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Fostering access to cultural heritage knowledge: iterative design for the visit of historical monuments

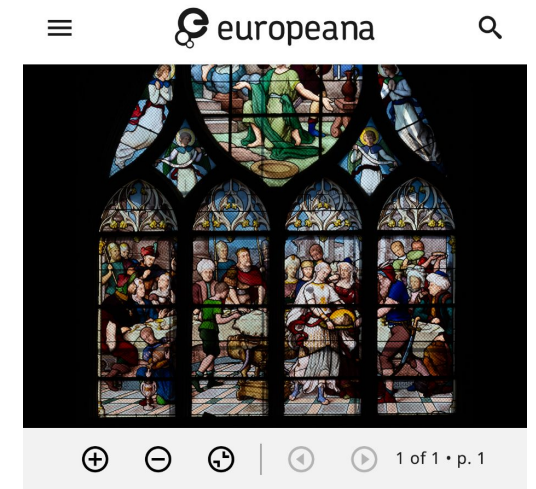
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¹ University of Technology of Troyes

TPDL 2023 - 28 / 09 / 2023 - Adrien FALLOT

Accessing cultural heritage through knowledge bases

Cultural Open Data / Cultural heritage knowledge bases (Mathis, 2014)

- **(Inter-)national inventories** (eg. Europeana, POP)
- **Museums online collections** (eg. Rijksstudio, Louvre Collection)
- **Private actors** (eg. WikiData, Google Art&Culture)



Stained glass window

Stained glass windows in the church of St. Seweryn in Paris made in the 19th century according to the design of Émile Hirsch. Stained glass window depicting the beheading of St. John the Baptist and bringing the head of St. John on a platter during Herod's feast.

[Good to know](#) [All metadata](#) [Location](#)

Subject
artistic technique ; stained glass art

Type of item
Stained glass ; stained glass window ; stained glass ; architectural element

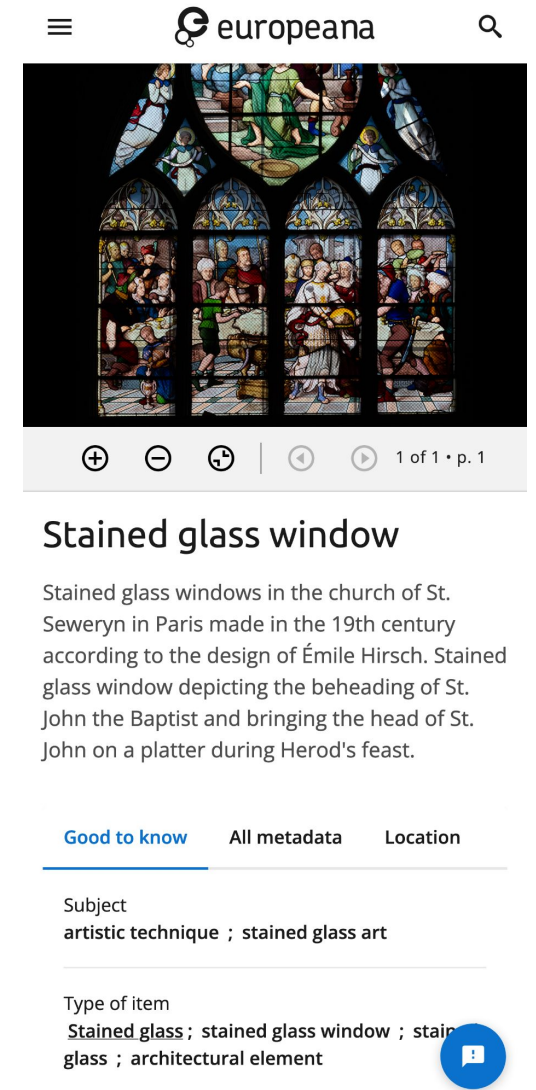
Accessing cultural heritage through knowledge bases

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Accessibility to the knowledge in these bases **is not only a problem of openness or even ergonomics.** There is also **the problem of how users can understand the knowledge available**

(Kanellos, 2009)



The screenshot shows the Europeana interface. At the top, there is a navigation menu, the Europeana logo, and a search icon. Below this is a large image of a stained glass window. Underneath the image are navigation controls (plus, minus, zoom, left arrow, right arrow) and the text "1 of 1 • p. 1". The main title is "Stained glass window". Below the title is a descriptive paragraph: "Stained glass windows in the church of St. Seweryn in Paris made in the 19th century according to the design of Émile Hirsch. Stained glass window depicting the beheading of St. John the Baptist and bringing the head of St. John on a platter during Herod's feast." Below the description are three tabs: "Good to know" (selected), "All metadata", and "Location". Under the "Good to know" tab, there are two sections: "Subject" with the text "artistic technique ; stained glass art" and "Type of item" with the text "Stained glass ; stained glass window ; stained glass ; architectural element". A blue circular icon with a white exclamation mark is located at the bottom right of the metadata section.

