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3D immersive collection and teaching environments: the Yellow House project at UOW

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Keywords

project, house, 3d, uow, yellow, teaching, immersive, environments, collection


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This paper discusses the Yellow House VR project at the University of Wollongong. Innovative virtual reality technologies such as Oculus Rift are being utilised to recreate the 1970s Sydney artist community space known as the Yellow House, as both an historic replication and openly accessible, immersive teaching and learning environment for use and adaptation by teachers, students, researchers and the general community. The paper considers the role of the library in the enhanced presentation of digitised collections through new and evolving technologies that provide opportunities for knowledge enhancement and support the development of student e-portfolios.



Figure 1.0 Screen shot of the virtual reality simulation of the Stone Room from the Yellow House. Alpha prototype, 26 October 2015.

The Yellow House reimaged

The creation of new, 3D virtual reality (VR) technologies, such as the Oculus Rift recently purchased by Facebook, the HTC Vive and the Sony Project Morpheus, provides an opportunity for libraries to facilitate enhanced and ongoing engagement with teachers, students, researchers and the general community in the provision of access to collections. Digitised material can be presented in 3D virtual environments, which augment reality, enable new dimensions of information presentation and exploration, and operate as an interface to relate the experience of digitised resources to relevant historical contexts. Since the common adoption of the internet in the early 2000s, teaching and learning environments have demonstrated success with digital spaces and embodied avatars such as Second Life and other virtual worlds (Macedo and Morgado 2009). Rapidly evolving virtual and augmented reality technologies both allow, and support, the creation of walk-through 3D virtual environments, which take the participant into rooms and spaces that appear to be in both real time and real space. At the University of Wollongong (UOW), the Library, in association with academics and research students, is creating an interactive, 3D virtual representation of the Sydney artist community known as the Yellow House.

Set up in Macleay Street, Kings Cross, by Australian artist Martin Sharp in 1970, and running through to early 1973, it engaged with a steady stream of local, national and international artists and personalities who visited the three-storey terrace building and helped shape the artistic and cultural development of this experimental and communal space. Painting, music, theatre, film, puppetry, light shows and mixed-media performance saw expression upon, within and outside the Yellow House. Spaces such as the Stone Room (Figure 1.0) were filled with textured walls, artistic recreations of famous artworks such as *The Great Wave* by Hokusai, and sculptural pieces that became one with the immediate environment. Artists, including Sharp

and Brett Whiteley, filled the rooms of the Yellow House in such an eclectic manner, collaboratively or as an individual reflection of personal aesthetic and art historical preferences. Sharp's interest in Dada and Surrealism was reflected, for example, in reproductions on the walls of works by Rene Magritte and Marcel Duchamp.

The Yellow House was the brainchild of Sharp and filmmaker Albie Thoms, modelled on the failed artist community set up by Vincent van Gogh in Arles, France, during the late 1880s (Thoms 2012). Arising from discussions that took place between the two in London during 1969, Sharp returned to Sydney early in 1970 with the intention of mounting an exhibition at the Holdsworthy Gallery. When this fell through, in May he and some friends took over the derelict Clune Gallery in Potts Point and began the process of transforming the space. Over the next three years, the 3-storey terrace at 57-59 Macleay Street became the site of a living, breathing artist community. The exterior was painted yellow, and the interior became an art history museum, with the walls, ceiling and staircases painted and sculpted, and installations put in place to reflect the tastes and interests of anybody who cared to participate. Art, music, drama and film were created, performed and exhibited at the Yellow House by its residents and visitors until the doors were closed early in 1973. The building became an exhibition gallery, artist's studio, performance space, living quarters and meeting place.

Minimal research has been carried out on the Yellow House art collective to date, with only the 1990 Art Gallery of New South Wales exhibition catalogue *The Yellow House 1970-72* providing a readily accessible historic overview (Mendellson 1996). In addition, a number of blogs and websites make reference to the original Sydney Yellow House (Angeloro 2003, Caratacus 2006, Murray 2013, Gittoes 2015a & 2015b, Milesago 2014, Wikipedia 2014) whilst ephemeral publications from the period of its existence, recording its activities via pamphlets, newsletters, posters and catalogue, are rare (Sharp 1970 and 1971).

