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Résumé de l'article

Dans cette étude de cas, l'équipe de recherche (ER) explore le design d'expérience utilisateur en relation avec les pratiques de communication numérique adoptées par les gouvernements. L'objectif de cette première phase était d'identifier des opportunités de recherche. Pour ce faire, l'ER a adopté une approche de recherche participative dirigée par la pratique (Holkup, 2004). L'ER est entrée en partenariat avec une ville canadienne (Edmonton). Des rencontres régulières ont été organisées avec l'organisme partenaire pour discuter, entre autres, de sa structure, de ses projets actuels et futurs, des stratégies éditoriales numériques mises en œuvre, ainsi que des enjeux et contraintes rencontrés lors de la conception de services numériques. Cela a permis aux équipes d'identifier non seulement des questions de recherche intéressantes, mais aussi des collaborations pédagogiques liées à l'apprentissage intégré au travail. Dans cet article, nous expliquons l'approche de recherche participative dirigée par la pratique, présentons le calendrier et les résultats du partenariat, et partageons les leçons tirées de cette démarche.

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Article

User Experience and Digital Government: Exploring a Practice-Based Participatory Approach to Identify Research Opportunities

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Abstract

In this case study, the research team (RT) explores user experience design in relation to digital practices adopted by governments. The goal of this first phase was to identify research opportunities. To do so, the RT adopted a practice-centred participatory research approach (Holkup, 2004). The RT began a partnership with a municipal government (City of Edmonton). Regular meetings were held with the partner organization to discuss—among other things—the organization’s structure, current and future projects, the digital editorial strategies implemented by the organization, and the organization's issues and constraints when designing digital services. This allowed the teams to identify not only interesting research questions but also potential teaching collaborations related to work-integrated learning. In this paper, the practice-based participatory research approach is explained, the timeline and the outcome of the partnership are presented, and the lessons learned through that process are shared.

Introduction¹

In Canada, governments increasingly provide services to their citizens through digital means. This convergence places digital media (websites, applications, social networks, etc.) at the heart of most citizens' activities whenever they communicate with the government (Broudoux, Chartron, and Chaudiron, 2013). However, many users struggle to effectively navigate these complex ecosystems and locate the information they need to complete their informational quests (Marcoux and Rizkallah, 2013; Nielsen, 2016).

Building and maintaining these digital ecosystems requires the intervention of multidisciplinary teams (IT, communications, design, marketing, etc.), among whom are experts in user experience design (it includes experts in interaction design, information architecture, content strategy and service design). "User experience encompasses all aspects of the end-user's interaction with [a] company, its services, and its products." (Norman and Nielsen, 2016). User experience design (UXD) is an interdisciplinary field that bears strong connections with writing, especially through information architecture (organizing digital content) and content strategy (planning, writing, governance and management of information). With their human-centered approach, user experience designers can help facilitate the citizens' experience through an organization's information ecosystem (Ciešlar, 2020). Up to now, however, user experience designers' interventions in this type of environment have been poorly documented (Panchev, 2020). In this research project, the research team (RT) explores user experience design in large government organizations.

In this first phase of the project, the RT mainly wished to identify research questions and opportunities that would be relevant for both academia and practitioners. More precisely, the goals for this first phase of the research project were to:

- Explore practice-led participatory research in user experience design;
- Identify opportunities for research related to user experience design in large public organizations;
- Identify pedagogical and work-integrated learning opportunities for the 4-year bachelor's degree in design.

This paper summarizes the approach, activities, outcomes, and lessons learned from the first phase of the overall research project. A second phase will consist of working on some of the identified opportunities. Future phases will depend on new opportunities that emerge as the partnership evolves.

Research Approach and Methodology

Practice-Led Participatory Approach

Overall, user experience design research is relatively new (Luther et al., 2020; Sperano 2017); it is, however, a prolific professional field that is rapidly evolving. Observation and formalized examination of practice, and collaborations with practitioners can offer a rich potential for research and conversely, knowledge developed through research has the potential to contribute significantly to the evolution and enrichment of professional practices (Paay et al., 2021; Hobbs et al., 2010; Resmini and Instone, 2010). This is what led the RT to adopt a participatory practice-led research (PLR) approach in this project.

According to Candy (2006), practice-led research “is concerned with the nature of practice and leads to new knowledge that has operational significance for that practice. [...] The primary focus of the research is to advance knowledge about practice, or to advance knowledge within practice.”