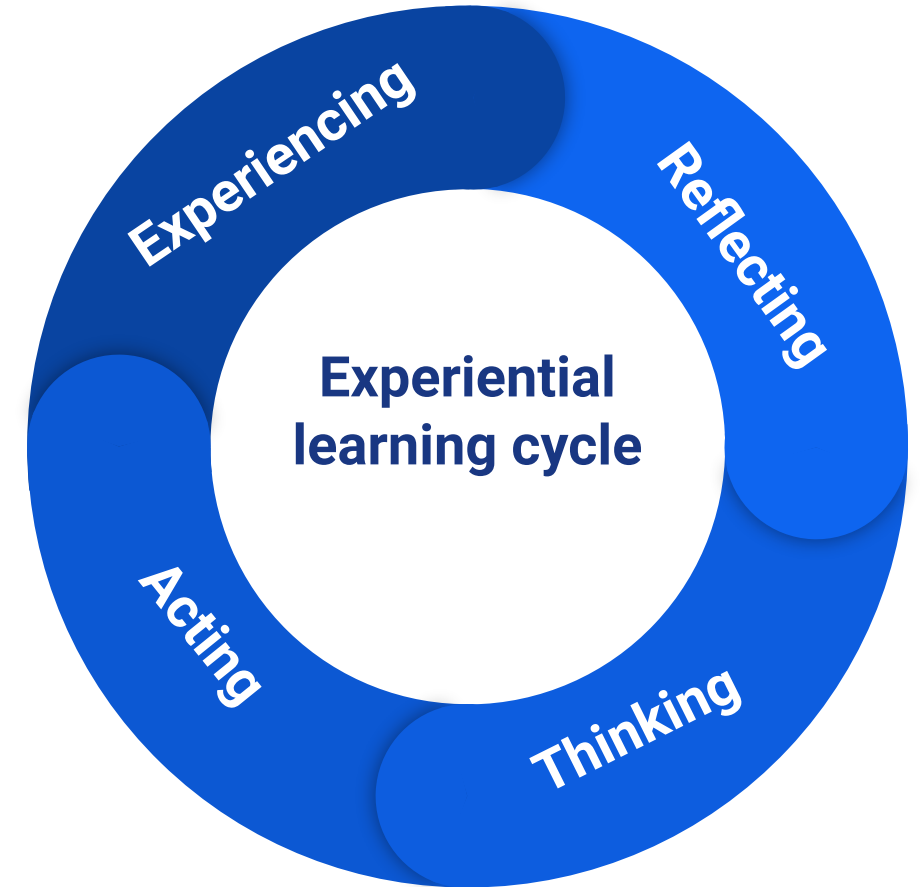
From knowledge to knowing: interacting with information

Knowing not come from the text, but **from the reflective attitude of the visitor** (Denis, 1995)

“**Learning by doing**” approaches

Experiential learning (Kolb, 2014)

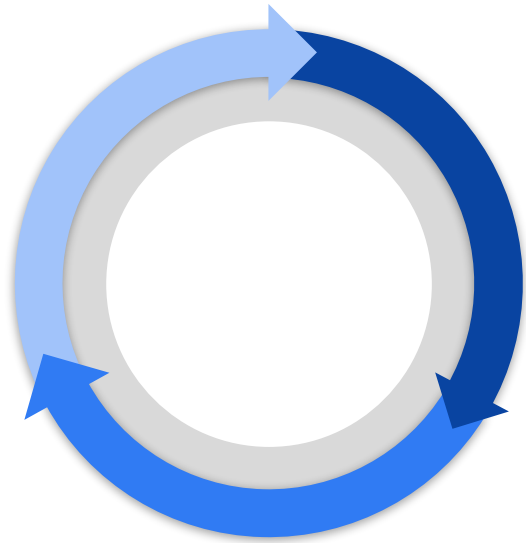
1. Experiencing
2. Reflecting
3. Thinking
4. Acting



Kolb's experiential learning model

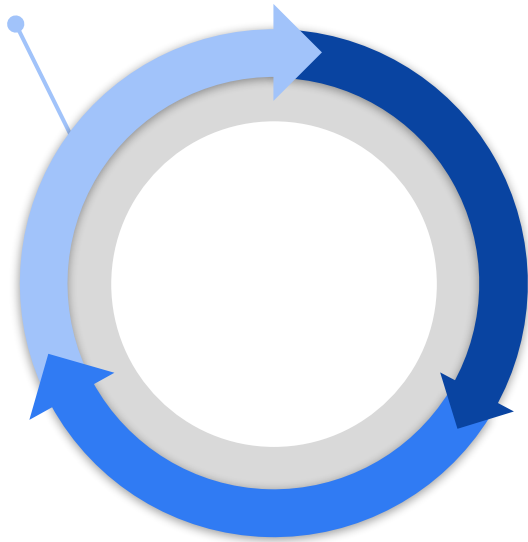
***What are the design challenges to
foster access to stained glass
knowledge during an in situ visit?***