The re-creation of the Yellow House in a 3D VR environment will make use of contemporary photographic and audiovisual archives applied to technologies such as the Oculus Rift, to facilitate art historical, media, communication and graphic design studies. Resources related to the Yellow House include photographs taken in the Yellow House by photographer Greg Weight and artist George Gittoes, over 30 hours of film footage from Yellow TV produced by Albie Thoms, ABC television documentary and news footage, original building plans from the City of Sydney Council Archives, and oral history accounts by those involved. This material will be referenced to create a replica space in 3D and add original textures to that virtual space. The prototype developed for this project will, in the initial phase, enable students and researchers to interact with UOW Library collections focused on Australian counterculture art and publishing movements during the 1960s and 1970s. The project will also create an open access teaching and learning tool, which can be freely used, modified and adapted for a broad range of applications beyond recreation of the actual Sydney-based Yellow House.

Virtual reality and higher education

The primary aim of the Yellow House project is to provide an opportunity for students, academics and the public to engage with library and archival collections in

new, innovative and productive ways, and demonstrate the active application of curriculum-driven, technology-enhanced learning experiences. It will create an open access 3D, immersive and interactive VR gallery based on the Yellow House. Using Oculus Rift and similar VR technologies, students and researchers will enter the virtual Yellow House gallery and engage with its historic elements, learning from, and being actively stimulated by, the experience. In addition, they will be able to modify and adapt their own Yellow House room using the open data object created as part of the project. The VR experience will serve as a virtual gallery space for experimentation and collaborative experiences between academics and students, and as a means for experiencing not only the UOW Library's expanding digital collections, but also other relevant material brought to the space by the participants. In the first instance, the Yellow House VR gallery will align and integrate with UOW curricula in Digital Communication and Media studies, and History and Politics and Graphic Design, for the purpose of readying students for the integration of these technologies in commercial, artistic and academic environments.

The Yellow House web portal (University of Wollongong Library 2016) will provide the gateway to the VR Yellow House space, along with open data files of this product for reuse, experimentation and redesign by others. It will be an extension of existing work undertaken by UOW Library, including the acquisition and digitisation of significant historical Australian collections relating to the period generally referred to as the Sixties, though more specifically covering the years 1963 through to 1973, when the counterculture in Australia was most active and influential. These collections include *OZ* magazine Sydney (1963-9) and London (1967-73), the Garry Shead and Martin Sharp edited *Arty Wild Oat* (1962) magazine, and Richard Neville's *The Living Daylights* (1973-4). The Yellow House portal will be integrated with the Library's existing Digital Collections portal (University of Wollongong Library 2015), and include the technical capability for students and other users to share their experiences and stories regarding experiments with the open source files, thus offering students a cutting edge model in which to engage with content.

Looking at the development of the Yellow House over time, and its connection with *OZ* magazine, enables moving beyond images to encapsulate what is taking place in the social and cultural movements and political discourse of Australia during a period of societal change. This ranges from the initial impact of The Beatles in 1963 and publication of *OZ* Sydney magazine on April Fool's Day of that year, through to the election of the Whitlam Labor government in December 1972 and issue of the final edition of *OZ* London in November of the following year. These resources offer a range of new research possibilities into audiovisual communication culture. The web portal will also provide a space for researchers, students and the community to contribute to the body of knowledge for this period in Australian history, utilising online discussion and social media applications. Upon its deployment, the Yellow House web portal will be openly available for use by students, and across the higher education sector, industry and professional bodies. Curriculum integration is an important driver in development of 3D environments at UOW. For example, elements of play and experimentation with new technologies as envisaged with the Yellow House project is currently embedded in the learning, research and collaborative process for students in the Digital Communication and Media subject, as part of the digital artefact assessment model.

Upon implementation of the project, students will be able to modify the Yellow House VR model to share their own work in an interactive portfolio presentation. This approach enables students to develop new ways of presenting themselves professionally, expressing their acquired knowledge while engaging in the production of digital and social media with social utility, and demonstrating their creative engagement with new technologies. Students will be provided with opportunities to test the new technologies and contribute to further developing the VR model in scenarios that replicate professional and industry practices, particularly regarding project management. One of the innovations of this project is to enable the integration of VR presentation methods in future-graduating student e-portfolios based on the Yellow House model. E-portfolios are similar to blogs or web pages, which showcase the practical achievements and interests of students, and can be valuable tools for students to promote themselves to future employers. Students will be able to reshape and otherwise experiment with the open source Yellow House files and showcase this work online via their e-portfolio. Through student involvement with the outcomes of this project, new digital literacies related to VR integration may be revealed that become relevant to future employers across any activity that involves the use of screens to share information. The e-portfolios would be initially developed and populated on local servers, before possible promulgation on the wider internet.

