Organizational Profile

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The Information School
University of Washington

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Mission
Founded in 1911, the University of Washington Information School (or iSchool) provides rigorous courses of study and produces exceptional research at the intersection of people, information, and technology. We are inspired by information; we want everyone to know how vital information is to all aspects of life. We envision a world where more effective use of information helps everyone discover, learn, innovate, solve problems, have fun, and make a better world. At the iSchool, we prepare leaders. We research the problems and opportunities of information, and to design solutions to information challenges. We make information work.

Housed within the iSchool, the Data and Analytics Lab (DataLab) and Technology and Social Change Group (TASCHA) are hubs renown for cutting-edge research and education. The DataLab is the nexus for data science research and education at the iSchool, with a focus on the study large-scale, heterogeneous human data to understand why individuals and societies behave the way they do. With experience in over 50 countries, TASCHA researchers explore the design, use, and effects of information and communication technologies in communities facing social and economic challenges in order to spark innovation and opportunities for those who need it most.

The UW eScience Institute engages researchers across disciplines in developing and applying advanced computational methods and tools to real world problems in data-intensive discovery. The Institute is made up of a diverse group of individuals with diverse backgrounds ranging from physics to data management, who help researchers apply the most appropriate technology to their research. We support data science education across the university's curricula, and reach broad audiences through bootcamps, tutorials, and MOOCs.

Placement of the Information School within the University and Academic Community
The Information School is one of 16 independent schools and colleges comprising the University of Washington, a Tier 1 public research university ranked by Reuters as the most innovative public university in the world in 2015. Study at the iSchool is guided by the Dean, who reports to the Provost. The iSchool currently consists of 53 faculty members of diverse expertise, with backgrounds ranging from the library and computer sciences to education, business, philosophy, and sociology. In the most recent U.S. News and World Report rankings of Library and Information Science programs, the UW iSchool is ranked third overall in the nation; first for law librarianship; second for services for children and youth; third in school library media; and fourth for information systems. As a leading member of the iSchool movement, the UW is a model for other information schools around the world. The iSchool offers four degree-granting programs. The flagship program, the ALA-accredited Master of Science in Library and Information Science (MLIS), the oldest such program west of the Mississippi River. The iSchool also offers a Bachelor of Science in Informatics, Master of Science in Information Management (MSIM), and PhD in Information Science.

Responsibility for Management of Proposed Project
Dr. Negin Dahya, Assistant Professor, will serve as Project Director and assumes responsibility for management of the proposed project. Dr. Dahya will receive support from the iSchool's Research Services unit, as well as the UW Office of Sponsored Programs, and Grant and Contract Accounting units. Over the last ten years, the iSchool has received and successfully managed over $45.7 million in extramural research and teaching awards by government, foundation, and industry partners.

UW Information School Strategic Plan - Summary
Approved by: Harry Bruce, Dean and Professor, February 15, 2017

Mission
We prepare information leaders. We research the problems and opportunities of information. We design solutions to information challenges. We make information work.

Vision
We envision a world where more effective use of information helps everyone discover, learn, innovate, solve problems, have fun and make a better world. Information changes lives.

Areas of Strategic Visibility
To achieve this vision for the future of the School, it is essential that our faculty and students are visibly and strategically engaged in solving information-related problems of social and economic significance. Clear articulation of what makes the iSchool distinct, excellent and unique is becoming even more important with increased competition to attract top students to academic programs. For public universities in particular, there is an increased expectation that higher education must contribute directly to solving pressing challenges as well as preparing students to be competitive in the workforce.

To differentiate our distinctive value and to advance our visibility and impact, the iSchool will invest in the development of four areas of strategic visibility:

The Future of Libraries. Our work cuts across technology, design, digital youth, Native North American Indigenous Knowledge, data resources and services, libraries, data science, policy and ethics, social media, disaster recovery, community engagement, and information management. Our intention with a strategic focus on "The Future of Libraries" is to lead and collaborate with our peers in the academy and the profession, and to direct and influence the practice of librarianship and the role that libraries must play in the lives of people and communities in the 21st century.

Data for Social Good. Our strategic focus on "Data for Social Good" will catalyze existing iSchool faculty expertise in Data Science and related fields - including computational social science, data ethics, data curation, information visualization, data-driven design, business analytics, information retrieval, and knowledge organization - and allow for expansion of research activities, fostering of relationships across the University and region, and comprehensive curricular development and integration across all academic programs. Our vision is to be recognized as one of the world's leading institutions for the study of the human, social side of data.