Approaches such as practice-led research can be beneficial to the field of UXD (Resmini et al., 2010). Hobbs et al. (2010) argue that “PLR could assist in the creation of scientifically driven, research-based knowledge; provide practitioners with an approach to academic research; facilitate a supply and demand for a structure to emerge, helping progress UXD and IA [information architecture] from communities of practice to disciplines.” They add that “practice informs knowledge which reciprocally informs practice”, which was the RT’s intention with this project.

Since the RT wanted to take a participatory approach, they decided to partner with an established organization (Holcup, 2004). Indeed, taking a PLR approach often implies collaboration between researchers and external organizations (Uggerhøj, 2011). As suggested by Paay et al. (2021, p.2), “a university-industry collaboration brings mutually beneficial and complementary knowledge and resources to the design and manufacture of innovative products.”

This led to the creation of a partnership between the RT and a large public sector organization, the City of Edmonton. Municipal organizations regularly collaborate with external stakeholders (private sector, academia, citizens, etc.) (OECD, 2019). Indeed, academia is a potentially interesting partner for large organizations, such as large cities (Edmonton has a metro population of 1.3 million), to help develop knowledge related to their specific context through research, and to create curriculums that would suit their needs regarding necessary skill sets (Pittaway & Montazemi, 2020). In this project, the RT was interested in both of those aspects.

In a practice-led participatory approach, research interests and questions emerge from practice (Julkunen, 2011) by linking them to observed problems in the field (Uggerhøj, 2011). Since the RT wished to uncover research opportunities that would be beneficial to both academia and professional practice, letting questions emerge from practice made sense.

Data Collection

Two data collection methods were used. The first one consisted of meetings with the City team (CT). Those meetings were treated as unstructured interviews where the RT wished to discuss certain themes, and the organization led the discussion and most of the agenda.

To document the process and capture reflections from the RT, the RT met after every meeting with the City. The second data collection method consisted of a self-reflection questionnaire, completed as a team, aimed at discussing different aspects of the partnership, the different avenues of research and the research approach overall. Self-reflection is central to PLR (Farber, 2009; Hobbs et al., 2010). Hobbs et al. (2010) suggest that “[t]he space of documenting-while-designing, recording learnings, feelings, meanings, decisions, measuring effectiveness, and documenting contextual factors while on a project could provide a wealth of knowledge for the practicing community and could provide greater validation for the methods, tools and techniques of the field.”

The self-reflection questionnaire was divided into two main parts. The first part captured a summary of the activities themselves (dates, length of meetings, participants, type of intervention, etc.), while the second part captured such elements as general impressions, emotions (using I-PANAS SF [Thompson, 2007]), potential improvements, etc.—mainly to reflect on lessons learned during the process.

Conducting the Research: Timeline, Activities and Actors

This phase of the research lasted about 18 months, from June 2019 to March 2021. Figure 1 shows the timeline of when the main activities were conducted. The activities and the timeline are described in more detail below, to present the main themes addressed as well as show the evolution of the partnership.