Initial studies have demonstrated that practical implementation of the prototype VR devices have impacted positively on student reflections on their skills and relevance to their education when actively using the devices to explore problems and test solutions (Brannock *et al* 2015). In addition, an experimental study by world experts in virtual technologies from Australia, New Zealand and Germany found evidence for the support of authentic immersion in spaces of learning and investigation using prototype Oculus Rift models (Barwell and Moore 2013). It concluded that: "Compared to any other form of improving the immersive feeling, the Oculus Rift is a large leap forward that will be difficult to backtrack from, once experienced, and it is affordable and easily used so that it may be adopted on a wide scale" (Reiners *et al* 2014). It is therefore timely that a project be implemented to enable academic and professional staff to investigate, discover, develop, implement and report on new and innovative teaching and learning techniques using VR devices.

Within the higher education sector, libraries are actively involved in curriculum transformation and delivery of resources. The likelihood of VR technologies becoming an everyday part of the teaching and learning environment has made it imperative that libraries actively engage with these new technologies, both in supporting program delivery and providing digitised resources. The UOW Yellow House pilot project will demonstrate the active application of curriculum-driven, technology-enhanced learning experiences at the very cutting edge of immersive technologies. Virtual reality technologies and 3D environments are not new, but are only now encompassing the technical capacity, affordability and commercial availability to support their use in collaborative academic learning. The need to prepare graduates in, for example, the Creative Arts and Humanities disciplines, for employment opportunities in related fields is imminent. An important turning point in the mass-marketing of these technologies is underway. In May 2015, it was announced that the roll-out of Oculus Rift 3D VR software and hardware would occur early in 2016. It would be supported by Facebook, which purchased Oculus in 2014

for US\$2.4 billion, thereby assisting with, and influencing, its widespread adoption (Oculus VR 2015, de Looper 2015). Vendors of VR devices include Sony, Valve, Samsung, Google and Facebook/Oculus. This is a new research area with growing interest.

This project has the potential to foster new relationships between those industries and institutions most likely to experiment with commercially available VR technologies. This is already occurring in a number of collaborations involving Australian universities. For example, Macquarie University has recently formed the VISOR (Virtual and Interactive Simulations of Reality) multidisciplinary research group (Macquarie University 2015). Curtin University is developing a mining training interface in VR (Validakis 2014). The University of Adelaide has begun to use VR in its research and teaching (Painter 2014). The Royal Melbourne Institute of Technology (RMIT) has established links with the Dunhuang Academy, China, and a number of American academic institutions, to further develop the Digital Dunhuang initiative. The most spectacular manifestation of this is the recreation in 3D of the World Cultural Heritage listed Dunhuang Mogao Grottoes features Buddhist art and figures (Clough 2013). A walkthrough, 3D immersive prototype has been created, allowing individuals to experience the fully textured caves in real time and virtual space, encumbered only by 3D goggles and a backpack holding the necessary computing hardware and software.

The OZ and Yellow House digital collections will be incorporated into the subject content of relevant undergraduate and post-graduate coursework and research programs. For example, within the UOW Faculty of Law, Arts and Humanities, the subject POL324 *Culture and Politics* and the optional post-graduate strand, *Special Studies in Politics* will be updated to include assignments and assessment based on the project outputs.. Traditionally these subjects have focused on international examples; however, the availability of the Yellow House and OZ collections will facilitate the inclusion of Australian course content for the first time. Within the Creative Arts discipline at UOW, pedagogical integration of the Yellow House pilot centres on the digital artefact assessment option available to all students in first, second and third year Digital Communication and Media Studies (DIGC) subjects offered as part of the Bachelor of Media and Communication Studies (BCMS). Students in BCM112 *Convergent Media Practices*, DIGC202 *Global networks*, DIGC302 *Digital Communication Practice: Final Project*, DIGC 310 *Digital Game Cultures*, and DIGC335 *Cybercultures* will be involved. A digital artefact is a student-defined and -owned project, one that blends a range of media forms, from blogs and online video, to audio podcasting and memes. The digital artefact assessment model is an approach to independent learning inquiry that tackles new media technologies and platforms including 3D printing, VR and augmented reality devices and media drones. A digital artefact can take on a range of discipline-oriented topics, theories, concepts and forms and be continued across subjects and undergraduate levels. Each artefact functions as an interface between the students and their learning with their peers, and between the institution, the wider public and the careers and professional trajectories. The primary requirement of the digital artefact is a social utility, and while the aesthetic or production qualities of the digital artefact are not considered in the assessment criteria, the students' ability to reflect critically on their own practice is pivotal to cementing the learning potential of the experience.