Native North American Indigenous Knowledge. With our strategic focus on "Native North American Indigenous Knowledge," we intend to raise and expand the level of discourse concerning the intersection of information, knowledge, technology, and Native American communities within higher education, broadly and at the iSchool in particular. We will designate the UW iSchool as the first information school in the world that honors the treaties of its Indigenous population - treaties that clearly stipulate educational rights - by developing and implementing an information science program that studies and celebrates the intersection of information, technology, and Native communities.

Human-Computer Interaction for the Social Good. Our work tends to be socio-technical in nature, covering but certainly not limited to accessible computing; child-computer interaction; computing in education, health and wellness; information for marginalized and vulnerable people; information/data

visualization for individuals and society; personal information management; sustainability and design; and value-sensitive design. We study these phenomena, and design and build tools, techniques, and systems to positively affect them. We are already known nationally and internationally for developing new HCI approaches, techniques, methods, and systems.

With our strategic focus on "HCI for the Social Good," we intend to increase our level of excellence, enhance our international reputation, and achieve new levels of distinction and societal impact. Our HCI faculty will take their research and teaching to the next level in areas of exciting and urgent need in the HCI field, including access, development, education, ethics, and health.

Alignment with the Proposed Project

Dr. Dahya's proposed project, *Co-Creating Concept Art and Stories for Virtual Reality: Leveraging Libraries and Museum Professionals for Positive Social Change in Juvenile Rehabilitation*, is directly aligned with two of the school's current areas of strategic visibility: **Future of Libraries** and **Human-Computer Interaction for Social Good**. The school also has a strong concentration of researchers working in Digital Youth, an area of strategic investment continuing from the previous strategic plan. Digital Youth, and Dr. Dahya's proposed project, cuts across the Future of Libraries and HCI for Social Good, intersecting with the work of several other researchers focusing on child-computer interaction and information technologies for marginalized and vulnerable people. The "social good" theme has been pervasive within the school's research agendas and strategic plans for many years, and will continue to be integral to the identity of the Information School going forward. Recognizing the synergies among libraries and museums, the Information School has also expanded its professional scope to include museums and now serve as the academic home for the Director of the Museology and a growing number of research collaborations among museology and library researchers in the school.

This project extends Dr. Dahya's current work on virtual reality in libraries, which is considered a signature project for the school's Future of Libraries initiative, devoted to providing leadership in studying the evolution of libraries and promoting innovation in the profession of librarianship. This project will be a significant advance in positioning libraries, and museums, as catalysts of community development and education for incarcerated youth. More importantly, it will serve as a model program that can demonstrate how cultural institutions can offer creative technology experiences to vulnerable youth, more generally. The project will make a significant contributions to our library, museum, youth, and technology for social good priorities, as well as an emergent body of work in informal learning emanating from a range of library, HCI, and digital youth researchers in the school.

Co-Creating Concept Art and Stories for Virtual Reality (VR): Libraries and Museums as Assets for Juvenile Rehabilitation

The focus of this project is on the **construction of a three-part digital arts education program** for youth in juvenile rehabilitation. Part one involves community asset mapping and coalition building to support the engagement of incarcerated youth in the digital arts. Part two focuses on co-design workshops for youth to create concept art and stories for virtual reality. Part three includes the co-curation of an exhibition of that concept art for display inside Echo Glen Children's Center for Juvenile Rehabilitation and in the nearby Snoqualmie Public Library, to enable dialogue across community members and further strengthen the coalition.

This project will build on libraries and museums as assets by building a coalition starting with University of Washington Information School, Washington State Library (WSL) - King County Library System (KCLS), and Echo Glen Children's Center for Juvenile Rehabilitation in Snoqualmie, Washington. Our goal will be to **map local assets** related to digital art, technology, design, education, and curation with a focus on Virtual Reality (VR) in Snoqualmie and Seattle. The focus of the coalition will be to support incarcerated youth with access to the digital arts and VR industry. The project team and the IMLS funds requested will allow us to document this asset mapping and identify key figures who can work with incarcerated youth to facilitate **digital arts education programs**. With this, we will develop, facilitate, and study a **co-design and co-curation program** for VR concept art and stories with youth in juvenile rehabilitation.