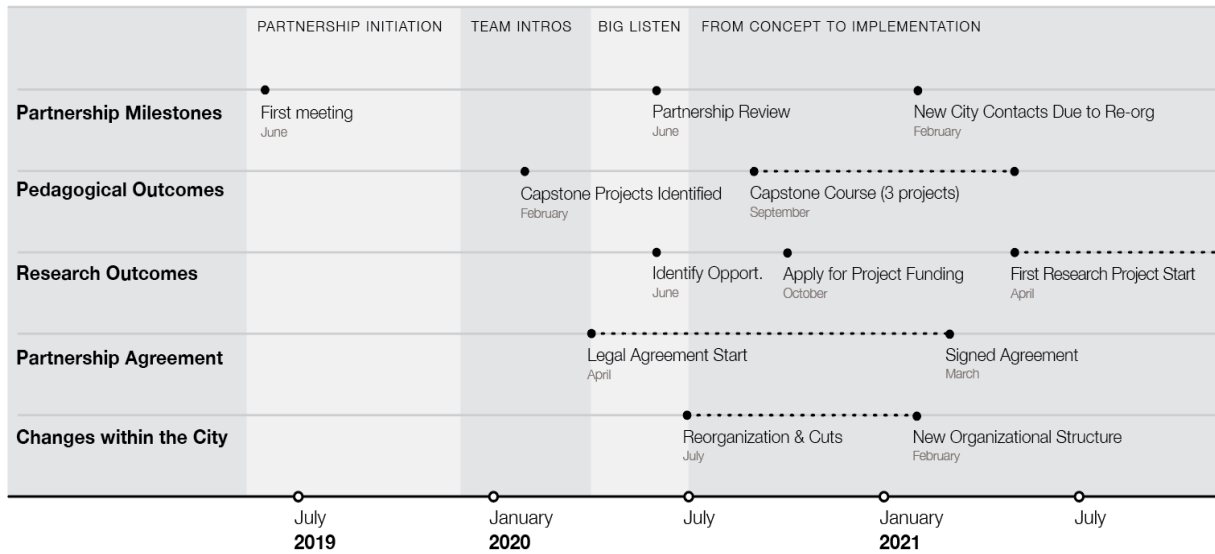


Figure 1. Project Timeline

Partnership Initiation

As shown in Figure 1, initial contact was made by the RT with the Business Performance and Customer Experience group of the City of Edmonton in June 2019. An initial meeting was arranged to determine a potential mutual desire to explore a partnership. Both parties showed interest in developing such a collaboration. It was then agreed to arrange a series of discovery meetings to take place the following year. The purpose of these discovery meetings was to learn more about each other's organizations and goals while identifying possible partnership opportunities. While it is not uncommon for designers to start a project with ill-defined or even wicked problems (Rittel & Webber, 1973; Buchanan, 1992), this initiative was very open-ended, and therefore, the RT prepared for a relatively long and flexible discovery period to allow for opportunities to emerge.

Introductions and Common Understanding

This part of the project started in December 2019 and lasted for about four months. The CT and the RT met every three weeks.

Introducing team members

The first meetings were used to introduce team members, their place within their organization, and their relationship to the potential partnership. The RT was composed of two MacEwan University professors, whose teaching and research are focused on UXD. The RT introduced their background, skills, and expertise, as well as provided an overview of the MacEwan University UXD program. The initial CT was the Director of Strategy, Customer Experience, and Service Design and two members of their section: the Manager of Service Design and a Customer Experience Analyst.

Developing a common understanding

During these first meetings, definitions of design and user experience design were shared to allow for a common understanding of the discipline, skills, and methods. This helped clarify the RT's expertise as well as the students' within the user experience design program they are teaching in.

Sharing of broad ideas for collaborations

Broad ideas for collaborations on research and teaching were also shared by both CT and RT. For example, the CT noted a need to enhance design and user experience roles and skills within the organization, especially as there were many opportunities to improve service delivery to citizens. In the broadest terms, they were seeking advice on how to inject more user experience design into their teams and service delivery approach and, eventually, create a talent pipeline of UX designers to fill this gap identified within the organization. A first concrete opportunity for collaboration arose from these first meetings. The MacEwan Design program was preparing the fourth-year capstone course for the upcoming Fall-Winter terms. They sought community partners and problems that students could choose to work on as their capstone project. Since the City was keen on identifying talent, they were motivated to find potential projects within the City that could fit the capstone course and decided to submit relevant projects. This opportunity will be explained further below.

Discovery: The Big Listen

Building a Partnership Structure

After the first four months, the partnership was well on its way but needed more structure. It was decided that a formal legal agreement would be needed between the two partners. The most important reason for creating such a document was to clarify the intellectual property and ownership

of any future work, as well as the sharing of information outside the immediate project teams and to the public for research dissemination. The second reason addressed two key concerns: Alberta's Freedom of Information and Protection of Privacy (FOIP) law and ensuring the City could protect its reputation².

More frequent meetings

To help create an in-depth understanding of the City's approach to service delivery, both the RT and the CT agreed they needed to meet more often, so for the following three months (April to June 2020), the teams met every week. Most of these meetings involved presentations by the CT. In particular, the City explained their organizational structure, service review framework, and the 18-month strategic plan for the Business Performance and Customer Experience branch they belonged to. During those presentations, the RT listened and asked questions, which led to discussions and reflections. The RT also provided feedback and advice on specific projects the CT was working on, which included a service blueprint map, an experience map, and a stakeholder map for a service review around snow and ice removal from city streets.

Review of Partnership

Teamwork is central in a participatory approach, and as all participants are seen as equals, the teams wanted the relationship to be reviewed and negotiated regularly (Meyer, 2000: 178). Therefore, at the beginning of June 2020, both teams agreed to take some time to assess the partnership. RT asked the CT what they thought was working well and what could be improved. Both parties believed the partnership was successful and should continue. The CT appreciated the RT's flexibility and willingness to listen and ask questions to understand their context. They noted that the RT's feedback and advice were useful to them so far and were confident that the RT could provide expertise currently missing in their branch.