The Yellow House VR project provides an opportunity for students to participate along a vector of multiple interfaces of their own choosing; for example, students in DIGC202 *Global Networks* will be invited to participate in the Yellow House VVR digitisation process, along with investigating issues of copyright and the management of open access licensing. Students may 'playtest' and stress test the Yellow House simulation, while working with students in History and Politics and Design Theory subjects to research Australian counterculture history and pose recommendations for the web gallery's functionality. Assessment at the 2nd year undergraduate level will involve a comprehensive research report expressed in text, video, image and sound. Students will be required to demonstrate how they negotiated development of their VR product within the replicated structure of a real-world project. Assessment will relate to clarity and visual acuity of presentation and written expression, process for acknowledging third party copyright, structure and consistency. The decision-making process will be student-centred, and learning and assessment will be guided by academic mentors. There will be a number of pedagogical approaches employed, although in total these may also be considered new approaches to learning, as new technologies and tools are used in entirely new ways. Approaches include:

- student self-directed and collaborative learning;
- assessment focused on the public and social utility of the object; and
- students' reflection on the creative and creation process.

These approaches help students prepare an extensive range of digital literacies and dynamic skills in media production, information aggregation and knowledge curation for dynamic, collaborative and research environments that they may encounter in their careers. Curriculum integration of the outputs of the Yellow House 3D project will extend beyond the initial year of the project. The sophistication of the digital literacies addressed will progress each year as student cohorts learn from their peers in an open and collaborative model. The sophistication of the digital artefacts increases over the three years of the degree and the relevant individual and group assessment will be based on student reflection of the process rather than the Yellow House deliverable. The project approach will encourage student development of reflective, anticipatory, theoretical, practical, analytical and comparative skills. In first year, the digital artefact is designed around developing student digital literacies and promoting conceptual engagement through remediation, aggregation, investigation and curation. Students take their work with them through subsequent subjects and undergraduate levels to develop, evolve and expand on them through their learning, and reiterate and build on their previous learning. Examples of major projects that have occurred include *PopUpTV* and *Faces of UOW* (University of Wollongong 2014a, University of Wollongong 2014b). There are opportunities to extend the Yellow House model and its further integration into these subjects into the future. Other open teaching and learning outcomes potentially include digitised galleries and exhibitions, and VR interfaces for other digital collections.

The library as research partner

The UOW Library has amassed a significant repository of content as the necessary foundation for the Yellow House project, supported by a fully maintained Digital Collections portal space that acts as the host and primary point of access. In 2014,

the Library purchased the digital rights to the *OZ* Sydney and *OZ* London magazines, published under the general editorship of Australian Richard Neville in the years 1963-73. *OZ* is one of the top international counterculture and underground magazines of the period, alongside similarly notable publications such as *The Berkeley Barb* and the *San Francisco Oracle* (United States), *International Times* (United Kingdom) and *Actuel* (France). Due to their ephemeral nature and limited circulation, these magazines are often difficult to access, with the only surviving copies in private collections or state or national libraries. Openly-accessible digitised copies are rare, and where they exist are found on platforms that do not facilitate ease of access. For example, the British *International Times* has been digitised, but access is via individual page jpeg image scans, lacking optical character recognition (OCR) of text or other metadata and indexing enhancements (International Times 2015). There is no opportunity to browse or flip through individual digital copies of the magazine, as one would do with the original paper copies.

The UOW Library, in digitising *OZ* magazine and related publications, made use of OCR, a full suite of descriptive metadata, facilities to download individual issues, and the Issuu online reader to replicate, in the digital realm, the original experience of turning the page and browsing or reading. The digitisation of *OZ* during 2014-15 and its availability on open access via the UOW digital repository Research Online was the first stage in the Yellow House project. The additional acquisition of original Yellow House archival primary materials and secondary published resources would support the enrichment of the virtual environment. Repurposing of this material would occur through digitisation and adaptation according to system requirements.

Galleries, museums and libraries are beginning to show interest in the use of VR technologies. MONA's *The O* and the State Library of New South Wales' *Curio* are examples (State Library of New South Wales 2015, Museum of Old and New Art 2015). There are also clear indications of benefits in the use of VR for students negotiating distance education, resulting in significant implications for contemporary student interaction and collaboration (Miller 2014).

