the trouble, have a room put their prices up and for that service you might charge a service charge. If you sell nothing we will charge nothing. If you sell £500 we charge 5% or £1000 we will charge 10%. You could do something like that, so it is worth their while without pricing them out of it. So, they know they can exhibit there, and it will cost them nothing unless they sell something. You would make it a proper exhibitor space. But I would want control of that, just again to keep time wasters out because they are your biggest worry. I'm ready to look at anything and everything, I don't want it to get petty and political. As long as it was of a quality, I would show anything in that space. It doesn't necessarily have to be tourist orientated what is in there, and it may be if you start off that way that eventually you get noticed as an interesting place to see art. If you control the quality, then word of mouth will spread.

**Is it important to you that the build is sustainable?**

Yes, very. Very important.

**What would you see the church using from a sustainability perspective?**

I would see us getting all our energy from the SSE hydro scheme across the road. Or if that's not possible. I would see the south facing roof completely covered in photovoltaic panels. I see myself putting up a small windmill on the building, mounting it on the building, probably at the west end. Not a huge one just enough to tick over and be doing something. Then I see either a ground source heat pump heating underfloor heating or maybe 3 air source heat pumps or something like that. I don't see anything being burned there. If there was a bore hole put down a bore hole could be performing two functions, it could be a ground source heat pump and it could also be the water supply. Then again, the sustainability, if it's going to be a public building and it's going to absorb all the waste then some waste isn't a problem for dry toilets, but I accept most people do not want to use them, they just don't. So that's out of the question as that's not what people are used to. So where I see that going is you put in one of the modern water treatment plants so that any waste that is generated in the Church and by that building goes down to the bottom end of the plot where the burn is and any water that goes into the river system is clean water. You aren't discharging any grey water into the system at all. It's all clean water. It would be done with SEPA, so they approved it.

**Do you have any concerns about putting things like solar panels on the building?**

No – I think you have to live in the time you live in. The building is here, its 2020 and these are the technologies, and these are the options that are available now. If they had been available, then they would have used them. I don't want this to be about some kind of fake idea about what tradition dictates. There are people that don't understand these things. When there is a mature tree and the mature tree is starting to die off and they say "don't cut it down, don't cut it down", I say "cut the b\*\*\*\*\* down and use the wood." You know? That's the sensible thing to do. Not wait for it to rot and then bits to fall off. Make use of it if you can, the tree has had its life. But there are people out there that won't let these things happen because they are resistant to change. The older people get, the more they tend to cling to this nostalgic idea that there was a better world when they were young.

**Is there anything else we haven't covered that you would want to do with the building?**

I do want to put the circular window back. I know there is a sister window in Highland Council Storage. A rose window they call it. But it would have to be behind another piece of glass, it would almost be like the window was secondary glazing. You would have to put something like they do in the churches now where they protect the stain glass by putting another piece of glazing in front of it. That would have to be done there because if you put a wooden window on that side of the building and that's the weather side. It's the south-west side that gets the heat. It gets the wind. It gets the lashing rain. It gets the elements. At the church the only wall that hasn't been repointed is the one with the door in it, because it's the east wall and it sees the least extremes of weather. Our prevailing wind is south-westerly that's where most of our weather comes from. The east side doesn't get the sun, doesn't get the wind or the rain, it gets them, but they don't lash against it. The result is after 150 years it's still virtually brand new and the other sides have all been pointed. Cause the weather has destroyed them.

**Would have the glass pane on the outside?**

Yeah, so you would put the window up, but you would have a glazed unit in front of it and that would have to happen to protect the window. It would have to be a double-glazed unit. You can do that, it's not a horrendous size, it's seven feet I think it is, off the top of my head. It's a seven-foot window, well you can go to one of the glazing companies and ask them to make a seven-foot circular window and they'll make it. I want to have the sunshine through that window one day.

## 9.7 Appendix 7 - Expert Evaluation Questions

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so. Please read the following and confirm if you agree with what it says.