Identifying Research Opportunities

After those months of presentations and discussions, the RT identified opportunities that would help the CT while also forwarding its research agenda. These opportunities, broadly presented in Outcomes below, were presented to the CT, who confirmed they would be relevant and could add value to the City.

City Reorganization and Budget Cuts

At the end of June 2020, the CT informed the RT that a significant reorganization was taking place in addition to potential budget cuts. It was unclear where the CT members would end up in this reorganization and who would be the RT liaison if the current ones were moved to new positions.

From Concept to Implementation

Formalizing the partnership

In the fall of 2020, regular meetings were re-established. The teams focused their attention on the start of the capstone projects and the legal agreement, in addition to defining the scope of the first research projects.

Presenting the final reorganization

The CT provided regular updates on the reorganization throughout the fall, and in February 2021 (around six months after the reorganization announcement), the CT was able to present the final structure to the RT. Within a new Service Innovation and Performance Branch (SIP), it was decided there would be three new divisions: Business Intelligence and Analytics, Strategic Management and Corporate Performance, and Service Design. The CT determined that the latter division would be the best fit for the partnership on an ongoing basis. While this reorganization resulted in losing two executive members of the CT, the partnership also gained four new members: the SIP Branch Manager, the Service Design division Director, and two managers within this latter division. The new branch has a wider and more global scope than the previous one. When the reorganization became official, the RT met with the new CT team and presented the research opportunities previously identified. There was ample support to continue the partnership as the CT believed that it would benefit the new City approach to service delivery.

Signing the legal agreement

By March 2021, the two parties could finalize and sign the legal agreement as they agreed on a plan to work on the first set of research projects in the spring and summer of 2021.

Outcome

Throughout the meetings and discussions, the teams identified many opportunities. The RT had to determine whether those opportunities would be more relevant for pure practice (in which case the RT would not participate as they did not wish to replicate a practitioner's role), research, or teaching opportunities. This led the RT team to reflect on the characteristics that would make a project more suitable for each project category and to identify the right vehicles for these collaborations more specifically.

Teaching Opportunities

Some projects were more suited than others for student learning experiences. So far, this partnership had led to the submission of three projects for the year-long capstone course for fourth-year undergraduate design students. The projects were all related to improving service delivery and product development. Each project came from a different part of the organization (Waste Services, Business Performance and Customer Experience Branch, and Municipal Fleet Maintenance Services). Each touched on a different subdiscipline within design: environmental design (design of signage for a service), user experience design (redesign of an internal digital platform) and information design (designing a digital form template). Students worked on the projects from the fall of 2020 to the spring of 2021 and delivered their solutions to the City.

This experience led the RT team to identify project characteristics best suited for integration into the classroom; they had to:

- Support the learning outcomes of a course;
- Correspond to the design program's schedule (Fall and Winter semesters);
- Be simple enough to be conducted by undergraduate students;
- Consist of a well-defined project with clear boundaries (e.g., redesign of a digital product).

The capstone course had learning outcomes that were broad enough to support these projects and had a schedule that supported their development. The three projects also had an appropriate level of complexity to be completed in a fourth-year capstone course for an undergraduate design program. The scope of each project was very well defined, which diminished ambiguity and made it easier to integrate into a pedagogical environment. Because these three projects were successful, the RT team is now trying to identify other courses where City projects could be integrated.

Research Opportunities

This initiative led to identifying many potential research opportunities. They were grouped into three research themes:

Academia-Industry Collaboration in Design

Through this collaboration, the RT learned that these types of partnerships are not well documented in user experience design and that within the City, this is also uncharted territory. Indeed, to the knowledge of the CT, this is the first time the City has developed a partnership with academia.

User Experience Design and Digital Transformation

As mentioned, the RT learned during the project that the City was undergoing a digital transformation process. On various occasions, the CT was interested in knowing more about where and how user experience design could fit into that initiative. Both teams realized that while user experience designers play a significant role in establishing usable products and services, their role within digital transformation initiatives is poorly understood. Currently, existing research on digital transformation mainly stems from the fields of information technology and information systems, and business and management (Nadkarni & Prügl, 2021; Verhoef et al., 2021); it also rarely focuses on the experience of the end user or the citizen in the case of a government organization.