The reality of the modern student experience is that attention to engagement with coursework must compete with extensive part-time student labour and workplace casualisation that requires new media with which to communicate and co-create knowledge. The current and next generation of student requires connected, innovative, and comfortable digital spaces and online portals that cater to the needs of student flexibility and experimentation with learning. A 2014 study found that although the Oculus Rift headset was only just clearing an awkward prototype and early commercial adoption phase, participants reported their VR experience was nevertheless a compelling interaction and found a desire to associate with the realism of the environment that led to creative engagement and exploration (Gregory *et al* 2014). An August 2015 cover story in *Time* magazine reflected on the "surprising joy of virtual reality" and its transformative potential (Stein 2015).

It has been argued that VR integration in the curriculum and its use to expand access to digital library collections is a response to the need for relatively inexpensive and scalable simulation and learning technologies that are practice-based and which address Australia's national framework for employability skills

(Newton 2013). Employability is a key force shaping the demands of national higher education policy. However, the most effective response is to strategically maximise student opportunities and professional engagement through activities that include internship, industry placements, case studies, and role play. All of these can be further enhanced through a VR simulation and through learning technologies that offer technical configuration and functionality for new learning and professional practice-based experiences. The Oculus Rift is considered an authentic learning platform that supports a pedagogical model that provides students with environments that replicate real-world situations, utilise authentic materials, facilitate feedback and support appropriately contextual learning responses (Reiners 2014).

The Yellow House project entails creating new relationships between the UOW Library and faculties that will build new practices for student engagement with content beyond the physical barriers of library walls. By developing expertise and infrastructure in the emerging VR milieu, and collaborating with faculty to bring exposure to the technologies into the curriculum, UOW Library is shaping its expanded role in the online education environment.

Project roadmap

The Yellow House VR project emerged from a successful trial introducing a 3D printing lab within the UOW Library during 2014. This was stress-tested by students in the discipline of Media and Communication within the school of The Arts, English and Media, part of a newly formed Law, Humanities and Arts faculty. This new association between faculty and library led to further discussions, and after an initial briefing on the OZ collection, the suggestion of VR access to the documents was raised and the proposal for a fully developed Yellow House simulation was settled on. The project roadmap, as of October 2015, was as follows:

2015 Preparation Phase

- February - May: Initial consultation and decision for the project scope.
- June - May: Preparation for Office for Learning and Teaching (OLT) seed grant funding application.
- May - August: Library grant to support initial 'alpha' demo.

2015 Development Phase

- August - October: Alpha simulation development and preparation.
- September: PhD student builds a project 'alpha' - a single room simulation to be tested by Library contributors and further recommendations made to prepare a 'beta' version for more extensive testing and demonstration.
- October - December: Testing Virtual Yellow House alpha room stimulation, providing stakeholder access and seeking internal feedback, review and recommendation.

2016 Production Phase

- February: Library launches Yellow House archive, including public single room simulation of the Yellow House 'beta' released under creative commons

license. An initial release of the VR room engine to Faculty of Law, Humanities and the Arts for use in Autumn session courses.

- April: Release of Discussion Room on web portal and call for feedback
- May - June: Use of web portal and VR environment during Autumn Session
- –May - June: Preparation for OLT grant funding application and further publication preparation based on feedback from development phase.
- July – December: Continued experimentation within LHA programmes on development of ePortfolio capability and creation/assessment of digital artefacts

2017 Project Expansion

- Dependent on funding, the project can expand to include a complete Yellow House simulation, development of more refined versions of student VR portfolios and experiments with access to digital collections through VR.

The initial preparation phase for the project occurred in the first half of 2015 for the purpose of research, establishing feasibility and planning for the prototype development in the latter part of the year. The planning preparation phase included establishing the requirements of the VR Yellow House simulation and investigating the potential for other VR applications based around Library collections and digital access for students, staff and the public. During this phase, the authors engaged in deliberative conversations, email correspondence and interviews with representatives of various disciplines within the UOW Faculty of Law, Humanities and the Arts, including English Studies, Graphic Design, History and Politics, Digital Media and Communication studies as part of the groundwork for identifying and expanding on the utility underpinning the curriculum and pedagogical affordances of VR technology. This phase focused on a seed-pilot funding application with the Office for Learning and Teaching, which was ultimately unsuccessful on the grounds that further national stakeholders were required to take the project forward. The phase concluded with the small grant provision by the Library to fund 40 hours of research assistance by a PhD candidate. This enabled study of contemporary photographs and building blueprints, resulting in development of the 'alpha' version of the Yellow House simulation, featuring a single room VR experience of the iconic Stone Room (Figure 1.0). This was constructed within the video game engine Unreal 4 and rendered as a standalone executable file that can be hosted on the Library controlled web servers. This simulation was compiled during September – October 2015.