Methodology: between theorising, designing and observing

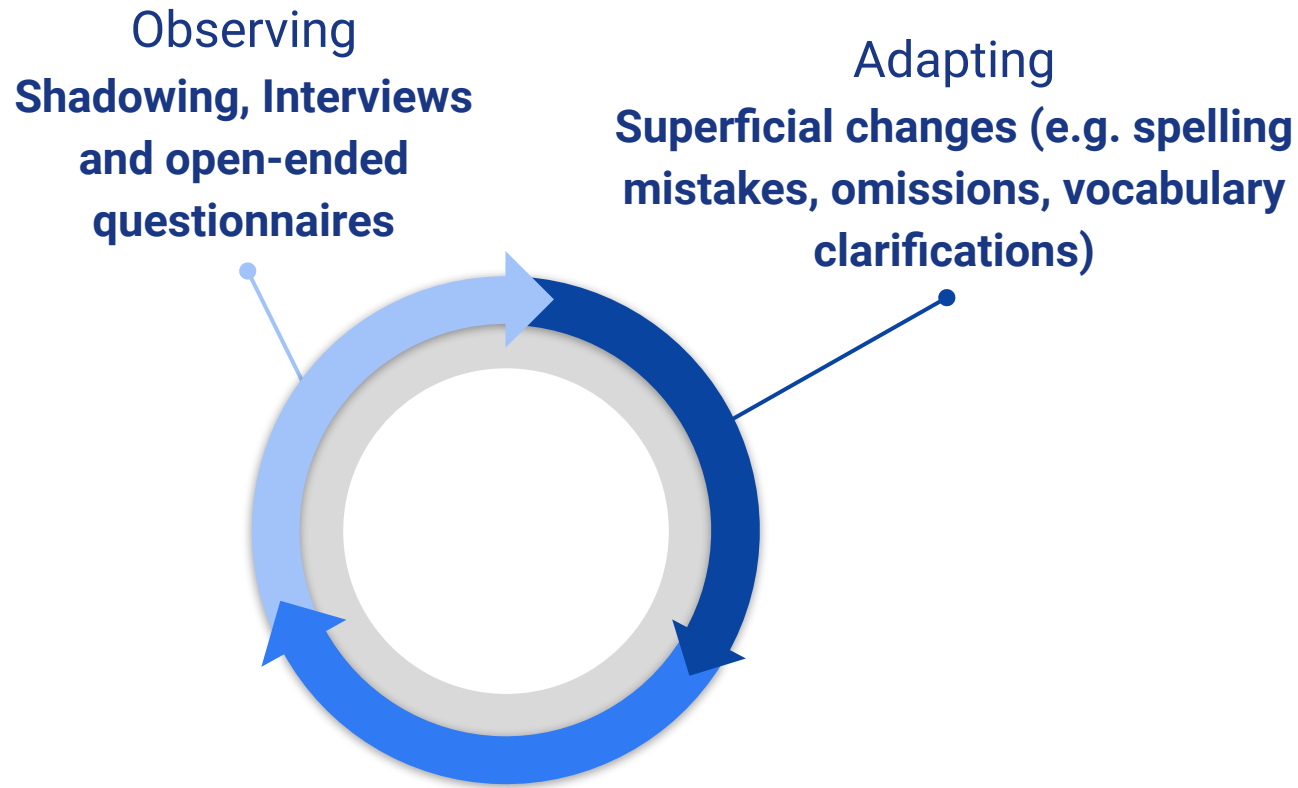


Methodology: between theorising, designing and observing

Observing
Shadowing, Interviews
and open-ended
questionnaires



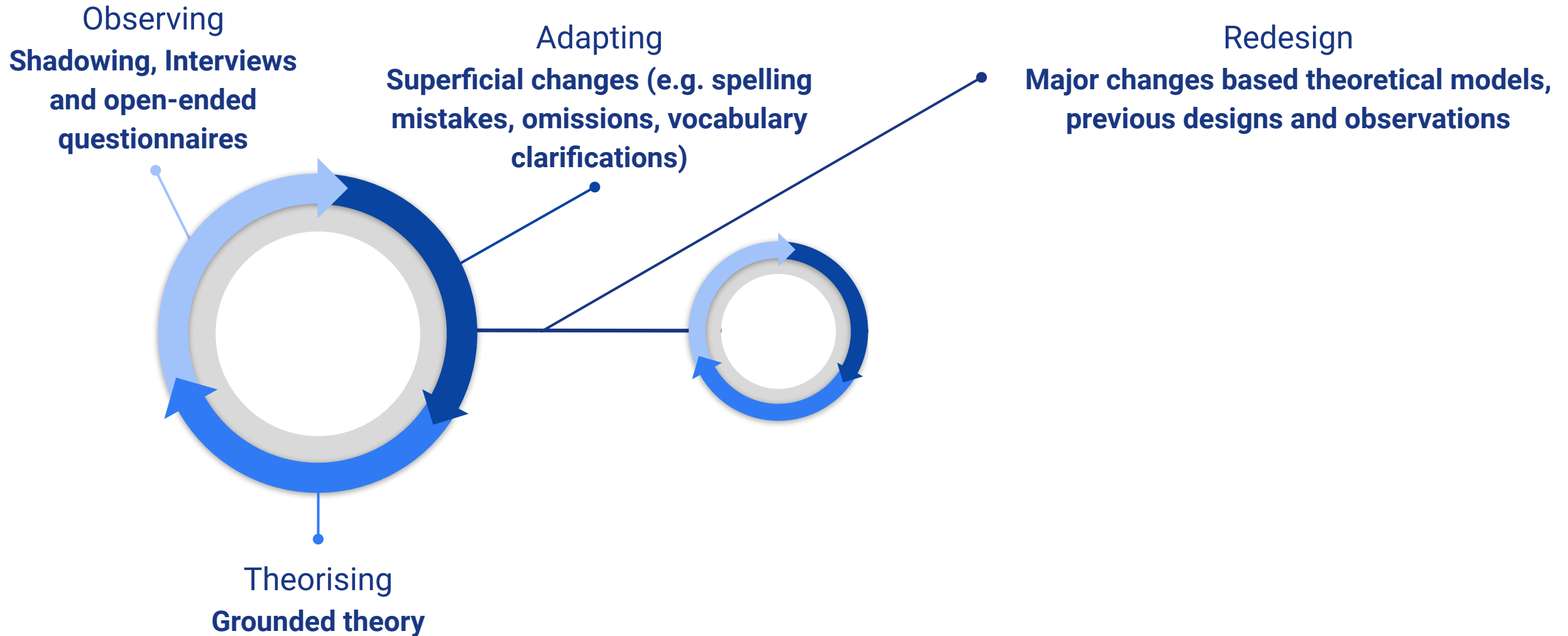
Methodology: between theorising, designing and observing



