

**Art & Design Work-based Learning Project**

**Assignment Title: Professional Practice Project**

Programme: Professional Doctorate Art & Design

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#### **Professional Project Proposal**

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## **Professional Project Proposal**

Research on the application of virtual reality and augmented reality in the field of handicrafts

### **1. Introduction**

With the rapid development of information technology and the prevalence of the concept of a metaverse digital world, digitisation is now one of the main ways in which cultural heritage, intangible cultural heritage and natural and human landscapes are being preserved and disseminated. Among these, experiences such as immersion, interactivity and presence provided by virtual reality (VR) and augmented reality (AR) technologies offer ways to re-establish cultural objects and related living scenes. Both of these approaches might increase awareness and understanding of history and culture. Henan Province is located in a central region where the rich context of cultural history occupies an important place in China. Henan Province has taken various handicraft conservation measures and has achieved some results. However, the problems in terms of dissemination and innovation are also still relatively obvious. The problems are the lack of a holistic perspective, the lack of digital transformation of handicrafts' cultural and intangible heritage, and the lack of research into user needs and experiences.

In order to address these issues, the development of crafts in Henan Province needs to be combined with the reconstruction of digital technologies. Furthermore, to classify users, analyse their needs, assess their experiences and reach a user-driven development model. At the same time, this project would build a basic pathway for a

digital virtual experience of handicrafts, resulting in a system design. The project would explore the development of virtual reality and augmented reality technologies for display and interactive experiences in the field of crafts in Henan Province by using a mixed method of qualitative and quantitative approaches combined with constructivist cognitive theory, embodied cognition theory and mind flow theory, in order to provide a new development reference for the preservation, transmission and dissemination of the cultural field in Henan Province. I would develop and explain my project plan by introducing the project background, research purpose, research design, research content of the project, ethical considerations, expected outcomes and limitations.

## **2. Project Background**

The introduction of the metaverse concept and the gradual construction of digital scenarios have led to changes in the healthcare, military, education, entertainment and culture development paradigm. In the context of digital humanities, the preservation, transmission and innovation of crafts are more diversified due to the influence of emerging technologies and the rise of interdisciplinary research. Virtual reality (VR) has an immersive, interactive experience in our minds and imaginary virtual worlds (Curtis, 1997. Steuer, 1992. Jerald, 2015). the application of VR enables the reconstruction of multidimensional cultural spaces that allow users to feel and learn about the storytelling culture of the past. Virtual reality systems could be divided into non-immersive virtual reality, semi-immersive immersive virtual reality and immersive virtual reality. (citation needed) Augmented reality (AR) superimposes digital information on the natural world by enhancing the experienter's perception of the real-world environment (Berryman, 2012). Augmented reality could be divided

into augmented indoor reality and augmented outdoor reality.

Virtual reality and augmented reality have a wide scope of application in handicrafts as technology focuses on interaction and multiple forms of information exchange. the digital culture of VR and AR focuses explicitly on the research themes of the collection, recording, preservation, protection, display, dissemination, and game design. Digital exhibition halls and museums are the most widespread form of digitisation of handicrafts, with the collection of materials, scene modelling and interaction design creating a 3D digital exhibition hall with a realistic user experience and close to the original appearance. (Shehade, & Stylianou-Lambert, 2020. Shi Han, 2021. Errichiello et al., 2019. Zhu & Wang, 2022. Milosz, 2020) This form of the exhibition could increase the number of visitors and opportunities for cultural dissemination. VR and AR technologies could also immerse and immerse cultural learners more realistically, increasing their interest and awareness and maximising the learning effect of the user. (Ibañez-Etxeberria, 2020. Pagano et al., 2020. Petersen & Petkakis & Makransky, 2022, Baabdullah, et al. 2022)

In addition, some cultural heritage projects have introduced virtual characters in virtual environments through narrative structures, using storytelling and virtual character engagement to increase user engagement (Urban, 2020. Quattrini, 2020. Irshad & Perkis, 2020). In terms of increasing user engagement, most research has been conducted to increase the effectiveness of the user's interactive experience through game design interventions. (Smith & Walford & Jimenez-Bescos, 2019) In conclusion, the use of VR and AR offers more opportunities for the development of crafts.

### **3. Research Aims and Objectives and Research Questions**

**The aim of this project is to explore the feasibility of virtual reality and augmented reality applications in the field of handicrafts in Henan province.**

**Main Research Question (RQ0): How effective are VR and AR in the craft sector in Henan Province?**

Therefore, it seeks to achieve the following objectives and answer the corresponding research questions:

**Objective 1** - Identify the forms of application of virtual reality and augmented reality.

**RQ1:** What are the forms of application of VR and AR?

**RQ1A:** What are the appropriate application formats for crafts in VR and AR systems?

**RQ1B:** How do we establish application models for VR and AR systems suitable for handicrafts?

**Objective 2** - Integrate the cultural resources of embroidery and Jun porcelain in Henan Province. taking embroidery and Jun porcelain as examples.

**RQ2:** What are the cultural resources of embroidery and Jun porcelain in Henan Province?

**RQ2A:** What cultural resources could be digitised in the current situation and historical data of embroidery in Henan Province?

**RQ2B:** What cultural resources could be digitised from Jun porcelain's current and historical sources in Henan Province?

**Objective 3** - Discuss the relationship between users, stakeholders and other participants in the craft sector virtual reality systems and augmented reality applications.

**RQ3:** Who are the participants in virtual reality systems and augmented reality applications in the field of handicrafts?

**RQ3A:** Who are the users?

**RQ3B:** Who are the stakeholders?

**RQ3C:** What are the relationships between them?

**Objective 4** - analyse user needs and find the user journey map's touch points and pain points for virtual and augmented reality in the craft domain.

**RQ4:** What are the users' needs in virtual reality systems and augmented reality applications in the crafts sector?

**RQ4A:** What are the users' needs in virtual reality systems and augmented reality applications in the crafts sector?

**RQ4B:** What are the touchpoints and pain points before the user experience journey?

**RQ4C:** What are the touchpoints and pain points during the UX journey?

**RQ4D:** What are the touchpoints and pain points after the user experience journey?

**Objective 5** - Digitally modelling the handicrafts of Henan Province and designing scenarios and game designs for virtual experiences based on user needs.

**RQ5:** How do we digitally model the crafts of Henan Province and design interactive experiences?

**RQ5A:** How do digitally model the collated material?

**RQ5B:** How do we design interactive experiences based on users' needs?

**Objective 6** - Establish user-centred collaborative innovation for system design in applying VR and AR in handicrafts.

**RQ6:** What is the process of system design?

**RQ6A:** How could user-centred system design be demonstrated?

**RQ6B:** What are the relationships between the participants in system design?

**Objective 7** - Evaluate the user experience and improve the problems in system design for virtual interaction.

**RQ7:** How effect are virtual and augmented reality systems being used in the craft sector?

**RQ7A:** Which processes require updating and iteration in the system design of the application?

**RQ7B:** How could the system design of virtual interactions be improved based on user evaluation?

#### **4. Methodology**

This project would use research strategies such as empirical research, ethnography, narrative research and documentary research to conduct the research and build virtual scenarios and create a virtual and realistic system design. This section would describe the research design, specific data collection, data analysis, visual editing, and ethical considerations in research and project timelines.