1. I freely and voluntarily consent to be a participant in this research to be conducted by Shannon Murray, who is a postgraduate student in the Edinburgh Napier School of Computing.
2. I have been informed of the broad goal of this research study. I have been told what is expected of me and that the study should take no longer than 10 minutes to complete.
3. I have been told that my responses will be anonymised. I understand that parts my comments may be used throughout the report but that such quotes will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher. I have been told that these data may be submitted for publication.
4. I also understand that if at any time during the expert evaluation if I feel unable or unwilling to continue, I am free to exit the survey. That is, my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the expert evaluation and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study.

Confirming I agree is not a waiver of any legal rights. Furthermore, I understand that I will be able to ask for a copy of this consent form for my records.

**Q1. Please confirm you have read the above and give permission for the data you provide to be used anonymously as part of this research project**

Yes

No

Scenario

You are from the Glen Affric area but have not lived in there for over 10 years. You move back to the area and notice the Fasnakyle Church building seems to be well cared for compared to the last time you saw it. You decide to look it up online to find out more about the building, the work that has been undertaken to restore it and what it is being used for, if anything.

Prototype One - <https://ch3x49.axshare.com>

**Q2. Heuristic Evaluation - please select three potential problem areas with Prototype One**

1. Visibility
2. Consistency
3. Familiarity
4. Affordances
5. Navigation
6. Control
7. Feedback
8. Recovery
9. Constraints
10. Flexibility
11. Style
12. Conviviality

**Q3. Please provide a severity rating on a scale of 1 – 3 (3 being most severe) for each of the heuristics you picked above (prototype one)**

Heuristic 1 – Free text

Heuristic 2 – Free text

Heuristic 3 – Free text

**Q4. Please provide a comment for why you rated each heuristic this way and any possible solutions to problems identified (prototype one)**

Heuristic 1 – Free text

Heuristic 2 – Free text

Heuristic 3 – Free text

Prototype Two - <https://pmxfed.axshare.com>

**Q5. Heuristic Evaluation - please select three potential problem areas with Prototype Two**

1. Visibility
2. Consistency
3. Familiarity
4. Affordances
5. Navigation
6. Control
7. Feedback
8. Recovery
9. Constraints
10. Flexibility
11. Style
12. Conviviality

**Q6. Please provide a severity rating on a scale of 1 - 3 (3 being most severe) for each of the heuristics you picked above (prototype two)**

Heuristic 1 – Free text

Heuristic 2 – Free text

Heuristic 3 – Free text

**Q7. Please provide a comment for why you rated each heuristic this way and any possible solutions to problems identified (prototype two)**

Heuristic 1 – Free text

Heuristic 2 – Free text

Heuristic 3 – Free text

**Q8. Overall I prefer:**

Prototype one

Prototype two

**Q9. Why?**

Free Text

**Q10. Are there any aspects from the prototype that you least liked that you think should be incorporated into the final website**

Free Text

**Q11. Any other comments**

Free Text

## 9.8 Appendix 8 - Facebook Post for Website Evaluation



Tomich Residents Association

New activity ▾



Shannon Murray shared a link.

4 m · 🌐



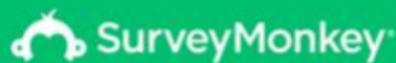
Hi everyone,

I hope you are all well.

Firstly I'd like to thank everyone that took part in my first online survey, the feedback I received was very useful for my project. For the final part of my dissertation I have created a website for Fasnakyle Church. I am looking for volunteers to visit the website, explore it and then complete two questionnaires. The first is a usability rating survey and the second is an aesthetic rating survey. If anyone has time to review the website and complete these surveys I would really appreciate it. The website is <https://fasnakylechurch.co.uk/> and the surveys are available through this link - <https://www.surveymonkey.co.uk/r/CSCF9RB>. The two surveys should take no more than 10 minutes to complete.

Many thanks again in advance,

Shannon



## 9.9 Appendix 9 - Fasnakyle Church Website SUS Questionnaire

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so. Please read the following and confirm if you agree with what it says.