The need for this project is immense: youth involved in the juvenile justice system suffer "low levels of academic success, disjointed personal networks and low social capital and minimal work experience, along with the stigmatizing effects of having a criminal record" (Cross, 2016, p. 5). Our partners at the Echo Glen School have indicated that next year funding will be cut, and teachers will be required to teach more broadly across areas, making the demand for specialized and professionally connected programming, critical. Therefore, the goals of this project are:

(1) expose youth in Echo Glen to virtual reality technology and industry, including conceptual and technical **learning related to VR creation**;
(2) engage youth in the **co-construction and communication of art and stories for VR**, using VR and using traditional artistic design methods;
(3) **create professional network connections** between incarcerated youth and virtual reality, library, and museum professionals in the larger Seattle area;
(4) to co-curate an exhibition of concept art, with youth and museum professionals working together to publicly share youth's stories, and **building youth's leadership skills**; and
(5) to **center public libraries**, library professionals, and emerging library and museum professionals, as allies to youth in juvenile rehabilitation.

Research questions for this project include:
RQ1. What are the processes through which local library and museum professionals build a sustainable coalition designed to support young people in juvenile rehabilitation? How do libraries and museums position themselves as community assets within such a coalition?
RQ2. How can co-design be used to create concept art and stories for virtual reality? What does it look like to co-design concept art for a VR program among youth in juvenile rehabilitation, library and museum students and professionals, and digital artists and programmers?

RQ3. What is the role of co-curating an exhibition of concept art for VR to engender self-expression and communication among youth in juvenile rehabilitation?

Using participatory design methods and qualitative research, we will study the process and outcomes of this partnership, the digital arts education program created through it, and its relevance in the lives of incarcerated youth. Research data will be collected throughout and external IMLS project evaluation can be easily accommodated. We will respond to RQ1 by **documenting coalition building**, keeping records of **asset mapping** and the information provided about the community from different stakeholders. We will report on the steps and hurdles to building a coalition to support incarcerated youth, drawing attention to locally situated assets related to education and engagement in the digital arts.

We will address RQ2 and RQ3 through **participant observations** (field notes) of co-design and co-curation workshops, **interviews** with Teaching Artists, master's students, librarians, and Echo Glen teachers, and **visual data** in the form of paper and digital concept art and exhibits created by participants. Through the development of this coalition, the creation of this educational program, and the study of it, we will investigate how these young people perceive the role of libraries and museums in their lives, in relation to digital literacy, and for pathways into VR technology industry during and after incarceration.

The project adopts a **collaborative, co-design method** and draws on aspects of Participatory Action Research to develop a program model that positions incarcerated young people as experts in their own lives, with valuable stories to tell. Participatory Action Research (PAR) represents a process of inquiry and knowledge production wherein social relationships and community-based action are central and intertwined. PAR recognizes that new knowledge can be produced when collaboration and social action are paired and when the community of interest is a legitimate informer and contributor to the action plan. Using PAR, for example, Fine and Torre (2006) identify, among other realities, that women in prison attending College are leaders within their communities, showing how educational interventions inside prisons can have significant impact.

In addition to PAR as a form of knowledge production, engaging in participatory design is a key aspect of our proposal towards co-creation. Participatory Design (PD) is a design method in which users (patrons, or in this case, incarcerated youth participants) engage in the design process with expert designers (Kensing & Blomberg, 1998). Collaborative design (co-design) is the subset of PD in which expert designers work closely with target stakeholder audiences to solve a design problem, such as how to create VR experiences that represent the interests of young people in juvenile rehabilitation, given their lack of access to the technology industry and VR creation. While PD is broader and includes any activity with end-users, co-design implies that the end-user is a part of the design process. It was not until the late 1990s that child-computer interaction researchers adapted PD and co-design more widely to include children and youth in the design processes (Bekker, Beusmans, Keyson, & Lloyd, 2003; Druin, 1999).

Prior work in PD has occurred in libraries (Dalsgaard & Eriksson, 2013; Somerville & Collins, 2008), but they have often focused on either short-term projects or university libraries. To date, we have successfully used PD as a method with marginalized groups in libraries and schools, such as neurodiverse children (Frauenberger, Good, & Keay-Bright, 2011; Hourcade, 2017), underrepresented families in STEM learning (Yip et al., 2016), and African American males in collaborative game design (DiSalvo & DesPortes, 2017). However, less is known about how PD methods and techniques can be utilized with incarcerated youth.