#### **4.1 Research Design**

The research design for this project would address the research questions, and this project would use a mixed methods approach. Although mixed methods require more time and effort from the researcher, qualitative and quantitative research could each provide further evidence for the validity of the measurement instrument and play different roles in the construction phase of the instrument. A mixed qualitative and quantitative approach allows for better use of the strengths of each and improves the quality of research. Creswell proposes four strategies for mixed methods, and I would use a mixed method approach for embedded mixed method design. (Creswell,1998) Embedded mixed method design is a design in which one type of material plays a primary role, and another type of material provides a supporting, secondary role in a mixed design.

The reason for adopting a mixed method approach is that firstly my research project required a questionnaire to optimise the experimental subject group, and by using a mixed method study, this project could pinpoint the study's target population. The researcher could identify relevant users and stakeholders through both questionnaires and interviews. The second reason for choosing a mixed methods approach is that it would be used to test the validity of the measurement instrument, making the study more valid and credible. The third reason was to evaluate the validity of the intervention. Triangulation is done through different evaluation methods. The fourth advantage is to enhance the significance of the study, which includes statistical significance and applied significance. Statistical significance refers to how well the data support the research hypothesis, and applied significance refers to how it could be applied to the practice of handicrafts. Therefore, this project would

use a mixed method of qualitative and quantitative approaches to investigate the research questions. Data collection and analysis would be conducted through an Embedded mixed method design approach of quantitative methods of empirical research and qualitative methods such as ethnography, narrative research and documentary research. (Creswell,1998)

The data collection and analysis for this project were divided into three phases (pre-experience - experience - post-experience): the first phase was the collection and analysis of craft scenarios and artefacts before digital modelling; the second phase was the user experience phase after digital modelling and design, and the third phase was the user and stakeholder feedback and evaluation phase after the system design was established. All three phases simultaneously employ an embedded hybrid approach. Visual editing is the first stage of digital modelling for narrative game design after collecting and analysing craft materials. This project would use software such as Unity and Figma for interaction, IP and game design for visual design.

## **4.2 Data Collection and Analysis**

This project would use a mixed quantitative and qualitative research method to collect data. The target population is embroidery and ceramics-related craftspeople, different types of users (tourists, game enthusiasts, craft enthusiasts and professionals) and other stakeholders in Henan Province. The sample would be sampled by taking half of the original crafts users for the study and half by random sampling. Approximately 200 questionnaires would be administered, and approximately 30 people were interviewed and observed. An embedded mixed

method approach would be used for all three phases.

**The first phase (Phases1) was a collection, analysis, and design phase of craft scenarios and artefacts:**

**Phases1 (Data collection):** The preliminary data collection was to extract the general content of embroidery and junk. This phase is mainly based on literature collection and interview methods for qualitative research, supplemented by questionnaires for quantitative research. This project would collect documentation on embroidery and Jun porcelain and interview craftspeople to collect again on physical objects, production tools, production scenes and narrative content to supplement the field material already available from previous projects. In particular, information on narrative stories would be added again, including the characters and the plot of the stories related to the kiln god festival and the kiln opening ceremony. The questionnaire accepted for this project would adapt the UTAUT model, using a 5-point Likert scale for questionnaire design.

**Phases1 (Data analysis):** The first stage of data analysis is the analysis of craft-related data prior to digital modelling. The analysis method uses thematic and narrative analysis for the content of the collected literature analysis and interviews, and PLS regression analysis using SPSS for the questionnaire. This phase would use thematic analysis for the holistic content and narrative analysis for the narrative stories. The thematic analysis emphasises pinpointing, examining and recording themes or patterns in the data, analysing and extracting relevant content such as text, images and video information from the literature and field research. The narrative analysis focuses on the narrative's historical lineage and linguistic style and facilitates the analysis of the story content of this project. The data from the

questionnaire would be analysed using regression analysis, which could be used in situations where there are multiple dependent variables, and the regression step uses a decomposition of the independent variables to predict the value of the dependent variable (citation). The questionnaire would be also analysed between potential users, craftspeople and stakeholders to understand the expectations of what users want to experience in cultural and intangible heritage places through VR and AR and the weight of interest in the content of narrative experiences.

**Phases1 (Design):** The digital modelling and design phase would produce a 2D restoration rendering and then use the processed 3D laser scould data to create a computerised 3D virtual scene. This project would use Unity and Figma software for interaction, IP and game design. The design phase is an experience design based on the results of the data analysis, using the Double Diamond design process (Figure 1). The Double Diamond design process involves a discovery and definition phase (left diamond). The development and delivery phases are narrative structure, visual ideation, model building, task analysis, task flow, and drawing wireframes (Right Diamond).

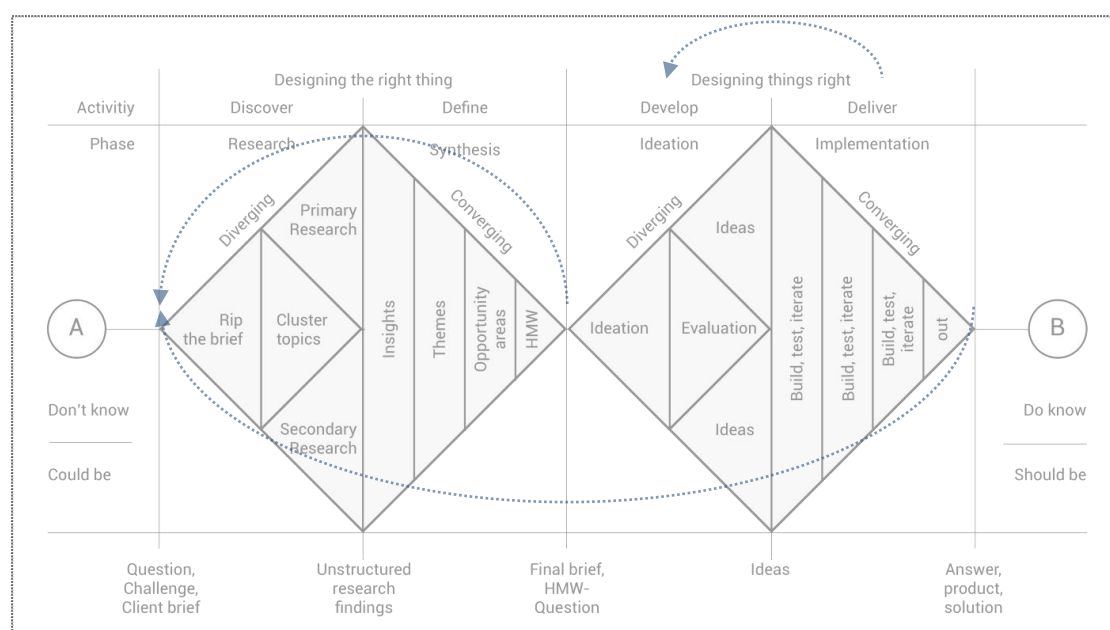


Figure 1. The Double Diamond design thinking process (Adopted from Dan Nessler, 2016).

**The second phase (Phases2) is the user experience phase following digital modelling and design:**

**Phases2 (Data collection):** data collection would be done through empirical research and observation methods as the primary method, and interview methods as the secondary method. The participant's experience was limited to 15 minutes, completing a narrative node to form a complete experience and to avoid vertigo if the participant wore the VR device for too long. Unlike Phase 1, this phase would be divided into VR and AR groups and would experiment with a multi-user social approach.