Project deliverables

A number of impacts will arise from the successful completion of the initial project and subsequent roll-out of the technology. For those project team members involved, they will see an enabling via practiced involvement in resource building in a mixed media experiential environment, along with a cogent and definable awareness of the project's potential as a communication, information and learning tool. There will also be the opportunity for communication of project results in peer-reviewed publications in the short term. In the long term, there would be the opportunity for development of a larger VR library collections project and exploration of broader application in other faculty disciplines. For students involved there would be the obtaining of digital

literacies in VR operation and 3D modelling, and the gaining of new pathways to achieving goals. Both groups would be affected by changes to curriculum to ensure students are prepared for up-to-date and cutting edge professional practice and anticipate innovation in future employment. There would also be the opportunity for the creation and implementation of student VR e-portfolios.

Educational goals to be met and measured through the project include supplying a portfolio testimonial to the quality and depth of learning. Promotional opportunities arising from the project would manifest in student blog, podcast, online presentation and video coverage of VR and the project as part of the digital artefact assessment. Project stakeholders could reach out to external research and learning communities with expertise applicable to the Yellow House model as well as those with potential to harness the research and learning models that the VR process and technology project develops. The online portal will be utilised and reported upon through download and engagement statistics. Expansion of the pilot to produce other digital collection VR experiences is a desirable output, as is external adoption, which would be encouraged and monitored, resulting in augmentation of the current suite of mixed learning tools and environments available to university educators and students. Individual students and academics would seek to adopt the model for teaching, learning and research, whilst potential industry and public adoption and use of the project may follow. It is envisaged that the Yellow House model will be integrated into UOW curriculum and supply a template for the development of VR research, teaching and learning projects of benefit to a number of other faculty disciplines.

The primary project deliverables will be:

- 1) an open access, fully rendered, virtual 3D Yellow House gallery for use with the Oculus Rift;
- 2) open licensed VR data files of the same, for reuse, modification and extension by students in UOW's Digital Communication and Media subject, as part of a curriculum integration approach;
- 3) collaborative functionality in the gallery for students and others to share research, experiments, ideas and make connections;
- 4) digitised Yellow House collection of materials; and
- 5) self-curated VR presentations for incorporation into student e-portfolios.

The project team will oversee design of the information architecture of the gallery space and its creation, including integration of collaborative technology. Faculty members will oversee student involvement of the Yellow House model into the Digital Communication and Media subjects and coordinate integration of OZ and Yellow House digital collections within History and Politics. A lecturer in Design Theory will provide consultation on development of the digital artefact as a reproduction of a historical context and cultural construction, noting that the virtual Yellow House is a form of archaeology that is occurring in a virtual space where artefacts and objects from a variety of media and from different periods of time are brought together. Academic input will provide expertise on the means to organise digital artefacts in a logic that has to do with when they appeared and for how long they appeared.

Open access copyright licensing will be applied to the deliverables within the web portal to enable their full utility across the higher education sector. Extending the integration of VR technologies produced by this project into higher education can only be readily achieved by maintaining the openness of the project. Connecting this resource to external open data collections may be one of the outcomes, and will be dependent on the development of linked data collections internationally during this time.

Conclusion

The Yellow House VR project has to date provided an opportunity for UOW Library to actively engage with faculty as a research and development partner. The transformation from a support role to an equal partner in the expanding area of digital humanities is an exciting opportunity for Library staff, and also opens up new horizons for members of faculty in regards to collaborative partnerships.

The UOW Library occupies multiple roles within the Yellow House project, beginning with the provision of the digital collection, which opened up strong possibilities for interaction with other technical spaces and interfaces for teaching and learning and the fields of research being explored at UOW. Perhaps the most important element has been the contribution of staff time and expertise to the consultation, collaboration and content generation at each level of planning, development and documentation.

Ongoing engagement with evolving VR technologies will enable UOW Library to strategically align resources to support local research, teaching and learning programmes, whilst also opening new opportunities for collaboration with external partners in the higher education and cultural heritage sectors.

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