For this project, we will integrate the community aspects of PAR (working with a community, recognizing local knowledge, respecting local practices, grounding our knowledge in feminist objectivity and critical theory, and giving back) with PD techniques (Walsh, Foss, Yip, & Druin, 2013) known to be successful with co-designing with marginalized groups. Through these methods we will co-create new stories and arts concepts with incarcerated youth for VR. We will also engage in a process of collaborative inquiry (Druin, 2002; Yip et al., 2017) exploring the problem space and its solution in partnership with community members inside and surrounding Echo Glen.

We are seeking IMLS funding from this special initiative in order to support the process of asset mapping, coalition building, curriculum development focused on co-design and co-curation, as well as studying the outcomes of this project. This funding will allow us to produce a well-researched, comprehensive program model which will all be documented in a publically available White Paper, in addition to academic publications that will be made available through various Open Access channels. By building the coalition with libraries as the center point, and connecting libraries to assets in the form of emerging library and museology professionals in university master's programs, the program can be replicated in subsequent years and also in various places across the country.

Our project team is uniquely suited to conduct this study. The University of Washington Information School is home to one of the world's top MLIS programs and Museology programs. Our project PI Dr. Negin Dahya has worked with youth and other minoritized communities exploring digital media engagement and production such as with Muslim girls in low-resource schools and refugee women in refugee camps (see Dahya & Dryden-Peterson, 2017; Dahya & Jenson, 2015). Co-PI Dr. Jessica Luke is Director of the UW Museology Master's Program with decades of experience in community-museum partnership and practices. Collaborators, Dr. Jason Yip is a nationwide co-design expert (Yip et al., 2016; 2017) and Dr. Jin Ha Lee is the current MLIS Chair with research specializations in popular cultural artifacts and libraries, to name of few of their assets. Additionally, our partner team members from King County Libraries and Echo Glen are experts in their own domains of youth and library services and education in juvenile rehabilitation.

Our project Advisory Board is comprised of three members of the Echo Glen administrative community to ensure we align with the needs of this vulnerable population (Amy Turi, Natalie Hale, LaShae Lee), Amy Eggler Regional Manager for KCLS with experience working in prison libraries, Dr. Gillian Harkins UW Associate Professor with extensive experience working on educational programs in prisons, and Jose Torres, President of Illusion Foundry Inc. and local VR technology industry professional and social advocate in Seattle.

The impact of this study is as large as the need: participants will be exposed and connected to emerging library and museum professionals as well as professional artists and technologists; they will work closely with UW Faculty and build a relationship with the local public librarian who can support their re-entry following time-served; and, they will learn about how to create concept art and stories for VR, experiencing VR, and building their knowledge base about how to communicate their ideas through art curation. Nationally, other libraries will be able to build on our model to conduct their own asset mapping and development of collaboration educational digital arts programs to support incarcerated youth.

Momentum: Youth Incarceration and a Burgeoning Tech Industry in Seattle
The momentum for this project is rapidly growing on several pressing fronts. First, in the broader landscape of prisons and libraries, Washington State is a leading figure in progressive public programming about prisons, as well as in prison programming. For example, Seattle Public Libraries (SPL) and non-profit organization Creative Justice organized the event "Someday We'll All Be Free: A Conversation about Abolition" (Cullors & Rodriguez, 2017) for the public in December 2017 at Seattle Central Library related to the controversial debate (Hsieh, 2017) around the proposed new youth jail in Seattle.

WSL and KCLS runs the library in the Seattle Youth Detention Center and works with juvenile rehabilitation centers across the state, like Echo Glen. KCLS staff has collaborated with the staff at Echo Glen to bring services to incarcerated youth since 2014. These services include a wide range of programs. KCLS staff has brought authors such as Patrick Flores-Scott, and poetry and spoken word workshops featuring Suntonio Bandanez and Nikkita Oliver. Through the ideaX program, KCLS has provided youth at Echo Glen access to emerging technologies in fields such as digital music creation, 3D art, robotics, and electronics. KCLS also provides job readiness programs, from a ten-week bicycle repair class to resume writing workshops.

At the same time, VR technology and industry is fast moving and companies like Oculus (Oculus Rift) and HTC (HTC Vive) are looking for avenues to mainstream this technology for both entertainment and education. In doing so, for example, Oculus has been working with libraries in the California State Library System and in the Washington State Library system to distribute Oculus Rift and to encourage and promote VR programming in libraries (see Figueroa, 2018). In this domain, in Washington State, Drs. Negin Dahya and Jin Ha Lee are conducting a research study exploring VR for learning and community engagement in six libraries in Western Washington, funded by the Washington State Library and Oculus.