**Phases2 (Data analysis):** The results of the questionnaires, observations and interviews are analysed. The analysis method uses thematic analysis to analyse the content of the qualitative data. SmartPLS uses structural equations, validation of existing scales, usually with theoretical support and previous research, and regression analysis could be used in cases of multiple dependent variables.

**Phases2 (Design):** After analysing the data, this project phase involves collating stakeholder relationship maps, user journey maps for different users, user storyboards and finally, a model for the system's design. This phase is the delivery phase of the right diamond in the double diamond design process and the testing phase for user evaluation.

**The third phase (Phases3) is the feedback and evaluation phase for users and stakeholders after the system design would have been created.**

**Phases3 (Data collection):** Through questionnaires and interviews, users and

stakeholders evaluate the experience design and system design models, and users verify whether VR and AR are feasible and effective for cognitive purposes in the field of crafts in Henan Province. Because this phase is the feedback and evaluation phase, the sample is selected and grouped with the same research audience as in Phases3.

**Phases3 (Data analysis):** This data analysis phase provides an understanding of the critical points for digital transformation improvement, emphasising users' needs and experiences. The analysis methodology is the same as for Phases2.

**Phases3 (Design):** The iterative phase of testing in the double diamond design process (shown by the dashed arrows from figure 1) takes a cyclical and iterative approach, increasing user involvement in this phase to improve and optimise the system design model continuously.

#### **4.3 Ethical consideration**

The ethical considerations for this project are as follows:

1. All participants would be treated with respect, and the experiment would not cause stress or harm to the participants
2. Participants are informed that they are conducting a research study. Participation in the study is entirely voluntary, and the project would adopt an 'informed consent' strategy where the purpose and methods of the study would be explained to all participants. In addition, data would be collected with the consent of individual respondents for the audio recording of interviews and video recording of VR and AR experiences.
3. Confidentiality and anonymity would be observed in data collection and storage.

4. Participants have the right not to answer this question, and participants have the right to stop the experiment at any time.
5. The program would not deceive participants and would report results accurately.

#### 4.4 Timetable

The project would take approximately one year to implement (Figure 2), starting with data collection in September 2022 and completing the project in September 2023.

| Tasks to be completed                                                                                                                                                             | 2022-2023 |    |    |    |   |   |   |   |   |      |   |   |   |    |    |    |   |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|----|----|---|---|---|---|---|------|---|---|---|----|----|----|---|---|
|                                                                                                                                                                                   | 2022      |    |    |    |   |   |   |   |   | 2023 |   |   |   |    |    |    |   |   |
|                                                                                                                                                                                   | 9         | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6    | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| Task 1:<br>Data collection for the project<br>(Literature, questionnaires and interviews)<br>Information on cultural heritage and intangible cultural heritage<br>Draft writing 1 | ●         | ●  |    |    |   |   |   |   |   |      |   |   |   |    |    |    |   |   |
| Task2:<br>Data analysis of the project<br>Draft writing 2                                                                                                                         |           |    |    | ●  |   |   |   |   |   |      |   |   |   |    |    |    |   |   |
| Task3:<br>Digital transformation of scenes<br>(3D modelling)<br>Draft writing 3                                                                                                   |           |    |    |    | ● | ● | ● |   |   |      |   |   |   |    |    |    |   |   |
| Task4:<br>User Experience Survey<br>(questionnaire, interview method, observation method)<br>Draft writing 4                                                                      |           |    |    |    |   |   | ● | ● | ● |      |   |   |   |    |    |    |   |   |
| Task5:<br>Designing the Improvement Phase<br>Draft Writing 5                                                                                                                      |           |    |    |    |   |   |   |   |   |      | ● |   |   |    |    |    |   |   |
| Task6:<br>User Feedback<br>Draft Writing 5                                                                                                                                        |           |    |    |    |   |   |   |   |   |      |   | ● |   |    |    |    |   |   |
| Task7:<br>Complete system design<br>Completion of project paper writing                                                                                                           |           |    |    |    |   |   |   |   |   |      |   |   | ● | ●  |    |    |   |   |

Figure 2. Timetable

#### 5. Expected Results and Potential problems

This project aspires to create a user-centred route and model for digital transformation, application and evaluation for craftspeople and their stakeholders, focusing on the technologies of VR and AR. The project would verify whether participants' memories could be influenced by the ability to perform exploratory activities in an immersive AR and VR application. Measures the effectiveness of the immersive experience for the user, the virtual device's usability and the digital narrative's interest and learnability. From the user's point of view, the project expects to provide virtual scenarios of cultural objects, places and people in an experiential way that could evoke the user's attention to crafts. The project also expects to guide them on virtual journeys that show scenes of cultural heritage and intangible cultural heritage coming to life in different times and cultural contexts. Participants would be able to feel and see the culture of the past and its development in the present. Visitors would immerse themselves in storytelling scenes related to embroidery and Jun porcelain from the Tang, Song and Qing dynasties. The project would also collate the current status of digital applications of handicrafts and fill the gap in China's academic research on digital culture in Henan Province.

One of the potential problems is that the classification of users and the selection of subjects for the study might be unreasonable. The classification of user types needs careful review. Due to a large number of user types and the fragmentation of the study population, the project should pay attention to the reasonableness of the sample selection during the data collection phase. The second potential issue is that due to the limitations of the current technical solution, the challenge might be that the interaction might not be presented in the way that users expect the experience to be. The pre-determined storyline and interactive content might limit the user's navigation

through the virtual environment. In addition, the virtual environment does not provide the real-time feedback that users would expect based on their behavioural patterns, so the results might not always be as good as users would expect. However, this project would try to avoid these issues.

## **6. Conclusion**

This project would find the demand points of digital cultural objects by extracting cultural elements of intangible cultural heritage and cultural heritage in Henan Province and analysing users and stakeholders. In addition, a case study of embroidery and Jun porcelain would be used to design a digital experience of Henan culture and establish a collaborative innovation model with a user-centred system. Technologies such as VR and AR would be used to enable display and game design, and the system design for user experience is evaluated and improved. The project aspires to use user-driven concepts to enable VR and AR technologies to be applied to crafts, prompting crafts such as Jun porcelain culture and embroidery to find a logical niche in contemporary society. Through digital transformation and metaverse immersive experiences, more people would be able to understand Henan Province and experience its rich history. The project would build the first virtual digital scenarios of Henan's handicrafts while innovating the mode of participation, experience and dissemination of Henan's handicrafts to attract the younger generation to engage in the cultural field deeply. Precisely, the development path could move from real to virtual, as replication and enhanced rendering of the physical world, on the one hand, and from virtual to real, reaching a whole new stage of digital-real integration through the interaction between the metaverse and the real

world, on the other. The ultimate goal is the digital reproduction and dissemination of Henan's crafts in order to promote the protection and transmission of Henan's cultural heritage and intangible cultural heritage.

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## APPLICATION FOR ETHICAL APPROVAL

**In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.**

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

**Please read the notes for guidance before completing ALL sections of the form.**

**This form must be completed and approved prior to undertaking any research activity.** Please see Checklist for details of process for different categories of application.