1. I freely and voluntarily consent to be a participant in this research to be conducted by Shannon Murray, who is a postgraduate student in the Edinburgh Napier School of Computing.
2. I have been informed of the broad goal of this research study. I have been told what is expected of me and that the study should take no longer than 5 minutes to complete.
3. I have been told that my responses will be anonymised. I understand that parts of my comments may be used throughout the report but that such quotes will be anonymised. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher. I have been told that these data may be submitted for publication.
4. I also understand that if at any time during the system usability scale and AttrakDiff surveys if I feel unable or unwilling to continue, I am free to exit the survey. That is, my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the expert evaluation and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study. Confirming I agree is not a waiver of any legal rights. Furthermore, I understand that I will be able to ask for a copy of this consent form for my records.

**Q1. Please confirm you have read the above and give permission for the data you provide to be used anonymously as part of this research project**

Yes

No

Fasnakyle Website Usability Surveys

Please take some time to explore the website for Fasnakyle Church and its usability.

Website - <https://fasnakylechurch.co.uk/>

**Q2. I think I would like to use the Fasnakyle Church website frequently**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q3. I found the Fasnakyle Church website unnecessarily complex**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q4. I thought the Fasnakyle Church website was easy to use**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q5. I think that I would need the support of a technical person to be able to use the Fasnakyle Church website**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q6. I found the various functions available on the Fasnakyle Church website were well integrated**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q7. I thought there was too much inconsistency in the Fasnakyle Church website**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q8. I would imagine that most people would learn to use the Fasnakyle Church website very quickly**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q9. I found the Fasnakyle Church website very cumbersome to use**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q10. I felt very confident using the Fasnakyle Church website**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Q11. I needed to learn a lot of things before I could get going with the Fasnakyle Church website**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**12. Please provide any other comments about this website**

Free text box

## 9.10 Appendix 10 - Design Brief consent form

Edinburgh Napier University requires that all persons who participate in research studies give their consent to do so. Please read the following and confirm if you agree with what it says.

1. I freely and voluntarily consent to be a participant in this research to be conducted by Shannon Murray, who is a postgraduate student in the Edinburgh Napier School of Computing.
2. I have been informed of the broad goal of this research study. I have been told what is expected of me and that the study should take no longer than 30 minutes to complete.
3. I have been told that my responses will be recorded for the purposes of a transcription. I understand that parts my comments may be used throughout the report. I understand that as it is known I am the builder owner it is difficult to anonymise my data but my name will not be mentioned in the report. I have been told that these data may be submitted for publication.
4. I also understand that if at any time during the interview if I feel unable or unwilling to continue, I am free to exit the interview. That is, my participation in this study is completely voluntary, and I may withdraw from it at any time without negative consequences.
5. In addition, should I not wish to answer any particular question or questions, I am free to decline.
6. I have been given the opportunity to ask questions regarding the design brief and my questions have been answered to my satisfaction.
7. I have read and understand the above and consent to participate in this study. Confirming I agree is not a waiver of any legal rights. Furthermore, I understand that I will be able to ask for a copy of this consent form for my records.

**Q1. Please confirm you have read the above and give permission for the data you provide to be used anonymously as part of this research project**

Yes

No

If you have any questions about the above information, please contact Shannon Murray - [40124051@live.napier.ac.uk](mailto:40124051@live.napier.ac.uk)

**Q2. Please confirm your name and as a digital signature which states you consent to take part in this study.**

Free text box

## 9.11 Appendix 11 - Ethical Approval Form

### Application for Cross-University Ethical Approval

#### 1. Research Details

<b>Name:</b>	Shannon Murray
<b>School or Professional service department:</b>	School of Computing
<b>Email:</b>	40124051@live.napier.ac.uk
<b>Contact number:</b>	
<b>Project Title:</b>	Developing a Sustainable Design Fiction for Fasnakyle Church
<b>Start Date:</b>	May 2020
<b>Duration of Project:</b>	3 months
<b>Type of Research: Taught PG/Masters</b>	