The VR in Washington State Libraries study is ongoing until July 2018. At present, our 82 survey responses of mostly young people from low-SES and/or racial minority backgrounds indicate that there is great enthusiasm for seeing more VR programming in public libraries. Our survey respondents so far also indicate a strong preference for learning using multimedia and *interactive* technology, like video games and VR, followed by a preference for audio-visual material like film, compared to tradition resources like books. There is additionally significant agreement from participants that they learned about the subject area represented in the VR experience they tried (e.g. robots, science fiction), that they learned to use VR (technically), *and* that they learned about library resources related to the VR experience available. These early findings demonstrate, as a starting point, that VR offers a highly engaging learning platform for young people. In addition, our librarian interviews reveal a strong desire from librarians who do youth programming to be able to provide training to youth participants so that they can not only be exposed to VR but also be able to create content in VR. This points to the possibility for libraries to serve as access points to potential career pathways in the digital arts.

Our partners at Seattle Public Libraries, led by Juan Rubio (Digital Program Manager), have piloted a few sessions inside and outside of the libraries to introduce the public to VR and also invite them to learn how to code in Unity to create a simple game in the VR environment. The sessions were successful in engaging people with various technical background to create VR content and also informative as they provided useful insights as to how to best scope, structure, and organize the sessions. Future sessions are planned for Fall and we will be able to leverage the knowledge gained from these experiences to better plan and implement the VR creation sessions for our project. While learning to code is one entry point, we propose that learning to *create* for

VR - and exploring the varied creative entry points to technology industry - may be better served through concept art and stories that invite incarcerated youth to leverage the powerful learning potential of VR narratives, art, and design. As others focus on learning to code, we want to focus on **learning to create** (design) and **learning to communicate** those ideas (curation).

Museums are also well positioned to serve as assets for juvenile youth rehabilitation. To start, museums have a long history of programming for youth, in particular underserved or at-risk youth. Two recent research studies illustrate this role. Linzer and Munley (2015) studied the long-term impacts of youth programs at four art museums, surveying adults who had participated in these programs years earlier. Their results suggest that program participation enhanced youth's self-confidence, social skills, and academic and career choices. Similarly, McCreedy and Dierking (2012) researched the long-term impacts of youth programs for girls at five science centers. Findings from this study point to program impacts on adult's science identity, as well as their personal and social development. More specifically, many museums work with incarcerated youth, for example, the Intrepid Sea, Air, and Space Museum in New York offers design workshops for youth on Riker's Island, and the Clark Art Institute, Williamstown, MA, conducts art programs with youth who have been recently sentenced.

The impetus for this concept art with incarcerated youth project stemmed from the initial interest of the Washington State Librarian, Cindy Aden, to see efforts to use this technology among the state's most marginalized communities - incarcerated youth and adults. Our research team identified the uniqueness and delicacy of working with incarcerated youth and we collectively agreed that such a project warranted its own scope, rather than being one of many libraries in our larger VR in public libraries project. In addition, our community partners at Echo Glen Children's Center are eager to see this opportunity shared with the young people in their care.

Purpose and Need: Libraries and Museums as Critical Assets for Juvenile Rehabilitation
Libraries are critical assets for young people in juvenile rehabilitation. Libraries and library programing for youth committed to juvenile rehabilitation (JR) serve multiple functions supporting traditional education and reading, as well as broader educational goals such as digital literacy and introduction to new technology that strengthen social re-entry. These efforts contribute to the specific needs of incarcerated youth such as decreasing recidivism, supporting the development of employment skills, and building connections between youth committed to JR and their families (Gilman, 2008).

Museums are also assets in this context. Consider, for example, the many museums that are part of the International Coalition of Sites of Conscience, a group of historic sites worldwide that are "dedicated to remembering past struggles for justice and connecting them with today's most pressing issues" (International Coalition of Sites of Conscience website, 2018). Museum professionals can support, and learn from, incarcerated youth's ideas and stories as communicated through their art. In this case, the aim is also related to communication of ideas that can lead to greater dialogue among peers, families, and other community members inside JR, as well as across the public through display in the local public library. Additionally, the aim of co-curation and communication of ideas through this art can lead to lucrative career paths in the digital arts where artist portfolios and documentation of artwork exhibits are a necessary part of applying for jobs in the digital arts.