### SECTION A: About You (Principal Researcher)

|                      |                                       |                                     |                             |                           |                                                                   |
|----------------------|---------------------------------------|-------------------------------------|-----------------------------|---------------------------|-------------------------------------------------------------------|
| 1                    | Full Name:                            | Yijing Li                           |                             |                           |                                                                   |
| 2                    | Tick all boxes that apply:            | Member of staff:                    | <input type="checkbox"/>    | Honorary research fellow: | <input type="checkbox"/>                                          |
|                      | Undergraduate Student                 | <input type="checkbox"/>            | Taught Postgraduate Student | <input type="checkbox"/>  | Postgraduate Research Student <input checked="" type="checkbox"/> |
| 3                    | Institute/Academic Discipline/Centre: | Art & Design                        |                             |                           |                                                                   |
| 4                    | Campus:                               | Swansea                             |                             |                           |                                                                   |
| 5                    | E-mail address:                       | 2009663@student.uwtsd.ac.uk         |                             |                           |                                                                   |
| 6                    | Contact Telephone Number:             | 008615836582726                     |                             |                           |                                                                   |
| <b>For students:</b> |                                       |                                     |                             |                           |                                                                   |
| 7                    | Student Number:                       | 2009663                             |                             |                           |                                                                   |
| 8                    | Programme of Study:                   | Professional Doctorate Art & Design |                             |                           |                                                                   |
| 9                    | Director of Studies/Supervisor:       | Robert                              |                             |                           |                                                                   |

## SECTION B: Approval for Research Activity

|   |                                                                                                                                                                                                              |                              |                          |             |  |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------|-------------|--|
| 1 | Has the research activity received approval in principle?<br>(please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual) | <b>YES</b>                   |                          | <b>NO</b>   |  |
|   |                                                                                                                                                                                                              |                              |                          | <b>Date</b> |  |
| 2 | If Yes, please indicate source of approval (and date where known):<br><b>Approval in principle must be obtained from the relevant source prior to seeking ethical approval</b>                               | Research Degrees Committee   | <input type="checkbox"/> |             |  |
|   |                                                                                                                                                                                                              | Institute Research Committee | <input type="checkbox"/> |             |  |
|   |                                                                                                                                                                                                              | Other (write in)             | <input type="checkbox"/> |             |  |

## SECTION C: Internal and External Ethical Guidance Materials

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, location-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. You may add rows to this table if needed. |
| 1 | <b>UWTSD Research Ethics &amp; Integrity Code of Practice</b> <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                        |
| 2 | <b>UWTSD Research Data Management Policy</b> <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                         |
| 3 | <i>Ethics in Scientific Research</i><br><i>An Examination of Ethical Principles and Emerging Topics</i> <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                              |

## SECTION D: External Collaborative Research Activity

If there are external collaborators then you should gain consent from the contact persons to share their personal data with the university. If there are no external collaborators then leave this section blank and continue to section E.

|   |                                                                                                             |                                                                         |                          |                          |                          |                          |
|---|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | Institution                                                                                                 |                                                                         |                          |                          |                          |                          |
| 2 | Contact person name                                                                                         |                                                                         |                          |                          |                          |                          |
| 3 | Contact person e-mail address                                                                               |                                                                         |                          |                          |                          |                          |
| 4 | Is your research externally funded?                                                                         | <b>YES</b>                                                              | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |                          |
| 5 | Are you in receipt of a KESS scholarship?                                                                   | <b>YES</b>                                                              | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |                          |
| 6 | Are you specifically employed to undertake this research in either a paid or voluntary capacity?            | Voluntary                                                               | <b>YES</b>               | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |
| 7 |                                                                                                             | Employed                                                                | <b>YES</b>               | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |
| 8 | Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)? | If YES then the permission question below does not need to be answered. | <b>YES</b>               | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |
| 9 | Has permission to undertake the research has been provided by the partner organisation?                     | (If YES attach copy)<br>If NO the application cannot continue           | <b>YES</b>               | <input type="checkbox"/> | <b>NO</b>                | <input type="checkbox"/> |

## Where research activity is carried out in collaboration with an external organisation

|    |                                                             |            |                          |           |                          |
|----|-------------------------------------------------------------|------------|--------------------------|-----------|--------------------------|
| 10 | Does this organisation have its own ethics approval system? | <b>YES</b> | <input type="checkbox"/> | <b>NO</b> | <input type="checkbox"/> |
|----|-------------------------------------------------------------|------------|--------------------------|-----------|--------------------------|

If Yes, please attach a copy of any final approval (or interim approval) from the organisation (this may be a copy of an email if appropriate).