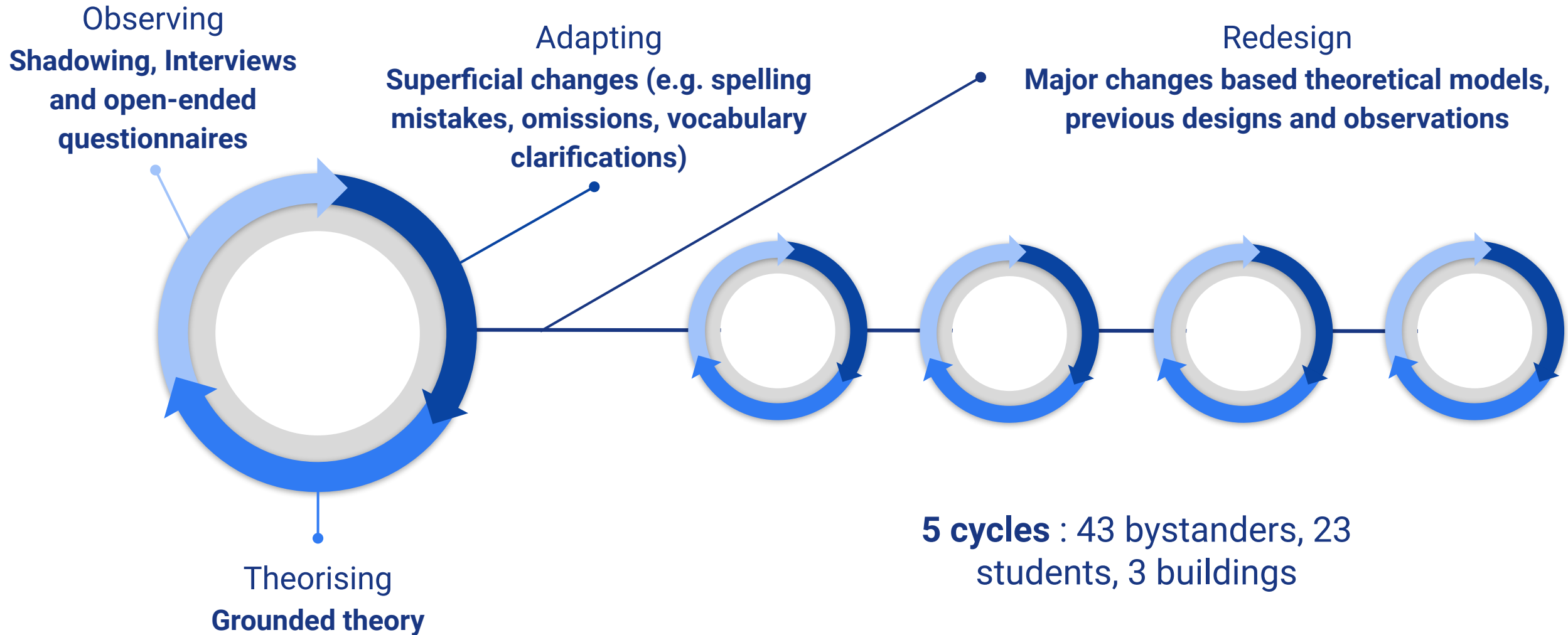
Methodology: between theorising, designing and observing



Methodology: between theorising, designing and observing



Methodology: between theorising, designing and observing



Design challenges to enhance historical monument visits

What are the design challenges to foster access to stained glass knowledge during an in situ visit?

Challenge 1: Linking the physical space with the documentary space.

Challenge 2: Associating information to the corresponding part of the stained-glass windows.

Challenge 3: Matching subjects and representations.

Challenge 4: Remobilisation of knowledge and skills.

Design challenges to enhance historical monument visits

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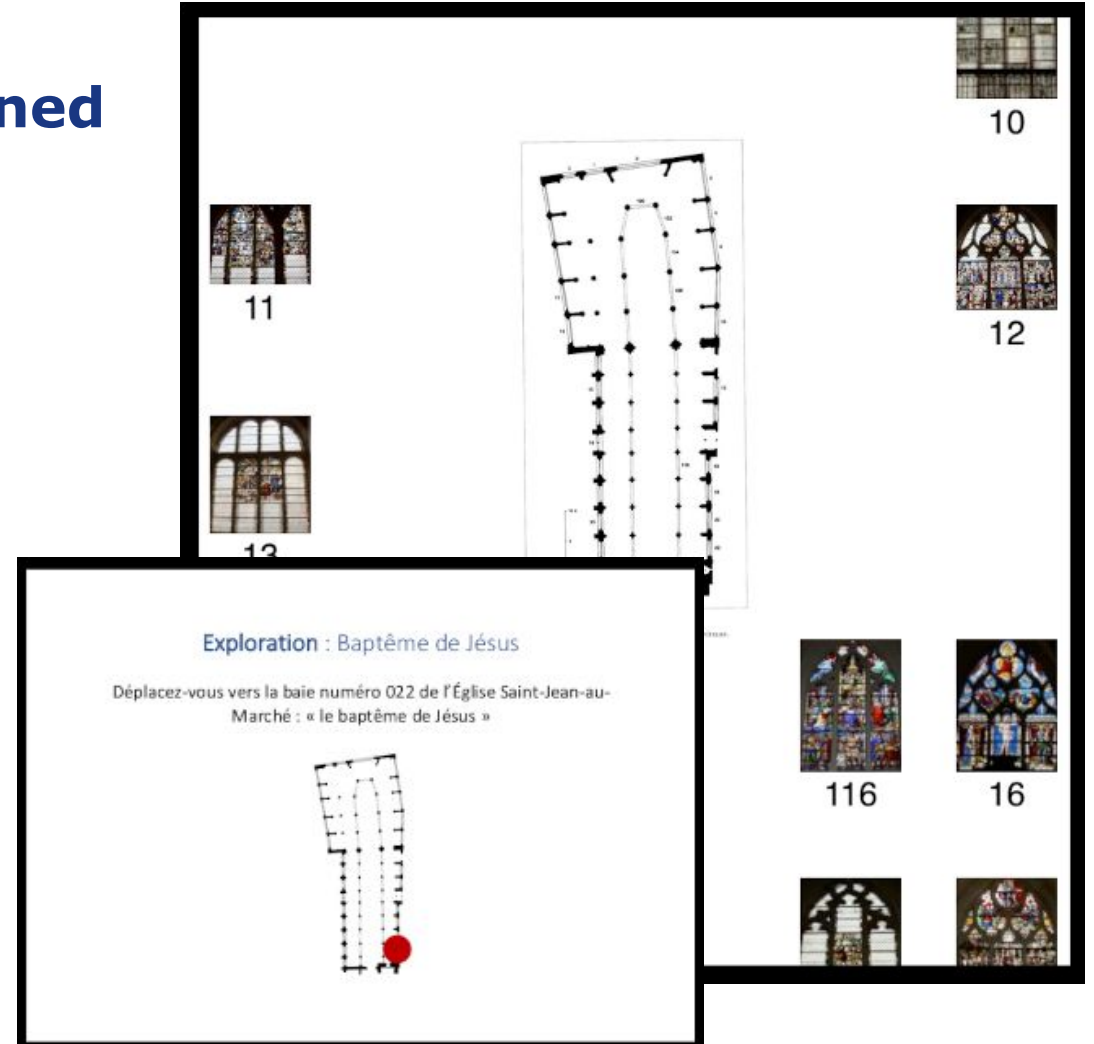
Challenge 2: Associating information to the corresponding part of the stained-glass windows.

Challenge 3: Matching subjects and representations.

Challenge 4: Remobilisation of knowledge and skills.