The mission at Echo Glen School, which is inside the larger Echo Glen Children's Center, is to create a safe and accepting inclusive environment in which incarcerated youth can develop personal, occupational, and academic skills leading to healthy, satisfying, and productive lives as

responsible citizens in a dynamic global environment - one that is rapidly changing with and in the face of new technology. Incarcerated youth have a wealth of knowledge and experience. The paucity of resources and opportunities for library and museum professionals to work with incarcerated youth directly, and in ways that **center the emotional and academic intelligence of young offenders**, demands more attention. In addition, young people from low-SES, racialized, and other intersecting minority backgrounds are over-represented in youth detention and incarceration. These same demographic groups are under-represented in technology sectors broadly, including the digital arts. Uniquely, Echo Glen is the only juvenile rehabilitation center in Washington State that also hosts girls, and girls' engagement with VR concept art and story development will be one focus of this study.

The process of co-curating concept art inside Echo Glen will be an exploration in how youth communicate their ideas for VR through an art exhibit of their work. In the last decade, museums have more actively embraced collaborative models for exhibition development, from working with community groups to help them tell their stories, to creating exhibition teams that involve multiple and diverse perspectives and voices (Golding & Modest, 2013). Museology faculty and students will work with youth to co-create an exhibit for other young people, teachers, and administrators inside Echo Glen, as well as for visiting family and legal teams. This aspect of the program will engage incarcerated youth and Museology master's students in a reciprocal teaching and learning practice. The focus of the co-curation activities is to co-develop practices that represent multilayered and multidimensional VR concept art from the purview of young offenders, inside the confines of this juvenile rehabilitation center.

The King County Library System (KCLS) and Snoqualmie Library, in conjunction with the Echo Glen Children's Center, will serve as the center point for this collaborative project by building on their existing educational work with Echo Glen, being a network center point during asset map and coalition building, and hosting an exhibit of young people's VR work and a public event to engage community members in dialogue about the role of libraries to serve youth in juvenile rehabilitation. This model will leverage public institutions to bridge art and technology for incarcerated youth.

Assets and Impacts: A Participatory, Collaborative Coalition and Cooperative Inquiry
This project will build a coalition of community organizations in Washington State focused on supporting detained and incarcerated young people through the digital arts and technology. The project will begin with Participatory Asset Mapping (Burns, Dagmar and Silvia, 2012) starting in Snoqualmie, WA, the location of the Echo Glen Children's Center. "Mapping your community's assets helps visualize the networks of service organizations, community organizations, neighborhood associations, and other groups that exist to serve the community." (Burns, Dagmar and Silvia, 2012, p. 8). Building on RQ1, we will conduct a multifaceted **social investigation** into assets in Snoqualmie, close to Echo Glen, and in the larger Seattle area. This will include community mapping events at the library at the start of our project, and ongoing data collection related to asset mapping as we engage with and build out this network and coalition.

Participatory Asset Mapping at the local level can help build and support this coalition drawing on local artists and technology industry professionals living and/or working in the region. For example, in addition to Seattle based digital artists, there may be additional human resources associated with the [Art Gallery of SnoValley](#) and museum professionals associated with the [Northwest Railway Museum](#). Snoqualmie is also just a short 45-minute drive from Seattle, where there are reportedly over 40 companies involved in the development of virtual reality and

augmented reality technology (http://ceattle.com/seattle-vr-companies.html). Finally, Seattle and Western Washington State is home to several activist and arts based social justice initiatives, such as Creative Justice, ArtsCorps, and Reel Grrls. Working directly with Echo Glen Children's Center and Snoqualmie Public Library, we will identify Snoqualmie and Seattle based arts and VR assets, as well as library and museum networks, who can contribute to long-term sustainability of this project.

The project will invite young offenders to try VR, and from these experiences, work on developing their own stories and interactive narratives for immersive and non-linear VR environments. Professional artists, VR developers, and media educators will work with participants to develop meaningful practices for the creation of VR concept art, and to understand the potential role of VR in the lives and future livelihoods of this community. Concept art will be illustrated on paper and using existing 3D VR illustration tools such as *Quill*. In this process, participants will be involved in the use of a new technology, VR, to **facilitate the discovery and production of knowledge,** and to share that knowledge with peers and with library and museum professionals. Throughout this process, **participants will gain valuable experience and insight into VR industry**.