## SECTION E: Details of Research Activity

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  |                    |            |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|------------|
| 1 | Indicative title:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Research on the application of virtual reality and augmented reality in the field of handicrafts |                    |            |
| 2 | Proposed start date:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | October 2022                                                                                     | Proposed end date: | March 2024 |
|   | <p><b>Introduction to the Research (maximum 300 words per section)</b></p> <p><b>Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the points below:</b></p> <p><i>Purpose of Research Activity</i><br/> <i>Proposed Research Question</i><br/> <i>Aims of Research Activity</i><br/> <i>Objectives of Research Activity</i></p> <p>Demonstrate, briefly, how <b>Existing Research</b> has informed the proposed activity and explain<br/> <i>What the research activity will add to the body of knowledge</i><br/> <i>How it addresses an area of importance.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                  |                    |            |
| 3 | <p><b>Purpose of Research Activity</b></p> <p>In the context of the digital humanities, the preservation, transmission and innovation of crafts are more diverse due to the influence of emerging technologies and the rise of interdisciplinary research. Virtual reality (VR) has an immersive, interactive experience that fully immerses participants in a virtual world (Curtis, 1997. Steuer, 1992. Jerald, 2015). Augmented reality (AR) superimposes digital information on the real world by enhancing the experienter's perception of the real world environment (Berryman, 2012). digital culture in VR and AR focuses explicitly on the collection, documentation, preservation, conservation, display, dissemination, and game design. These approaches can provide new directions for the conservation and development of crafts. Provide new directions. The literature review and current research found a lack of digital transformation of handicrafts in Henan Province. This project will build an essential pathway for the digital virtual experience of handicrafts and form a theoretical model for system design.</p> <p>In practical terms, the digitalisation of crafts in Henan Province will enable a fundamental transformation of crafts from a 'static display' to a 'dynamic communication' form of promotion. This format will increase awareness of the content of the craft. From a theoretical perspective, there is little research in Chinese digital culture focusing on VR and AR in handicrafts and their users. The establishment of the theoretical model of this study fills the gap in academia regarding the process and application effects of VR and AR in the digital transformation of handicrafts. In short, this research will form a user-centred experiential model for the digital transformation of handicrafts, providing a realistic and theoretical reference for handicraft stakeholders.</p> <p>(this box should expand as you type)</p> |                                                                                                  |                    |            |
| 4 | <p><b>Research Question</b></p> <p><b>RQ1:</b> What are the forms of application of VR and AR?<br/> <b>RQ2:</b> What are the cultural resources of embroidery and Jun porcelain in Henan Province?<br/> <b>RQ3:</b> Who are the participants in virtual reality systems and augmented reality applications in the field of handicrafts?<br/> <b>RQ4:</b> What are the users' needs in virtual reality systems and augmented reality applications in the crafts sector?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                  |                    |            |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p><b>RQ5:</b> How do we digitally model the crafts of Henan Province and design interactive experiences?</p> <p><b>RQ6:</b> What is the process of system design?</p> <p><b>RQ7:</b> How effect are virtual and augmented reality systems being used in the craft sector?</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 5 | <p><b>Aims of Research Activity</b></p> <p>This research aims to understand how effective virtual reality technology could be applied to handicrafts. A user-centred system design would be constructed to promote the application of virtual reality technology in handicrafts, providing different forms of utilisation according to the virtual reality system, and strengthening the integration of technology and art. This study aspired to use virtual reality and augmented reality technologies to reproduce and disseminate the craft field in Henan Province to promote the transmission and innovation of the overall intangible cultural heritage and cultural heritage and bring more possibilities for the inheritance of innovative development of handicrafts.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6 | <p><b>Objectives of Research Activity</b></p> <p><b>Objective 1</b> - Identify the forms of application of virtual reality and augmented reality.</p> <p><b>Objective 2</b> - Integrate the cultural resources of embroidery and Jun porcelain in Henan Province. taking embroidery and Jun porcelain as examples.</p> <p><b>Objective 3</b> - Discuss the relationship between users, stakeholders and other participants in the craft sector virtual reality systems and augmented reality applications.</p> <p><b>Objective 4</b> - Analyse user needs and find the user journey map's touch points and pain points for virtual and augmented reality in the craft domain.</p> <p><b>Objective 5</b> - Digitally modelling the handicrafts of Henan Province and designing scenarios and game designs for virtual experiences based on user needs.</p> <p><b>Objective 6</b> - Establish user-centred collaborative innovation for system design in applying VR and AR in handicrafts.</p> <p><b>Objective 7</b> - Evaluate the user experience and improve the problems in system design for virtual interaction.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                     |
|   | <p><b>Proposed methods (maximum 600 words)</b></p> <p>Provide a brief summary of all the methods that <b>may</b> be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7 | <p>This research will use a mixed method approach of quantitative and qualitative embedded mixed method design. This research would be conducted using strategies such as empirical research, ethnography, narrative research and literature research, and virtual scenarios to create virtual and realistic system designs. Both the collection and analysis of data for this project will be divided into three phases (pre-experience - experience - post-experience): the first phase is the collection and analysis of scenarios and artefacts of crafts before digital modelling. The methodology for this phase would be based on literature collection and interview methods as the primary methods, with questionnaires as a secondary method. The second stage is the user experience stage after digital modelling and design. The procedures in this phase are observation and questionnaires as the primary methods, with interviews as a secondary method. The third phase is the user and stakeholder feedback and evaluation phase after creating the system design. This phase uses questionnaire and interview methods. The questionnaire survey consisted of a modified design of the UTAUT model, using the (5-point Likert scale) for the questionnaire design. In addition, the qualitative research used NVivo for data analysis using thematic and narrative analysis and SPSS for regression</p> |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    |                                                                            |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------|
|    | <p>analysis of the data for the quantitative data. The visual editor was used for the design to digitally model and narrate the game interaction design after the first phase of craft data collection and analysis. This project used software such as Unity and Figma for interaction, IP and game design for visual design.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |                                                                            |
|    | <p><b>Location of research activity</b><br/>Identify all locations where research activity will take place.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    |                                                                            |
| 8  | <p>Henan Province, China</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    |                                                                            |
|    | <p><b>Research activity outside of the UK</b><br/>If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. If you live in the country where you will do the research then please state this.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |                                                                            |
| 9  | <p>The ethical and moral standards for research in China are similar to those in the UK, with the most significant ethical and moral standards being as follows.</p> <ol style="list-style-type: none"> <li>1. the principle of the disclosure. Generally, researchers should provide information about the research to the subject to help them decide whether to participate in the study. For example, information about who is conducting the investigation, the purpose and expected outcomes of the research, and who will benefit from the analysis.</li> <li>2. the principle of voluntary participation and non-maleficence, that they can withdraw from the study at any time and that there will be no adverse consequences for themselves. The informed consent form must detail all the risks the participating subject may assume. For participating subjects under 18, the informed consent form should be signed by their parents or legal guardians.</li> <li>3. Principle of anonymity and confidentiality. In scientific research, this is achieved through the dual principles of anonymity and privacy to protect the interests of the subject. However, the focus of anonymity may not be feasible in the context of interviews. In these cases, the researcher must maintain the confidentiality of the respondent's information, i.e. the researcher should ensure that the respondent's identity is not revealed in any report, paper or public forum. However, the respondent's corresponding answers can be identified.</li> <li>4. Analysis and reporting. Researchers also have an ethical responsibility to report how the data were analysed and reported. Unanticipated or adverse findings should also be fully disclosed, even if this leads to questions about the research design or results. Researchers should inform participants of the content of their analysis and reporting.</li> </ol> <p>(this box should expand as you type)</p> |                                    |                                                                            |
| 10 | Use of documentation not in the public domain: Are any documents <b>NOT</b> publicly available?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p><b>NO</b></p> <p><b>YES</b></p> | <p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p> |
| 11 | <p>If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with the current data protection law of the country in question and that of England and Wales.</p> <p>(this box should expand as you type)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                    |                                                                            |

|    | <b>Does your research relate to one or more of the seven aims of the Well-being of Future Generations (Wales) Act 2015?</b> | <b>YES</b>               | <b>NO</b>                           |
|----|-----------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| 12 | A prosperous Wales                                                                                                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13 | A resilient Wales                                                                                                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14 | A healthier Wales                                                                                                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15 | A more equal Wales                                                                                                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16 | A Wales of cohesive communities                                                                                             | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 17 | A Wales of vibrant culture and thriving Welsh language                                                                      | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 18 | A globally responsible Wales                                                                                                | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 19 | If YES to any of the above, please give details:                                                                            |                          |                                     |
|    | (this box should expand as you type)                                                                                        |                          |                                     |

## SECTION F: Scope of Research Activity

|    | <b>Will the research activity include:</b>                                                                                                      | <b>YES</b>                          | <b>NO</b>                           |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 1  | Use of a questionnaire or similar research instrument?                                                                                          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 2  | Use of interviews?                                                                                                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3  | Use of focus groups?                                                                                                                            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 4  | Use of participant diaries?                                                                                                                     | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5  | Use of video or audio recording?                                                                                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 6  | Use of computer-generated log files?                                                                                                            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7  | Participant observation with their knowledge?                                                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 8  | Participant observation without their knowledge?                                                                                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 9  | Access to personal or confidential information without the participants' specific consent?                                                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10 | Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11 | Performance of any acts which may cause embarrassment or affect self-esteem?                                                                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12 | Investigation of participants involved in illegal activities?                                                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13 | Use of procedures that involve deception?                                                                                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 14 | Administration of any substance, agent or placebo?                                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 15 | Working with live vertebrate animals?                                                                                                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 16 | Procedures that may have a negative impact on the environment?                                                                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 17 | Other primary data collection methods. Please indicate the type of data collection method(s) below.                                             |                                     |                                     |
|    | Details of any other primary data collection method:                                                                                            | <input type="checkbox"/>            | <input type="checkbox"/>            |

|                                      |  |  |
|--------------------------------------|--|--|
| (this box should expand as you type) |  |  |
|--------------------------------------|--|--|