Challenge 1: Linking the physical space with the documentary space.

Problem: Visitors need to know **which stained glass window is being explained.**

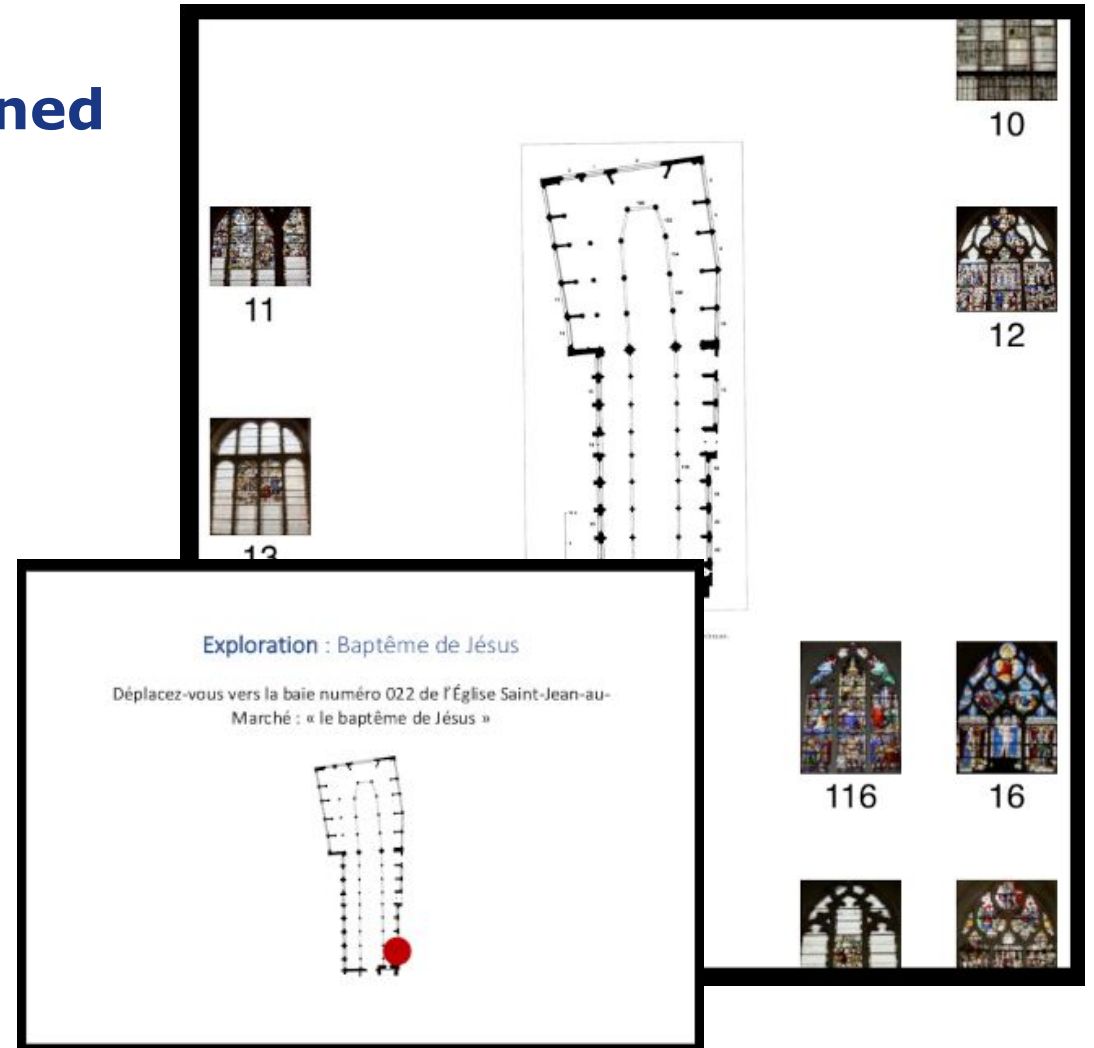


Challenge 1: Linking the physical space with the documentary space.

Problem: Visitors need to know **which stained glass window is being explained.**

Propositions:

- **Reusable identification** (e.g. standardized identification based on location)
- **Map with photography** for orientation
- **Move visitors** regularly



Design challenges to enhance historical monument visits

What are the design challenges to foster access to stained glass knowledge during an in situ visit?

Challenge 1: Linking the physical space with the documentary space.

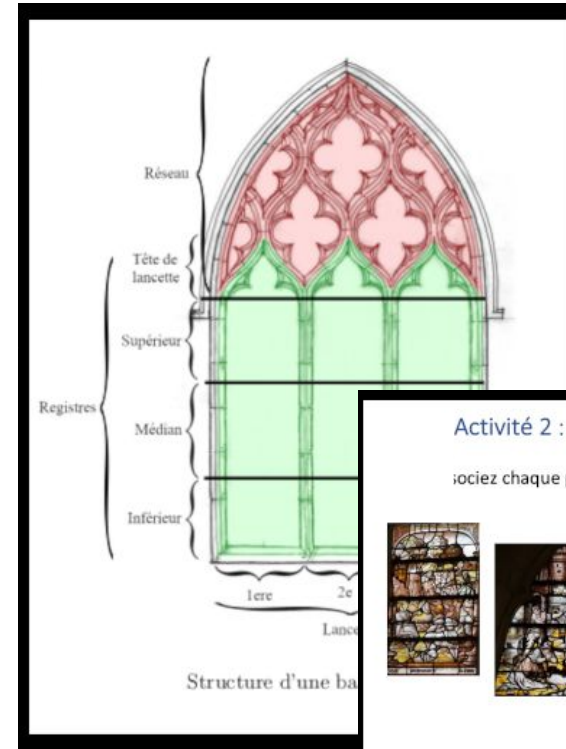
Challenge 2: Associating information to the corresponding part of the stained-glass windows.

Challenge 3: Matching subjects and representations.

Challenge 4: Remobilisation of knowledge and skills.

Challenge 2: Associating information to the corresponding part of the stained-glass windows.