#### 2. Screening Questions

Please answer the following questions to identify the level of risk in the proposed project:

**If you answer 'No' to all questions, please complete Section 3a only.**

**If you have answered 'Yes' to any of the questions 5-14 please complete Section 3a and 3b.**

**If you have answered 'Yes to any of the questions 1-4, complete all of Section 3.**

You Must Answer All Questions		Yes	No
1.	Is the research clinical in nature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Is the research investigating socially or culturally 'controversial' topics (for example pornography, extremist politics, or illegal activities)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Will any covert research method be used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.	Will the research involve deliberately misleading participants (deception) in any way?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	Does the Research involve staff or students within the University?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.	Does the Research involve vulnerable people? (For example people under 18 or over 70 years of age, disabled (either physically or mentally), those with learning difficulties, people in custody, migrants etc).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	Is the information gathered from participants of a sensitive or personal nature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.	Have you identified any potential risks to the researcher in carrying out the research? (for example physical/emotional/social/economic risks?)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10.	Are there implications from a current or previous professional relationship i.e. staff/student/line manager/managerial position that would affect the voluntary nature of the participation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.	Will the research require the use of assumed consent rather than informed consent? (For example when it may be impossible to obtain informed consent due to the setting for the research – e.g. observational studies/videoing/photography within a public space)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12.	Is there any risk to respondents' anonymity in any report/thesis/publication from the research, even if real names are not used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13.	Will any payment or reward be made to participants, beyond reimbursement or out-of-pocket expenses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

14.	Does the research require external ethics clearance? (For example from the NHS or another institution)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15.	Does the research involve the use of secondary data?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3A. Details of Project

In this section please provide details of your project and outline data collection methods, how participant consent will be given as well as details of storage and dissemination.

**Please give a 300 word overview of the research project**

**This project is concerned with collecting data from local communities near Fasnakyle Church to inform how the building could be developed. The building was bought in 2010 and was brought back from the point of dereliction. The Church has been a building of interest to the research for a number of years and they approached the building owner to ask if the research project could focus on the development of it from a user experience point of view drawing on the feelings and opinions of the local community. The research will involve online surveys the community can opt in to completing. There will also be a practical element to the dissertation that will involve expert evaluation and due to time constraints, the researcher will ask fellow students to complete this evaluation. As user experience is about constant feedback the local community will also be asked for feedback through another online survey or set of surveys. The project will also include a design brief from the building owner to get their perspective. As it is well known in the community who owns the building it is not possible to protect the anonymity of the building owner, however they were informed of this and consented to be a part of the study.**

#### **Data Collection**

**1. Who will be the participants in the research?**

Local residents of Drumnadrochit, Cannich, Tomich.

	<p>Fellow UX students – for expert evaluation</p> <p>Building owner – anonymity cannot be protected</p>
<b>2.</b>	<b>How will you collect and analyse the research data? (please outline all methods e.g. questionnaires/focus groups/internet searches/literature searches/interviews/observation)</b>
	<p>Online surveys</p> <p>Online interview with building owner</p>
<b>3.</b>	<b>Where will the data will be gathered (e.g. in the classroom/on the street/telephone/on-line)</b>
	Online survey tool
<b>4.</b>	<b>Please describe your selection criteria for inclusion of participants in the study</b>
	<p>Live in the local community for research survey</p> <p>Undertaken UX pathway for expert evaluation</p> <p>Owns building for design brief</p>
<b>5.</b>	<b>If your research is based on secondary data, please outline the source, validity and reliability of the data set</b>
	N/A