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

### SECTION G: Intended Participants

If there are no participants then do not complete this section, but go directly to section H.

| Who are the intended participants: |                                                                                                                    | YES                                 | NO                                  |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 1                                  | Students or staff at the University?                                                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 2                                  | Adults (over the age of 18 and competent to give consent)?                                                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3                                  | Vulnerable adults?                                                                                                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 4                                  | Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5                                  | Prisoners?                                                                                                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 6                                  | Young offenders?                                                                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7                                  | Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8                                  | People engaged in illegal activities?                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 9                                  | Others. Please indicate the participants below, and specifically any group who may be unable to give consent.      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                                    | Details of any other participant groups:<br><br>(this box should expand as you type)                               |                                     |                                     |

| Participant numbers and source<br>Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited? |                                         |                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10                                                                                                                                                               | How many participants are expected?     | <p>There were approximately 200 participants in each phase of the questionnaire. The interviews are about 30 participants and the observation is about 30 participants .</p> <p>(this box should expand as you type)</p>                                                                                                                                              |
| 11                                                                                                                                                               | Who will the participants be?           | <p>Half of the participants in the questionnaires, observers and interviews were tourists, game enthusiasts, general consumers, dealers, designers, museum-related people, craft enthusiasts and professionals and other craft-related participants. The remaining half were random respondents to the questionnaire.</p> <p>(this box should expand as you type)</p> |
| 12                                                                                                                                                               | How will you identify the participants? | <p>Based on the researcher's previous research experience in intangible cultural heritage training projects, craftspeople already known and understood, users of crafters, museum-related</p>                                                                                                                                                                         |

|  |  |                                                                                                                                                                                                                                                                           |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p>personnel, universities, and others, were found as participants. The remaining half of the participants were users with no previous exposure or potential users interested in crafts or VR and AR technologies.</p> <p><i>(this box should expand as you type)</i></p> |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|    | Information for participants:                                                                                                                       | YES                                 | NO                       | N/A                      |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|
| 13 | Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?                          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14 | Will you tell participants that their participation is voluntary?                                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15 | Will you obtain written consent for participation?                                                                                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16 | Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17 | If the research is observational, will you ask participants for their consent to being observed?                                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18 | Will you tell participants that they may withdraw from the research at any time and for any reason?                                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19 | With questionnaires, will you give participants the option of omitting questions they do not want to answer?                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20 | Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21 | Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22 | If NO to any of above questions, please give an explanation                                                                                         |                                     |                          |                          |
|    | <i>(this box should expand as you type)</i>                                                                                                         |                                     |                          |                          |

|    | Information for participants:                                                                                                                      | YES                      | NO                                  | N/A                      |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|--------------------------|
| 24 | Will participants be paid?                                                                                                                         | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 25 | Is specialist electrical or other equipment to be used with participants?                                                                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 26 | Are there any financial or other interests to the investigator or University arising from this study?                                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 27 | Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 28 | If YES to any question, please provide full details                                                                                                |                          |                                     |                          |
|    | <i>(this box should expand as you type)</i>                                                                                                        |                          |                                     |                          |

## SECTION H: Anticipated Risks

|                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------|----|-------------------------------------|
| <p><b>Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.</b></p> <p>If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |
| 1                                                                                                                                                                                                                                                                                                                                                          | <p><b>Full risk assessment completed and appended?</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <table border="1"> <tr> <td>Yes</td><td><input type="checkbox"/></td></tr> <tr> <td>No</td><td><input checked="" type="checkbox"/></td></tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| Yes                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |
| No                                                                                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |
| 2                                                                                                                                                                                                                                                                                                                                                          | <p><b>Risks to participants</b><br/>For example: sector-specific health &amp; safety, emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |
|                                                                                                                                                                                                                                                                                                                                                            | <p>Risk to participants:</p> <p>1. Physical risks:<br/>Physical risks include the physical discomfort caused to participants during the research methods and procedures. Physical risks can arise from physical stimuli during the use of VR and AR technologies. The most likely risk of injury is the prolonged wearing of VR glasses during data collection, which may cause participants to feel dizzy.</p> <p>2. Psychological risks:<br/>Participants may become overly excited or have negative emotions during the VR and AR experience. Participants may also experience negative emotions in response to specific questions during the interview, such as shock, excitement, disappointment, anxiety, and so on.</p> <p>3. Social/Economic risks:<br/>Where there are power relations between participants, there may be social/economic risks. There may be competing interests between craftspeople, creating social and financial risks.</p> <p>4. Loss of Confidentiality<br/>In research, identifiable information must be kept confidential unless express permission is obtained from the subject. Subjects have a right to be protected from harm or unlawful intrusion into their privacy and to maintain their dignity. However, there may be instances where data is stored inappropriately, and others see research data.</p> <p><i>(this box should expand as you type)</i></p> | <p>How you will mitigate the risk to participants:</p> <p>1. Physical risks:<br/>Avoidance and mitigation of physical harm. In order to reduce physical discomfort to participants, the technology was evaluated before the start of the study. In addition, during the study of wearing VR, participants were asked regularly if they felt physically uncomfortable, the hours of wearing the VR glasses were set at a more reasonable wearing time, and the study process could be conducted as few times as possible.</p> <p>2. Psychological risks:<br/>Avoid and reduce excessive emotional reactions: The design of the VR and AR The VR and AR experience design was effectively evaluated to avoid excessive emotions in the participants. Evaluate the interview questions when setting up the interview questions, and try to avoid exaggerated emotional reactions from participants.</p> <p>3. Social/Economic risks.<br/>Avoid and reduce contact between stakeholders and analyse in advance whether there are power and competition relationships between participants.</p> <p>4. Loss of Confidentiality<br/>Particular attention should be paid to how data is stored and accessed. Only personal data necessary for the research activity should be collected to minimise the risk of compromise. If personal data must be collected, it should be encoded early in the movement and stored securely so that only investigators and authorised personnel can access it. In the case of data storage, the information is encrypted to ensure the security of the stored information.</p> <p><i>(this box should expand as you type)</i></p> |     |                          |    |                                     |
| 3                                                                                                                                                                                                                                                                                                                                                          | <p>If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                          |    |                                     |