Problem: Visitors need to know **which part of the stained glass window is being explained.**



Activité 2 : Vie et décollation de Jean le Baptiste

Associez chaque partie du récit précédent à la partie correspondante de la baie 020.

① : Indices au dos

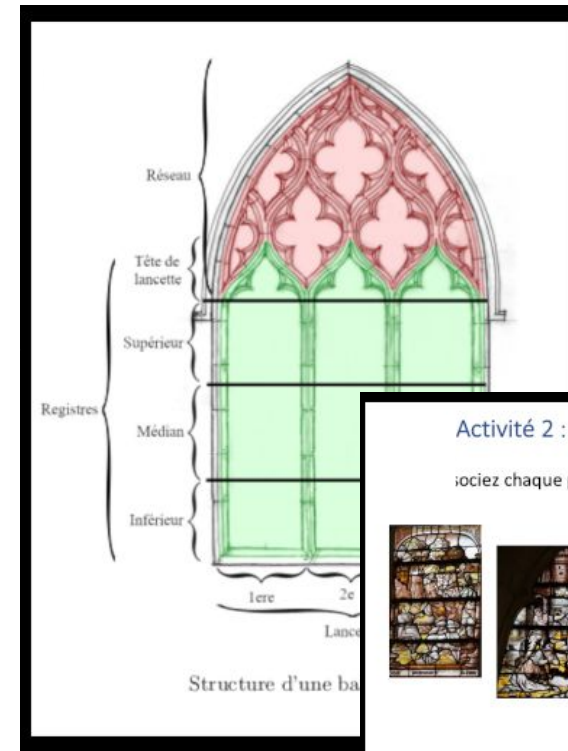
← SJ 022

Challenge 2: Associating information to the corresponding part of the stained-glass windows.

Problem: Visitors need to know **which part of the stained glass window is being explained.**

Propositions:

- **Reusable identification** (e.g. architectural vocabulary of a window)
- **Practical activities to find an element** inside a stained glass window
- Entries for **the whole** stained glass window **and for its details.**



Activité 2 : Vie et décollation de Jean le Baptiste

Associez chaque partie du récit précédent à la partie correspondante de la baie 020.

① : Indices au dos

< SJ 022

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Challenge 3: Matching subjects and representations.

Problem: Visitors need to associate the **right subjects with the right representations.**

Matthieu 3:11-17 | Louis Segond

11 Moi, je vous baptise d'eau, pour vous amener à la repentance; mais celui qui vient après moi est plus puissant que moi, et je ne suis pas digne de porter ses souliers. Lui, il vous baptisera du Saint Esprit et de feu.

12 Il a son van à la main; il nettoiera son aire, et il amassera son blé dans le

Matthieu 3:11-17 | La Bible du Semeur

(Mc 1.7-8; Lc 3.15-18; voir Jn 1.24-28)

11 Moi, je vous baptise d'eau, pour vous amener à la repentance; mais celui qui vient après moi est plus puissant que moi, et je ne suis pas digne de porter ses souliers. Lui, il vous baptisera du Saint Esprit et de feu.

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Rechercher... (Baptême de Jésus)

Plan Satellite

Opacité du calque 70%
triés par name

- BSS 114
- ELC 014
- ELC 016
- PSS 009
- PSS 009
- RH 006
- SJ 011
- SJ 022
- SJ 106
- SNZ 016
- SNZ 106



Challenge 3: Matching subjects and representations.

Problem: Visitors need to associate the **right subjects with the right representations.**

Propositions:

- Introduce **visitors to historical sciences skills**
- **Describe with themes** with a source for each (e.g., excerpts from ancient texts, encyclopaedia articles)
- **Encourage comparisons** (for sources and works of art)

The interface displays two text panels on the left, each with a dropdown menu for the source. The first panel is titled 'Matthieu 3:11-17' by 'Louis Segond' and contains the text: '11 Moi, je vous baptise d'eau, pour vous amener à la repentance; mais celui qui vient après moi est plus puissant que moi, et je ne suis pas digne de porter ses souliers. Lui, il vous baptisera du Saint Esprit et de feu. 12 Il a son van à la main; il nettoiera son aire, et il amassera son blé dans le'. The second panel is titled 'Matthieu 3:11-17' by 'La Bible du Semeur' and contains the text: '(Mc 1.7-8; Lc 3.15-18; voir Jn 1.24-28) 11 Moi, je vous baptise d'eau, pour vous amener à la repentance; mais celui qui vient après moi est plus puissant que moi, et je ne suis pas digne de porter ses souliers. Lui, il vous baptisera du Saint Esprit et de feu. 12 Il a son van à la main; il nettoiera son aire, et il amassera son blé dans le'. In the center, a map of Troyes shows several red location pins. A search bar above the map contains the text 'Rechercher...' and 'Baptême de Jésus'. Below the map, there are controls for 'Opacité du calque' (set to 70%) and 'triés par name'. On the right, a grid of stained glass window images is displayed, each with a label: BSS 114, ELC 014, ELC 016, PSS 009, PSS 009, RH 006, SJ 011, SJ 022, SJ 106, SNZ 016, SNZ 106, and two unlabeled images at the bottom.

Design challenges to enhance historical monument visits

What are the design challenges to foster access to stained glass knowledge during an in situ visit?

Challenge 1: Linking the physical space with the documentary space.

Challenge 2: Associating information to the corresponding part of the stained-glass windows.



Challenge 3: Matching subjects and representations.

Challenge 4: Remobilisation of knowledge and skills.

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Problem: Visitors need to **be empowered and reuse skills on subsequent visits.**

The interface is divided into three main sections:

- Exploration : Baptême de Jésus**
Déplacez-vous vers la baie numéro 022 de l'Église Saint-Jean-au-Marché : « le baptême de Jésus »

- Lecture : Baptême de Jésus**
Dans l'Évangile selon Matthieu (III:13-17), Jésus vient voir Jean pour être lui aussi baptisé.
Jean lui dit : « C'est moi qui ai besoin d'être baptisé par toi ». Jésus répond : « Laisse faire maintenant, car il est convenable que nous accomplissions ainsi tout ce qui est juste. ».
Jean baptise donc Jésus et c'est au sortir de l'eau que ce dernier voit « l'Esprit de Dieu descendre comme une colombe et venir sur lui (Mt 3:16) ».
- Activité 1 : Baptême de Jésus**
Retrouvez dans l'édifice une des deux autres verrières représentant le baptême de Jésus.
 : Indices au dos



Challenge 4: Remobilisation of knowledge and skills.