Digital Ecosystem Mapping

The City has a very complex digital ecosystem, and the lack of a complete overview of existing channels for service delivery and communication with citizens made decision-making at a global level difficult. This became an even more important need with the new branch, which oversees service delivery for the whole organization. Visually representing dimensions of a digital ecosystem can shed light on issues that would otherwise be impossible to see (Kalbach, 2016; Brown, 2010) and is especially relevant for large organizations with complex ecosystems. While designing ecosystem maps for large organizations is gaining in popularity in the practice of design, there is currently a lack of standards on how to build these ecosystem maps, and research on that topic is rare (Hinton, 2014).

These themes mainly focus on *understanding*. Understanding of the academia-industry relationship, understanding of digital transformation and design, and understanding of digital ecosystems. Since the RT discovered that research in this area is quite nascent, these themes seemed

like a relevant starting point. Other themes related to *evaluation, planning, or creation* could be added at a later stage of the collaboration.

Opportunities better suited for research purposes were identified using the following criteria; they need to:

- Address a gap in knowledge for practitioners and researchers in user experience design;
- Present a high level of complexity;
- Be broad and high-level;
- Have a potential for scaling for research purposes.

Since the RT's goal is to generate new knowledge through practice, it was crucial to identify any gap in knowledge for practitioners and researchers. Additionally, problems that were complex, broad, ill-defined, and higher-level were interesting to the RT team because they offered rich potential for discovery and perhaps more opportunities to scale the research, thus building a deeper understanding of a topic.

Lessons Learned

This first phase of the partnership brought various benefits but also uncovered some challenges and limitations with this approach. These were grouped into ten lessons learned.

1. Practice-led participatory approach provides an insider's perspective

This participatory approach provided an in-depth perspective that would be difficult to get from literature only or from a more conventional research approach where organizations are studied from an external viewpoint. Identifying problems and researching opportunities emerging from the practice was helpful for the RT.

2. Practice-led participatory approach might offer a perspective into a limited number of organizations

In this current project, the RT gained perspective into a single organization. This means that the opportunities identified would be relevant solely to that organization and would be harder to generalize. Since the RT was aware of that risk, they used existing literature to support the research opportunities they identified. These themes, along with their related organizational needs, seem to be shared by other organizations, and it appears that some generalization is possible. This is also one

of the reasons why the RT wanted potential opportunities for research that were broad enough to be applied to other organizations and would inform the UX design research field.

3. Practice-led participatory approach can bridge research and practice

This collaboration led to identifying research opportunities that seemed relevant from both a research and practice point of view. Working on a real-world project meant the RT had to work within the City's constraints: terminology, categorization, software, etc. Working within these constraints can make the outcomes more likely to be relevant to other practitioners. Additionally, this approach led to effective work-integrated learning experiences for design students.

4. Process is gradual and non-linear

Developing a participatory research partnership with an organization can take time, especially when it is the first time for both parties and no clear and specific research agenda was set at the beginning of the collaboration. Starting such a collaboration requires both parties to be patient, understanding, flexible, and open to different opportunities. Everyone's thoughts about the partnership and the potential research opportunities evolved weekly and will keep evolving as the partnership grows.

This patient approach is exemplified in the "Discovery: The Big Listen" phase described earlier. This period was extremely valuable but also very demanding for the RT as they had to consume a significant amount of new information, build a mental model for a complex organization, and determine what could be relevant to their research agenda while also trying to identify a concrete project to collaborate on.

5. Progress can be uncertain

The RT learned that one must be ready to face a certain level of uncertainty when embarking on this type of approach. For several months, there was considerable uncertainty about what the RT's role would be and if they could find common projects or themes to collaborate on. Ultimately, through patience, listening, and effective analysis, the teams were able to identify potential research themes, which led to projects that would benefit both the CT and the RT.

The major reorganization that the City went through also generated uncertainty about the future of the collaboration. Throughout the process, the City showed a strong will for the partnership to continue and kept one contact person for the duration of the reorganization. From an organizational

perspective, receiving buy-in from executive management in the City and having them involved in the collaboration as a sponsor was an important aspect of the partnership's success. This reorganization showed that the City was in the early stages of thinking about transforming its service delivery, which was seen as a potential benefit for the RT. Indeed, the RT was able to get in on the ground floor with the CT's support and eagerness to explore new approaches.