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|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|   | The research activities will not involve criminal matters and will not include sensitive, embarrassing or disturbing topics. However, each person has a different perception and upbringing. Participants have the right not to answer basic questions in the broader context if they are considered sensitive topics by the participants.<br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4 | <b>Risks to the investigator</b><br>For example: personal health & safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|   | Risk to the investigator:<br><br>1. Physical harm<br>In ethnographic research, the risk of studying possible physical harm may come from three aspects of the research project: the location, the subject and the participants. All of these may be interrelated. Research conducted in a dangerous environment or location, where the researcher may incur the risk of being attacked by a member of the research team or in a hostile environment. It is also possible that being alone in the home of an unfamiliar participant may put the researcher in a potentially vulnerable situation.<br><br>2. Emotional risks<br>In the course of qualitative research confronting participants with emotional distress, distressing events or experiences of participants during fieldwork may be observed or heard during the investigation. There is also the potential for negative emotions about the dilemmas of the research during prolonged solitary research studies.<br><br><i>(this box should expand as you type)</i> | How you will mitigate the risk to the investigator:<br><br>1. physical harm<br>When choosing a location for interviews, the place's safety needs to be determined. The location of the research should be chosen in a safe public place as far as possible. It is essential to avoid and reduce aggression from members of the research team and to conduct the research in a standard and friendly atmosphere.<br><br>2. Emotional risks<br>Other topics can guide the possible emotional distress of the research subject. There needs to be a positive mindset towards dilemmas in the research process. Problems encountered in the research can also be discussed with fellow students, or professional guidance can be sought.<br><br><i>(this box should expand as you type)</i> |
| 5 | <b>University/institutional risks</b><br>For example: adverse publicity, financial loss, data protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|   | Risk to the University:<br><br>1. Adverse publicity<br>The researcher's image and behaviour sometimes represent others' perceptions of the school.<br><br>2. Data protection<br>Some of the school's data may have been leaked during the research—for example, school documents.<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | How you will mitigate the risk to the University:<br><br>1. Adverse publicity<br>The researcher's conduct is subject to strict ethical and moral standards, and the researcher is required to review ethical and moral standards carefully.<br><br>2. Data protection<br>Researchers need to be conscious of the need to protect school data, and documents can be encrypted.<br><br><i>(this box should expand as you type)</i>                                                                                                                                                                                                                                                                                                                                                        |
| 6 | <b>Environmental risks</b><br>For example: accidental spillage of pollutants, damage to local ecosystems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|   | Risk to the environment:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | How you will mitigate the risk to environment:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                                                                                                                                                     |                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. damage to local ecosystems<br>In the course of the survey, environmental pollution could be caused by travel.<br><br><i>(this box should expand as you type)</i> | 1. damage to local ecosystems<br>The research design is reviewed, and the frequency of travel for the survey is rationalised in the course of the research.<br><br><i>(this box should expand as you type)</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| <b>Disclosure and Barring Service</b> |                                                                                                                                                                                                                   |                          |                                     |                          |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|--------------------------|
|                                       | If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.                                   | <b>YES</b>               | <b>NO</b>                           | <b>N/A</b>               |
| 7                                     | Does your research require you to hold a current DBS Certificate?                                                                                                                                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8                                     | If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number. |                          |                                     |                          |

## **SECTION I: Feedback, Consent and Confidentiality**

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Feedback</b><br>What de-briefing and feedback will be provided to participants, how will this be done and when?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|   | <p>Feedback will be provided through online communication or face-to-face interaction. The input is presented in text, image and video formats. The authenticity of the data and the confidentiality and anonymity of the research will be made clear to participants in each study. In addition, unanticipated or adverse findings will be fully disclosed to participants, even if this leads to people questioning the study design or results.</p> <p>The timing of the feedback to participants is divided into three scenarios: In the first scenario: after the data information has been collected, the data information will be analysed within ten days. Once the data information has been studied, feedback will be given to the participants to interpret the findings. The second time point: feedback will be given to participants before the overall end of the study. The third time point: if the study is to be published, feedback will be given to participants before the study is published. In addition, the survey results are not a one-off delivery process, and data collection and analysis will need to be updated and iterated. Because this study is building a system design, the study will have a survey of user needs and experiences based on the Two Diamond model. This system design will need to go through iterative updates. Therefore, feedback will be provided to participants after each iteration.</p> <p><i>(this box should expand as you type)</i></p> |
| 2 | <b>Informed consent</b><br>Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|   | <p>Informed consent involves the following relevant elements.</p> <p>1. Consultative consent must convey information that may be important to an individual's willingness to participate. Researchers need to indicate to participants the purpose of the research, the expected outcomes of the study; the identity of the funder and sponsor; the intended use of the data; the possible benefits of the study and the possible harm or discomfort that may affect participants; issues relating to data storage and security; what the potential risks and benefits of their participation may be; and how anonymity and confidentiality issues will be managed. Potential research participants should also be made aware that they are not obliged to participate and can withdraw from the study if they change their mind about participating.</p> <p>2. The informed consent form needs to be signed before the study and needs to be signed in duplicate, one for the researcher to keep for themselves and one for the participant.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p>3. Consent in research is a process that may need to be renegotiated with participants over time. When technical data collection equipment such as audio/video recorders and photographic records could be used, research participants should be made aware of the capacity of such equipment. They should be free to refuse to use it.</p> <p>4. Conditions that constitute non-consent: Consent given after the research could be completed is not meaningful. In addition, the person being studied must have the legal capacity to consent. Suppose subjects could be legally compelled (for example, by their employer or the government) to participate in a study. In that case, the issues cannot be said to have given meaningful consent, and anthropologists are advised not to undertake the work. It involves providing participants with clear information about participation in the research project and allowing them to decide whether they want to participate.</p> <p>5. if the participant does not agree to participate in the research. The researcher can explain that the investigation is something that will protect privacy and will not waste too much time and that the stated participation may be very effective for the research.</p> <p>6. the research may need to communicate to participants the long-term timing of the anthropologist's use of their data and the possibility that unforeseen services or theoretical interests may arise in the future, as well as any chance that the data may be shared (in some form) with other colleagues or made available to sponsors, funders or other interested parties, or stored in an archive.</p> <p><i>(this box should expand as you type)</i></p>                                                                                                          |
| 3 | <p><b>Confidentiality / Anonymity</b><br/>Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|   | <p>The identity of research subjects in scientific research is protected through the dual principles of anonymity and confidentiality.</p> <p><b>Confidentiality</b><br/>Information about participants in the research process is not made available to others without permission. This is achieved through password-protected files, encryption when sending information over the internet, or direct offline copying. Confidentiality of data also includes not knowingly or unknowingly disclosing to others what is said during the data collection process in a way that may identify the individual. Personally identifiable information collected during the research process will not be disclosed, and the identity of research participants will be protected through procedures designed to anonymise them unless they specifically choose to be identified.</p> <p><b>Anonymity</b><br/>The principle of anonymity is applied in scientific research by not using identification numbers in questionnaires that identify specific subjects. Interviews are achieved through anonymity as applied to research participants, organisations and locations. Respondents are protected from harm by hiding their identities, and questions need to be addressed individually for each respondent. The researcher usually chooses pseudonyms. Although complete anonymity may be difficult to achieve, all identifying data is removed before publication if there is a need for publication. Also, research participants may wish to be identified in the research findings, and a mixture of real names and pseudonyms are used in publications, reflecting the participants' wishes. Therefore, it is possible to use the actual name when the participants in the study agree to it.</p> <p><i>(this box should expand as you type)</i></p> |