Problem: Visitors need to **be empowered and reuse skills on subsequent visits.**

Propositions:

- **Thematic approach** rather than a singular description
- **Reusable knowledge and skills** (e.g. standardised identification and architectural vocabulary)
- **Keep knowledge and skills alive** (e.g. practising steps)

The image shows a digital interface for a heritage site visit, divided into three sections:

- Exploration : Baptême de Jésus**
Déplacez-vous vers la baie numéro 022 de l'Église Saint-Jean-au-Marché : « le baptême de Jésus »

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Conclusion

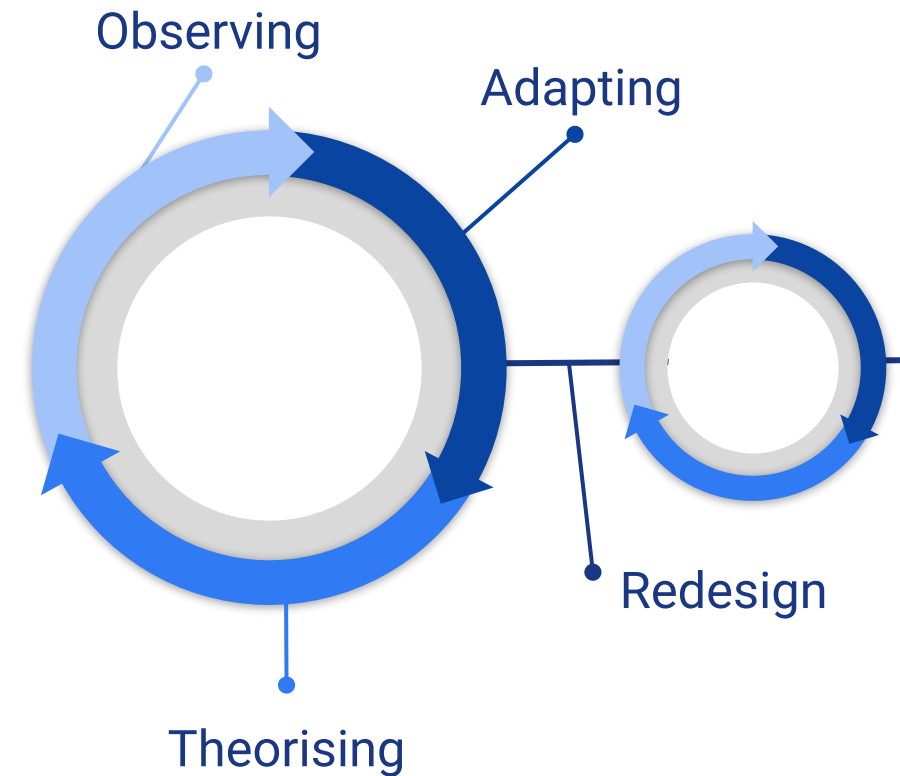
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Limits of our study

No information **on medium and long term knowledge retention**

Last cycle tested with **students**

Conducted in a **very specific visiting context** (stained-glass windows in a French historic monument)



Thank you!

Bibliography

Edson, M.P.: Fire and Frost: The Virtues of Treating Museums, Libraries and Archives as Commons. In: Patterns of commoning. Commons Strategy Group and Off the Common Press, Amherst, Massachusetts (2015)

Mathis, R.: L'Open Data culturel. Documentaliste-Sciences de l'Information. 51, 56-67 (2014).
<https://doi.org/10.3917/docsi.512.0056>

Kanellos, I.: Les musées virtuels et la question de la lecture : pour une muséologie numérique centrée sur le visiteur. Revue des Interactions Humaines Médiatisées (RIHM) = Journal of Human Mediated Interactions. 10, 3-33 (2009)

Denis, S.: Nous sommes tous des poissons : les stratégies de lecture des visiteurs d'exposition.,
<https://bibliotheque-archives.canada.ca:443/eng/services/services-libraries/theses/Pages/item.aspx?idNumber=46529972>, (1995)

Kolb, D.A.: Experiential Learning: Experience as the Source of Learning and Development. FT Press (2014)

How can we foster access to cultural heritage knowledge during an in situ visit?

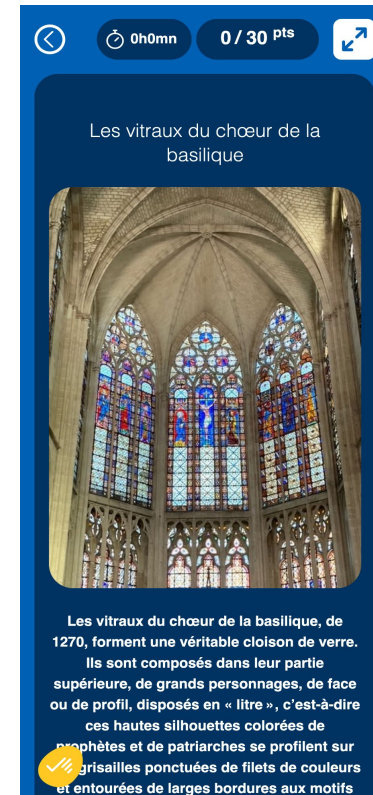
Global but generic



Pokémon GO, Niantic, 2016

Can we design a **"global and flexible"** approach for a large number of points of interest?