6. Partners become extensions of the research team

As the partnership developed, the CT became an extension of the research team. They were able to offer insights from the organization's perspective. Since the core CT members come from fields other than design (business, management, computer science, and business intelligence), they were able to offer an invaluable multidisciplinary perspective that enriched discussions and broadened possibilities. The CT also has access to resources that lay beyond their scope; they were able to reach out to other people in the organization as needed to provide relevant information, perspectives, and guidance.

7. Legal agreement helps to formalize the relationship

Building a clear written legal agreement with the organization was a key component to building and formalizing this relationship. Both partner organizations are large and have legal departments that are typically risk-averse. This required several meetings and iterations of the agreement that suited the open-ended needs of both the CT and RT, as well as the level of risk mitigation the legal departments desired. While these types of agreements can take a long time to write and involve a lot of back and forth between the university and the organization, the document helps establish clear boundaries, expectations, and a shared understanding of the partnership. In this project, the legal agreement could have been started earlier in the process, during the introductory phase of the project.

8. Agreeing on intellectual property and dissemination of research is crucial

As with other similar partnerships, dissemination and intellectual property were important challenges that needed to be addressed in the agreement (Lameman et al., 2010). To maximize the impact of their research, the RT wanted to retain intellectual property ownership and the ability to

disseminate without limitations regarding content or audience. While the CT supported these goals and agreed to allow the RT to retain ownership and control over all research output, it also needed to protect the City's reputation. For example, over the course of the research, the CT may have revealed information critical to the research but that may reflect poorly on the City. The RT understood the City's need to protect its reputation and agreed to omit content from dissemination that would be clearly damaging to its reputation. Unfortunately, there is considerable subjectivity in determining what could be damaging, so good faith and mutual trust were critical for implementing the agreement.

9. Mutual trust is important to creating a fruitful partnership

While the legal agreement was very valuable, it contained a lot of grey areas. A mutual sense of trust, shared values, and reciprocity also needed to be developed. Some strategies were implemented to build this relationship and make everyone feel equal. For example, the RT involved the CT in their dissemination activities by sharing draft research papers and inviting them to present with them. This allowed the CT to add their input and feedback, as well as identify any reputational issues. In turn, this helped forge a stronger partnership. Also, the teams identified rotating meeting chairs, so responsibilities were more evenly shared. Beyond these strategies, it is important to note that, like any enduring partnership, building trust takes time. This might mean starting with short-term projects to see how the partnership develops before planning longer-term collaborations.

10. Roles need to be regularly negotiated and redefined

In participatory practice-led research collaboration, roles and responsibilities are not as well defined as in more traditional client-practitioner or researcher-participants partnerships. Indeed, the distinction between researchers and the partner organization's roles was not always clear, as is usually the case in this type of research (Muratovski, 2015; Meyer, 2000). A dedicated meeting to discuss the partnership was fruitful in tackling this reality. However, holding a single meeting on that topic was deemed insufficient. Planning at least two meetings per year to discuss the state of the partnership would be more appropriate.

Conclusion

Despite many challenges, adopting a practice-led participatory approach proved to be quite enriching. It helped identify not only interesting research questions but also teaching collaborations. A sense of mutual trust, shared values, transparency, and good faith have been key elements for the success of this partnership.

Endnotes

1. The original version of this article was published in French in Sperano, I., Andruchow, R., Petryshyn, L., & Chu, V. (2022). Expérience utilisateur et gouvernement numérique : Exploration d'une approche participative dirigée par la pratique afin d'identifier des opportunités de recherche. In I. Clerc (Ed.), *Communication écrite État-citoyens : Défis numériques, perspectives rédactologiques*. Presses de l'Université Laval.
2. The FOIP law governs what government information citizens can access and this would include any documentation we shared with the City. Reference: Alberta, G. of. (2006, December 28). *FOIP - Freedom of Information and Protection of Privacy*: [Text]. <https://www.servicealberta.ca/foip/>

References

- Brown, D. (2010). *Communicating design: Developing web site documentation for design and planning* (2nd ed.). New Riders Press.
- Broudoux, É., Chartron, G., & Chaudiron, S. (2013). L'architecture de l'information: Quelle réalité conceptuelle? *Études de communication. langages, information, médiations*, 41, 13-30.
<https://doi.org/10.4000/edc.5379>
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5-21.
- Cieślak, A. (2020, January 14). *User experience design in digital transformation*. Medium.
<https://uxplanet.org/user-experience-design-in-digital-transformation-cc1923bcd2a>
- Candy, Linda. 2006. *Practice-based research: A guide*. CCS Report 2006-V1.0 November. Sydney: Creativity and Cognition Studios, University of Technology.
- Farber, L. (2009). On making: Integrating approaches to practice-led research in art and design. Introduction notes. FADA Visual Identities in Art and Design Research Centre. University of Johannesburg.

