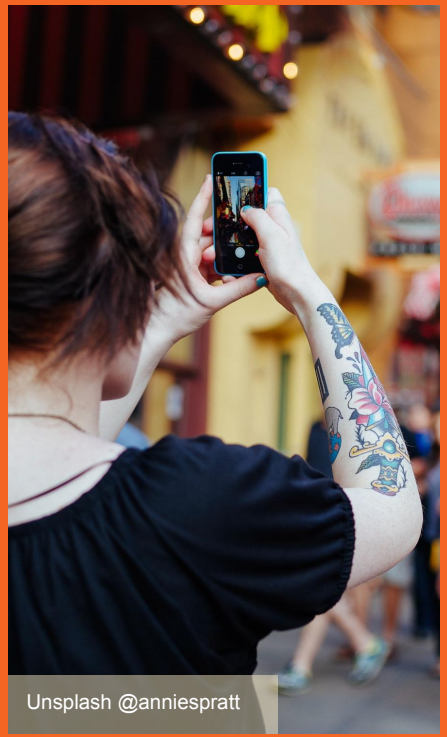

Ways of experiencing technology in a smart learning environment

Reflecting on how participants in smart learning journey activities expressed their experiences of Technology

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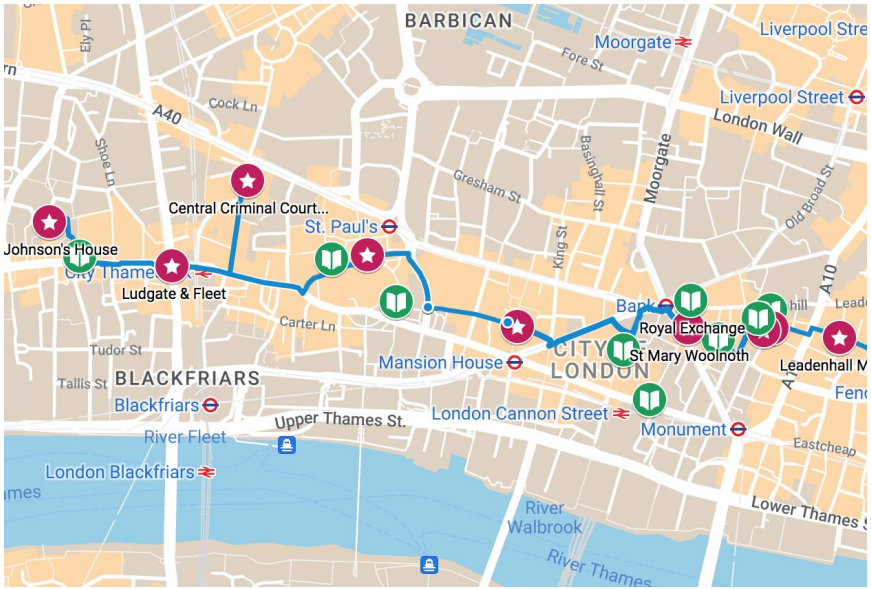
https://tinyurl.com/experiencing-technology

Ways of experiencing digital technology and digital interactions in smart learning journeys *in London UK and Valletta, Malta*



‘Smart Learning’ as local journeys in real-world places

Smart learning journeys can be considered as ad-hoc smart learning environments outside in the real world, offering opportunity for empowering local people to engage in issues relevant to a neighbourhood area.

The Research

- This presentation discusses research carried out during 2018-2020, investigating **experiences of participation in 'smart learning journey' activities using the methodology of *phenomenography***

- Smart learning journey activities used freely available smartphone apps and consisted of a series of digitally augmented real-world local features that together formed a journey of points of interest related by topic

- Participants in these activities took part voluntarily, using their own mobile devices to digitally interact with aspects of an activity and choose what they find of interest

Related publications:

- *Pedagogy of Experience Complexity for Smart Learning*
- *Applying the PECSL model to design activities*
- *Using the PECSL model to evaluate implicit learning*