The model we will create for coalition building and curriculum development for VR concept art co-design will be publically available in partnership with Washington State Libraries for distribution across the state and nation. While our curriculum will be shared, the important aspect of sharing the process of coalition building and curriculum development that is locally situated and culturally relevant to the region and Echo Glen community is the more critical output. Similarly, the co-design workshop will serve to inform our understanding of the value of this process and coalition in the lives of the young people involved and the impact will be twofold: the project will directly impact the youth involved and the local community and network around them; and, the project will impact the way in which libraries seek out and construct partnerships to support youth in jail.

The impact of this project goes beyond these local outcomes, though they are critical to youth in juvenile rehabilitation at Echo Glen. This work has broader implications for engaging and including marginalized and underserved youth in public service institutions such as libraries and museums, leveraging their strengths in a partnership. For instance, this project can provide insights into how we may engage and collaborate with homeless youth who often rely on libraries as the safe space and tell their stories to the general public for increase awareness of the challenges they are facing in their daily lives. In addition, we can gain insights into how we may use VR or other cutting-edge technology for adult prison population for training tech-oriented skills to well position them for possible future careers when they return to the society. Both the model of partnership and the materials generated from this project will be applicable to similar projects like such, extending the impact well beyond the specific community of incarcerated youth in WA.

Project Design: Work Plan
Phase 1: Asset mapping and coalition building. The program will start with participatory asset mapping activities based out of the Snoqualmie Public Library, such as community-mapping activities in partnership with the Advisory Board and local librarians, and interviews with local community members such as those affiliated with local art galleries and who work in the digital arts in Seattle. This will include visits to Echo Glen and discussions with youth participants about assets in their local communities. Through this process, we will identify Teaching Artists in Snoqualmie and Seattle and invite them to join the project. We will organize our first meeting at

Snoqualmie Public Library where we will revisit our asset map and discuss curricular opportunities and expertise of our team. The Advisory Board will be asked to revise the asset map for Echo Glen following these meetings before it is finalized. During this time, we will finalize data instruments and secure IRB approval for research.

Phase 2: Curriculum development. *Working with expert teaching artists and technologists.* In Phase 2, our team will begin to develop the curriculum that we will utilize with the youth. We will begin with our expert teaching artists and technologists completing background checks and training for working in juvenile rehabilitation. They will go through a series of training sessions with UW researchers on co-designing and working with vulnerable populations. For the co-design portion of the training, Drs. Yip and Lee will have the artists and technologists engage in design partnership experiences, such as trying out KidsTeam UW, KidsTeam at the Seattle Public Libraries, and learning about the different co-design techniques that we have utilized throughout the years. Drs. Dahya and Yip will also work with the experts on our experiences working with vulnerable populations in our research and service. At the same time, to begin developing relationships with the youth, we will have scheduled Echo Glen site visits and community building time with the youth participants. During these visits, we will utilize co-design exercises with the youth to see what interests they may have in VR, stories, and learning and how to integrate their ideas into the curriculum.

   Project team develops curriculum (UW iSchool, Snoqualmie Public Library). Based on our visits, expertise, and experiences, the project team will work together to co-design a series of curricular modules for the youth. Dr. Yip has had prior experiences working with teacher work circles in the co-design of STEM curriculum. Using PD techniques and PAR research methods and the expertise of the artists, technologies, and librarians, we will develop the curricular modules in each of their specialty areas. We will collect data from these design sessions, such as video records, photographs, artifacts, designed modules, and learning activities. We will develop the curriculum in line with research on participatory design and learning (DiSalvo, Yip, Bonsignore, & DiSalvo, 2017), equity and inclusion of marginalized populations (DiSalvo, Guzdial, Bruckman, & McKlin, 2014), and constructionism (Kafai et al., 2009; Papert, 1983). To make sure the modules are viable for the youth, the full curriculum will be reviewed by the advisory board and the Echo Glen teacher. We will also attempt to preview the curriculum with youth to get a sense of what the initial response might be. After these initial reviews, we will run final co-design sessions to make any final changes necessary.

Phase 3: Project implementation. *Curriculum implementation.* During April and May 2019, we will run the curriculum as modules that have been co-designed by different partners (e.g., artists, technologists, librarians, teachers, and youth) so that youth in juvenile rehabilitation can co-design their stories with expert artists and technologists in VR. The implementation will take place over the course of 8 consecutive weeks with boys (April, 4 weeks) and girls (May, 4 weeks). During this time, we will make daily visits to Echo Glen in different groups based on the modules. Throughout these two 4-week periods, we will collect data in the form of artifact collection, field notes and analytic memos, and interviews with non-youth participants (see Table 1 for data collection, analysis, and outcomes). After the two implementations, we will meet with our advisory board to review the project outcomes and consult on the co-curation and public display of the stories in VR.