<b>Consent and Participant Information</b>	
<b>7.</b>	<b>How will you invite research participants to take part in the study? (e.g. letter/email/asked in lecture)</b>
	<p>Facebook posts for survey</p> <p>Emails to experts</p> <p>Email to building owner</p>
<b>8.</b>	<b>How will you explain the nature and purpose of the research to participants?</b>
	The purpose is within the consent forms and at the top of every question page
<b>9.</b>	<b>How will you record obtaining informed consent from your participants?</b>
	Part of the surveys, the building owner was sent a different consent form as their anonymity was at risk
<b>Data storage and Dissemination</b>	
<b>10.</b>	<b>How and in what format will data be stored? And what steps will be taken to ensure data is stored securely?</b>
	Stored on a secure external hard-drive
<b>11.</b>	<b>Who will have access to the data?</b>
	The researcher and internal markers

<b>12.</b>	<b>Will the data be anonymised so that files contain no information that could be linked to any participant?</b>
	<b>For everything expect the building owner design brief</b>
<b>13.</b>	<b>How long will the data be kept?</b>
	<b>Until the dissertation is marked</b>
<b>14.</b>	<b>What will be done with the data at the end of the project?</b>
	<b>Destroyed</b>
<b>15.</b>	<b>How will the findings be disseminated?</b>
<b>16.</b>	<b>Will any individual be identifiable in the findings?</b>
	<b>No</b>

### **3B. Identification and Mitigation of Potential risks**

This section is designed to identify any realistic risks to the participants and how you propose to deal with it.

- 1. Does this research project involve working with potentially vulnerable individuals?**

Group	Yes	NO	Details (for example programme student enrolled on, or details of children's age/care situation, disability)
Students at Napier	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MSc Computing – User Experience pathway
Staff at ENU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Children under 18	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Elderly (over 70)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Disabled	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Migrant workers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Prisoners / people in custody	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Learning difficulties	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**2. If you are recruiting children (under 18 years) or people who are otherwise unable to give informed consent, please give full details of how you will obtain consent from parents, guardians, carers etc.**

N/A

**3. Please describe any identified risks to participants or the researcher as a result of this research being carried out**

N/A

- 4. Please describe what steps have been taken to reduce these identified risks? (for example providing contact details for appropriate support services (e.g. University Counselling, Samaritans), reminding participants of their right to withdraw and/or not answering questions, or providing a full debriefing to participants)**

N/A

- 5. If you plan to use assumed consent rather than informed consent please outline why this is necessary**

N/A

- 6. If payment or reward will be made to participants please justify that the amount and type are appropriate (for example the amount should not be so high that participants would be financially coerced into taking part, or that the type of reward is appropriate to the research topic).**

N/A

### **3C. Justification of High Risk Projects**

If you answered 'Yes' to the screening questions 1-4 this section asks for justification on the choice of research topic and methodology.

- 1. If you have answered yes to question 1 please give a full description of all medical procedures to be used within the research and provide evidence that the project has obtained NHS ethical approval.**

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- 2. If you have answered yes to questions 2 (research into a controversial topic) please provide a justification for your choice of research topic, and describe how you would deal with any potential issues arising from researching that topic.**

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- 3. If you have answered yes to questions 3 or 4 (use of deception or covert research methods) please provide a justification for your choice of methodology, and state how you will mitigate the risks associated with these approaches.**

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<b>Declaration</b>

<input checked="" type="checkbox"/>	I consider that this project has no significant ethical implications to be brought to the attention of Research Integrity Committee
<input type="checkbox"/>	I consider that this project may have significant ethical implications to be brought to the attention of the Research Integrity Committee
<b>Researcher Signature: S.Murray</b>	
<b>Date: 16/08/2020</b>	
<b>Supervisor: Callum Egan</b>	
<b>Date: 16/08/2020</b>	

### Checklist

All applications require the following to be submitted with the application form

<b>Participant Information Sheet</b>	<input checked="" type="checkbox"/>
<b>Informed Consent Form</b>	<input checked="" type="checkbox"/>
<b>Interview/Survey Questions</b>	<input checked="" type="checkbox"/>

## **9.12 Appendix 12 - Research Raw Data**

All survey research results can be accessed in their raw data form through the supplementary data added to Moodle – file name 40124051.zip