- Hinton, A. (2014). What we make when we make information architecture. Dans A. Resmini (Éd.), *Reframing information architecture* (p. 103 - 117). Springer International Publishing.
<https://doi.org/10.1007/978-3-319-06492-5>
- Hobbs, J., Fenn, T., & Resmini, A. (2010). Maturing a practice. *Journal of Information Architecture*, 2(1), 37–54.
- Holkup, P. A., Tripp-Reimer, T., Salois, E. M., & Weinert, C. (2004). Community-based participatory research. *ANS. Advances in Nursing Science*, 27(3), 162–175. <https://doi.org/10.1097/00012272-200407000-00002>
- Julkunen, I. (2011). Knowledge-production processes in practice research—outcomes and critical elements. *Social Work & Society*, 9(1), 60–75.
- Kalbach, J. (2016). *Mapping experiences*. O'Reilly Media Inc.
- Lameman, B. A., El-Nasr, M. S., Drachen, A., Foster, W., Moura, D., & Aghabeigi, B. (2010). User studies: A strategy towards a successful industry-academic relationship. *Proceedings of the International Academic Conference on the Future of Game Design and Technology*, 134–142.
<https://doi.org/10.1145/1920778.1920798>
- Luther, L., Tiberius, V., & Brem, A. (2020). User experience (UX) in business, management, and psychology: A bibliometric mapping of the current state of research. *Multimodal Technologies and Interaction*, 4(2), 18. <https://doi.org/10.3390/mti4020018>
- Marcoux, Y., & Rizkallah, É. (2013). La dimension sémantique, négligée de l'approche expérience-utilisateur. *Études de communication. langages, information, médiations*, 41, 119–138.
<https://doi.org/10.4000/edc.5418>
- Meyer, J. (2000). Using qualitative methods in health related action research. *BMJ*, 320(7228), 178–181. <https://doi.org/10.1136/bmj.320.7228.178>
- Muratovski, G. (2015). *Research for designers*. Sage Publications.
- Norman, D. & Nielsen, J. (2016). The definition of user experience (UX). Nielsen and Norman Group.
<https://www.nngroup.com/articles/definition-user-experience/>
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly*, 71(2), 233–341.
<https://doi.org/10.1007/s11301-020-00185-7>
- Nielsen, J. (2016). *The distribution of users' computer skills: Worse than you think*. Nielsen Norman Group. <https://www.nngroup.com/articles/computer-skill-levels/>

OECD. (2019). Enhancing innovation capacity in city government. OECD.

<https://doi.org/10.1787/f10c96e5-en>

Panchev, A. (2020). *The role of user experience design within digital transformation: Insights from Sweden* [Master's thesis, Jönköping University].

Paay, J., Kuys, B., & Taffe, S. (2021). Innovating product design through university-industry collaboration: Codesigning a bushfire rated skylight. *Design Studies*, 76, 101031.

<https://doi.org/10.1016/j.destud.2021.101031>

Pittaway, J. J., & Montazemi, A. R. (2020). Know-how to lead digital transformation: The case of local governments. *Government Information Quarterly*, 37(4), 101474.

<https://doi.org/10.1016/j.giq.2020.101474>

Resmini, A., & Instone, K. (2010). Research and practice in IA. *Bulletin of the American Society for Information Science and Technology*, 36(6), 19-24.

<https://doi.org/10.1002/bult.2010.1720360607>

Rittel, H., & Webber, M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155-69. <https://doi.org/10.1007/BF01405730>

Sperano, I. (2017). *L'audit de contenu en architecture d'information : Examen de la méthode à travers les écrits d'experts* [PhD Thesis, Université Laval]. <http://hdl.handle.net/20.500.11794/27621>

Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, 38(2), 227-242. <https://doi.org/10.1177/0022022106297301>

Uggerhøj, L. (2011). What is practice research in social work—definitions, barriers and possibilities. *Social Work & Society*, 9(1), 15.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889-901. <https://doi.org/10.1016/j.jbusres.2019.09.022>