Co-Curation, public event and documentation. Following curriculum implementation, Dr. Luke and the Museology graduate students will engage youth in a sequential series of 4 workshops designed to develop a public exhibition of youth's concept art produced through VR. As was emphasized in the curriculum development, Museology students will participate in cultural competency training prior to this work, ensuring skills and sensitivities in working with this vulnerable population. The first curation workshop will focus on the development of a "big idea" for the exhibition, and an ensuing concept or thematic plan for telling a story around that idea. The second workshop will focus on the selection of concept art, and other artifacts, to tell youth's story. The third workshop will focus on design choices for the exhibition, such as lighting, color, and installation of art pieces. The fourth workshop will involve the installation of the exhibit. Throughout all of these workshops, faculty and students will facilitate the process, but decisions will be made by youth.

In May (boys) and June (girls) of 2019, the exhibits will be installed in Echo Glen. In July, project team will support transfer of the exhibit for installation in Snoqualmie Public Library, and open to the public, where an event focused on discussing the role of the community and the library to support young people in Echo Glen to gain skills and entry to the digital arts and other technology sectors. Throughout this time, we will document the processes of co-curation, exhibits, and events through observations, photos of the work, and collection of documents and other materials used throughout this process.

Phase 4: Analysis and knowledge dissemination. Following the project, all data collection will be analyzed with focal areas outlined in the chart below. This will include the preparation of a **White Paper focused on asset mapping, coalition building, and co-design processes** to engage incarcerated youth in the digital arts through VR concept art (RQ1).

The White Paper will be reviewed by the Advisory Board, and our Echo Glen Advisory Board members will be asked to involve youth participated to provide feedback on our report. In accordance with PAR and as noted by Fine and Torre (2006), "We write because participatory action researchers have an obligation to reveal, when possible, the intimate details of PAR undertaken in difficult social institutions." (p. 255). Following the completion and dissemination of this White Paper through our professional library and museum networks and channels (include members of our coalition and partners such as Washington State Libraries). We will also post the White Paper to the UW iSchool Digital Youth website and extract all relevant co-design and co-curation learning activities and modules for public use under a Creative Commons license. We will focus on academic data analysis and dissemination via conferences, journals, and other events focused on the findings pertaining to RQ2 and RQ3.

Table 1: Data Collection, Analysis, and Outcomes

Questions	Methods	Analysis Focus	Outcomes
RQ1. What are the processes through which local library and museum professionals build a sustainable coalition designed to support young people in juvenile rehabilitation? How do libraries and museums position themselves as community assets within such a coalition?	**Participatory asset mapping social investigation** (Burns et al., 2012). Documentation of coalition building, curriculum development, and events (including co-curated exhibits).	Document and examine challenges, barriers, strengths, and opportunities emergent from coalition building, including opportunities for sustainable programming.	Model for using public library as a center point for coalition building to engage young people in juvenile rehabilitation with digital arts.
RQ2. How can co-design be used to create concept art and stories for virtual reality? What does a co-design concept art for VR program among youth in juvenile rehabilitation, library and museum professionals, and digital artists and programmers look like?	**Co-design team data:** Video recordings, photographs, artifacts, design guidelines, and learning activities with teachers and professionals. Interviews with artists, technologists, librarians, and teachers. VR stories from youth in juvenile rehabilitation.	**Examine what participants are learning through co-design** (Guha, 2010; McNally, Mauriello, Guha, & Druin, 2017), such as design thinking skills, social benefits, and other cognitive skills.	Examination between the connection of co-designing and story generation. A curriculum of digital learning activities developed for and with youth in juvenile rehabilitation and professionals.
RQ3. What is the role of co-curation of concept art for virtual reality to engender self-expression and communication among youth in juvenile rehabilitation?	**Co-curation team data:** Video recordings, photographs, artifacts, concept planning and design documents, and final exhibition. Interviews with Museology students, librarians, and teachers.	Examine what youth are learning through co-curation, such as leadership skills, communication skills, and other forms of personal development.	Examination between the connection of co-curation of an exhibition and youth's skill development and personal development. A public exhibition of youth's concept art produced through VR, and the story it tells.