Flexible but specific



A La Recherche de La Couleur Magique, Troyes
Champagne Tourisme, 2022

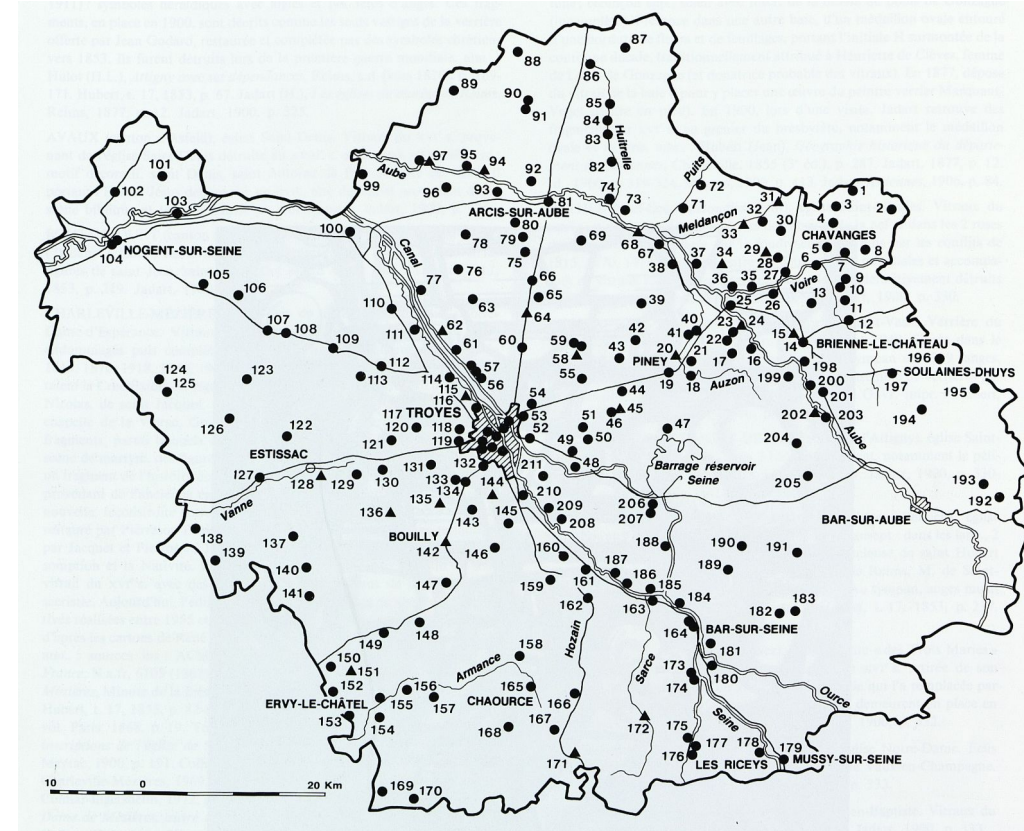
Cultural heritage outside museums

Geographical: elements are scattered over an area (e.g. cities, natural parks)

Functional: places used for other than cultural purposes (e.g. institutional buildings)

Legal: Restrictions on what can be done (e.g. protected natural areas, historical monuments)

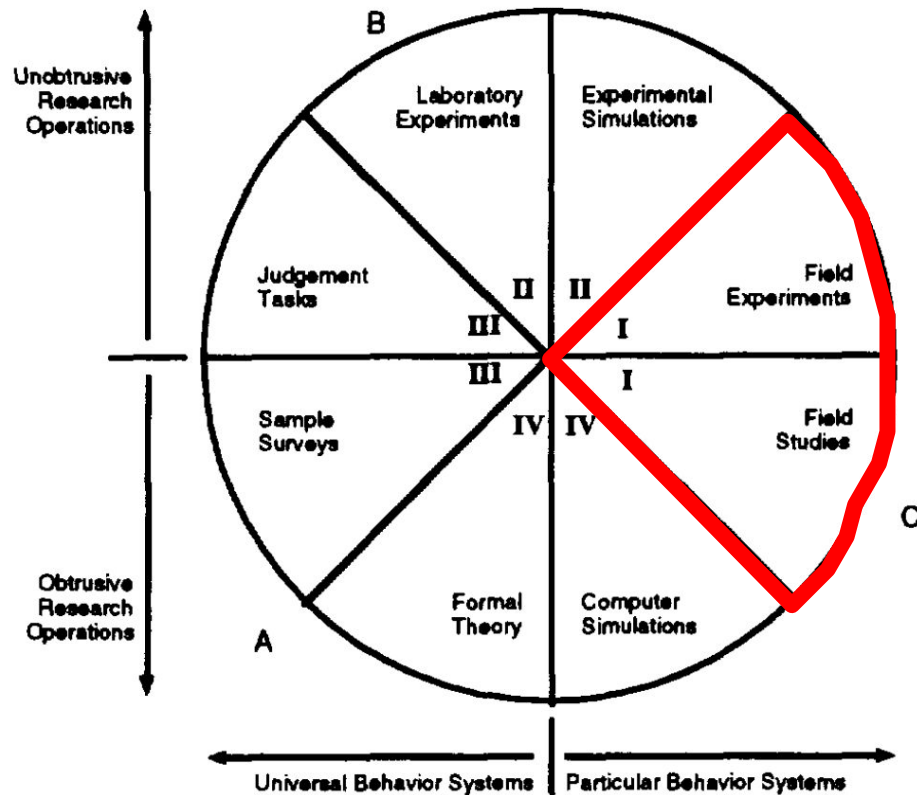
Physical: Difficult or impossible to control scenography (e.g. churches)



Map of the Aube with all the towns with stained glass windows.

Inventaire général des monuments et des richesses artistiques de la France. Les vitraux de Champagne-Ardenne, Éditions du Centre National de la Recherche Scientifique, 1992

Methodology: between theorising, designing and observing



- I. Settings in Natural systems
- II. Contrived and created settings
- III. Behavior not setting dependent
- IV. No observation of behavior required

- A. Point of maximum concern with generality over actors.
- B. Point of maximum concern with precision of measurement of behavior.
- C. Point of maximum concern with system character of context.

The eight major research strategies can be related to one another along several dimensions. Source: Mackay WE, Fayard AL. HCI, natural science and design: a framework for triangulation across disciplines. In: *Proceedings of the Conference on Designing Interactive Systems Processes, Practices, Methods, and Techniques - DIS '97*. ACM Press; 1997:223-234. doi:[10.1145/263552.263612](https://doi.org/10.1145/263552.263612)

Methodology: between theorising, designing and observing