## SECTION J: Data Protection and Storage

|   | Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")? | YES                                 | NO                       |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|
| 1 | <b>"Personal data"</b> means any information relating to an identified or identifiable                                                                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                                     |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
|   | <i>natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any video or audio recordings of participants is considered to be personal data.</i>                                                                                                                                                                                                                                                                                                                                                        |                          |                                     |
|   | If YES, provide a description of the data and explain why this data needs to be collected:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                     |
| 2 | <p>During the data collection phase of the research process, audio and video recordings of interviews and participant observation may be undertaken. This is because important information needs to be recorded during the interview process. Still, the interview requires a conversation with the interviewee, and it would be impolite to keep your head down and take notes. It is also possible to interrupt the conversation while taking notes. Observations may miss out on capturing the behaviour and emotions of the interviewee because of the different perspectives. It is necessary to listen again to the audio recordings of the interviews and the videos that need to be observed to collect information again, and the data collected can be systematically collated.</p> <p><i>(this box should expand as you type)</i></p> |                          |                                     |
|   | Does it involve special category data (as defined by the GDPR)?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>YES</b>               | <b>NO</b>                           |
| 3 | <p><b>"Special category data"</b> means sensitive personal data consisting of information as to the data subjects' –</p> <p>(a) racial or ethnic origin,</p> <p>(b) political opinions,</p> <p>(c) religious beliefs or other beliefs of a similar nature,</p> <p>(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),</p> <p>(e) physical or mental health or condition,</p> <p>(f) sexual life,</p> <p>(g) genetics,</p> <p>(h) biometric data (as used for ID purposes),</p>                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|   | If YES, provide a description of the special category data and explain why this data needs to be collected:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |                                     |
| 4 | <p><i>(this box should expand as you type)</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                     |

|    | <b>Will data from the research activity (collected data, drafts of the thesis, or materials for publication) be stored in any of the following ways?</b>                                                                                                                                 | <b>YES</b>                          | <b>NO</b>                           |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 5  | Manual files (i.e. in paper form)?                                                                                                                                                                                                                                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 6  | University computers?                                                                                                                                                                                                                                                                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7  | Private company computers?                                                                                                                                                                                                                                                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8  | Home or other personal computers?                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 9  | Laptop computers/ CDs/ Portable disk-drives/ memory sticks?                                                                                                                                                                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10 | "Cloud" storage or websites?                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 11 | Other – specify:                                                                                                                                                                                                                                                                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12 | For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of backup procedures, password protection, encryption, anonymisation and pseudonymisation:                                                      |                                     |                                     |
|    | The research will be conducted using personal computers and cloud storage for text, image and video data. The backup method will be cloud-based and stored in the NVivo software. The software has terms and conditions that guarantee that user information will not be disclosed, that |                                     |                                     |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|  | <p>data will not be shared with others and that data storage is protected by law. Therefore, storage here should be safe. To ensure the security of the data collected, the confidentiality of the data on personal computers is kept in an encrypted form. In addition, information about the research subjects of the questionnaire will be anonymised and pseudonyms will be used for the participants of the interviews.</p> <p><i>(this box should expand as you type)</i></p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| <b>Data Protection</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |                                     |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
|                        | Will the research activity involve any of the following activities:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>YES</b>                          | <b>NO</b>                           |
| 13                     | Electronic transfer of data in any form?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 14                     | Sharing of data with others at the University outside of the immediate research team?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 15                     | Sharing of data with other organisations?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 16                     | Export of data outside the UK or importing of data from outside the UK?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 17                     | Use of personal addresses, postcodes, faxes, emails or telephone numbers?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 18                     | Publication of data that might allow identification of individuals?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 19                     | Use of data management system?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 20                     | Data archiving?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 21                     | <p>If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and Data Protection Act (2018) (and any international equivalents, where appropriate):</p> <p>1. Data may be transferred by mail. Transfer between personal electronic devices. It will not be transferred to other people.<br/> 2. Data will be archived. Data is archived in the NVIVO software and data is protected in accordance with the guidelines of the Australian Privacy Act 1988 (Cth), EU GDPR, UK GDPR, UK Data Protection Act 2018 etc. Any data stored in the archive here is protected and regulated by law.<br/> 3. To protect the data, after five years from the end of the study, most of the original data will be deleted, but some data relevant to future research may remain. This data will continue to be encrypted and will be stored offline by choice.</p> <p><i>(this box should expand as you type)</i></p> |                                     |                                     |
| 22                     | <p>List all who will have access to the data generated by the research activity:</p> <p>Researchers, participating subjects will have access to the raw data and data generated by the research activities. In addition, if the research needs to be published, the data analysis will be done with the consent of the participants and the analysed data will be freely accessible to the majority of people.</p> <p><i>(this box should expand as you type)</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |                                     |
| 23                     | <p>List who will have control of, and act as custodian(s) for, data generated by the research activity:</p> <p>The researcher himself, the participants would control the data. The data will be held by the researcher himself and the NVIVO website.</p> <p><i>(this box should expand as you type)</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                     |                                     |
| 24                     | <p>Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.</p> <p>The data will be stored using the researcher's personal computer, Nvivo software. The security measure to protect the data is the principle of encryption and anonymisation of the raw and</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |

|    |                                                                                                                                                                                                                                            |            |                          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|
|    | analysed data of the study. Storage will be for a period of 5 years after the end of the study. Archiving with NVIVO software.                                                                                                             |            |                          |
|    | <i>(this box should expand as you type)</i>                                                                                                                                                                                                |            |                          |
| 25 | Please indicate if your data will be stored in the UWTSD Research Data Repository (see <a href="https://researchdata.uwtsd.ac.uk/">https://researchdata.uwtsd.ac.uk/</a> ). If so please explain. <i>(Most relevant to academic staff)</i> |            |                          |
|    | No                                                                                                                                                                                                                                         |            |                          |
|    | <i>(this box should expand as you type)</i>                                                                                                                                                                                                |            |                          |
| 26 | Confirm that you have read the UWTSD guidance on data management (see <a href="https://www.uwtsd.ac.uk/library/research-data-management/">https://www.uwtsd.ac.uk/library/research-data-management/</a> )                                  | <b>YES</b> | <input type="checkbox"/> |
| 27 | Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding                                                                                                               | <b>YES</b> | <input type="checkbox"/> |

## SECTION K: Declaration

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                         |                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------|
| <p>The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants.</p> <p>In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: <a href="https://www.uwtsd.ac.uk/research/research-ethics/">https://www.uwtsd.ac.uk/research/research-ethics/</a></p> |                         |                                |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Signature of applicant: | <p>Date:</p> <p>2022.08.02</p> |

### For STUDENT Submissions:

|   |                                 |       |
|---|---------------------------------|-------|
| 2 | Director of Studies/Supervisor: | Date: |
| 3 | Signature:                      |       |

### For STAFF Submissions:

|   |                                    |       |
|---|------------------------------------|-------|
| 4 | Academic Director/ Assistant Dean: | Date: |
| 5 | Signature:                         |       |

**Checklist:** Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

|                                     |                                                                                                                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | I have read the guidance notes supplied before completing the form.                                                                                                                                                                                        |
| <input checked="" type="checkbox"/> | I have completed <b>ALL RELEVANT</b> sections of the form in full.                                                                                                                                                                                         |
| <input checked="" type="checkbox"/> | I confirm that the research activity has received approval in principle                                                                                                                                                                                    |
| <input checked="" type="checkbox"/> | I have attached a copy of final/interim approval from external organisation ( <b>where appropriate</b> )                                                                                                                                                   |
| <input checked="" type="checkbox"/> | I have attached a full risk assessment (where appropriate) <b>ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT</b>                                                                                                                                    |
| <input checked="" type="checkbox"/> | I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.                                                                                      |
| <input checked="" type="checkbox"/> | I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director. |

### RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to [pgresearch@uwtsd.ac.uk](mailto:pgresearch@uwtsd.ac.uk), with the title 'Ethical Approval' followed by your name. You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

**STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES** should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

This form is available electronically from the Academic Office web pages:  
<https://www.uwtsd.ac.uk/academic-office/appendices-and-forms/>