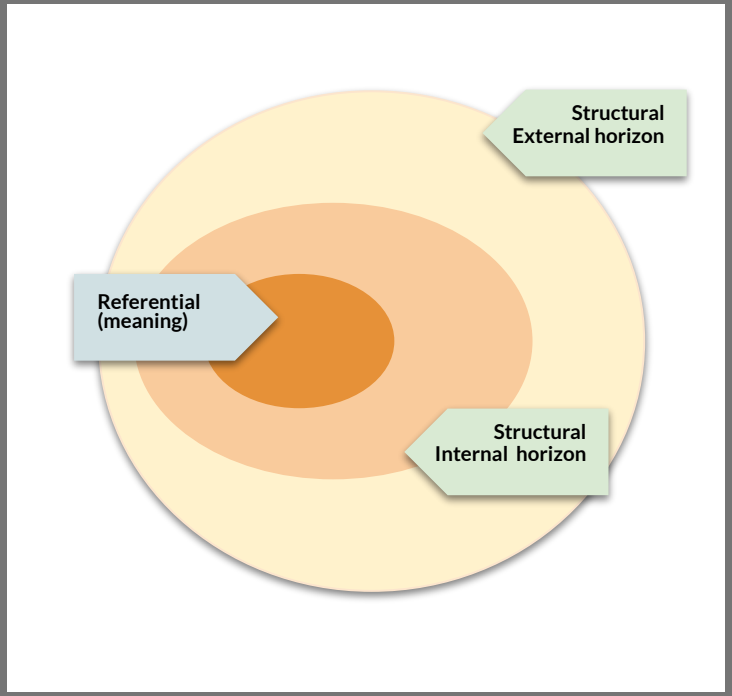
The Research

- **Phenomenography was selected** as other relevant qualitative research employs it
  - *learning with technology* *(e.g. Souleles et al., 2014)* *- allows for a "bottom-up investigation … from the perspective of learners";*
  - *user experience* *(e.g. Kaapu & Tiainen, 2010)* *- "to get an idea of users' subjective experience", aiming to "support customers' participation in product design process"*

- Phenomenography takes **a 'second order' perspective** to analysis (see with their eyes)
- **Analyses learner experience variation at collective level**, though individual context is retained

Focal Awareness

- Phenomenography uses a **structure of awareness analytical framework*:**
- The **Referential** is the focus, where meaning is derived
- The **Structural** *Internal Horizon* is the close up context of the focus, that contributes to context of meaning
- The **Structural** *External Horizon* is the perceptual boundary of the focal awareness



Cope, 2004, after Gurwitsch (2010)

Smart learning journeys as a system

Participant experiences were analysed from the perspective of **a smart learning journey activity as a system***, conceptualising **broad system elements that may assist in delimiting aspects of participant experience**.

This enables analysis and discussion of relationships between system element experiences as well as variations within them

Systems Thinking, after Meadows, (2008)

System elements were

- **Place**
- **Knowledge**
- **Collaboration**
- **Technology**

Each element had 3 or 4 categories

Smart learning journey system elements

Place

"experiencing **place** in a smart learning journey as....".

Being at the place; Being outside; A tour, a trip, a game.

Delimit experience variations of being at locations, points of interest or the journey as a whole.

Knowledge

"experiencing **knowledge** in a smart learning journey as....".

Of interest; Not of interest; Too much.

Delimit variations of how information was experienced in terms of content provided in the SLJ activities.

Collaboration

"experiencing **collaboration** in a smart learning journey as...."

Distracting; Sharing; Social, engaged (sociable).

Delimit experience variations of the direct or indirect impact between people in a SLJ activity.

Technology

"experiencing **technology** in a smart learning journey as....".

Easy; Helper; Novel; Problematic.

Delimit variations of the range of experiencing technology, and noting not everyone mentioned it at all.

The Technology Categories

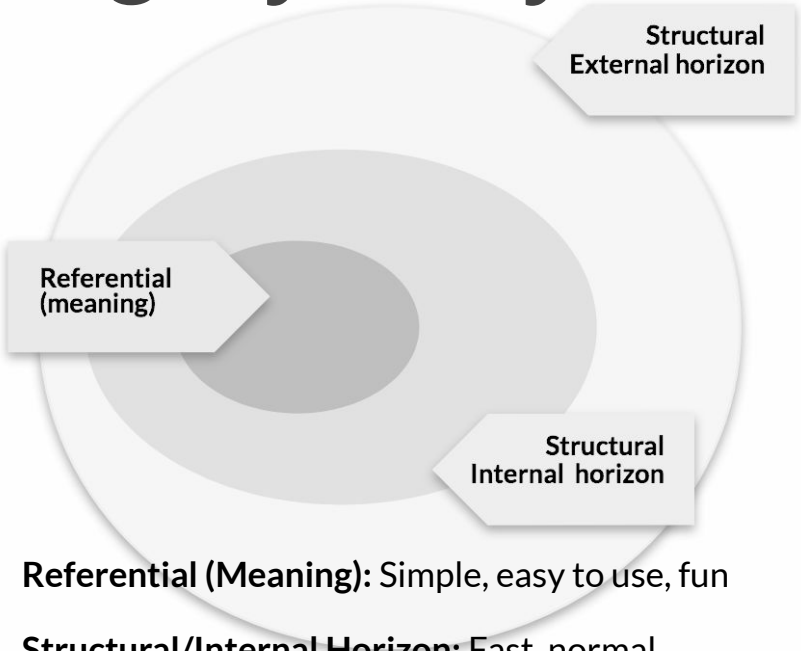
Ways of experiencing digital technology and digital interactions in 'smart learning journey' activities'

Participants expressed a range of experiences of Technology. Categories were grouped as:

- Technology **not at the forefront of most participants' minds**.
- Ranged from **how (AR) worked, sense of 'wow factor', frustration when things didn't work, potential of AR** for interacting with the environment, future professional work and wider context.
- Notable that **not everyone remarked on technology in any way**, it seemed to form unacknowledged **background and assumed context**

- **Easy**
- **Helper**
- **Novel**
- **Problematic**

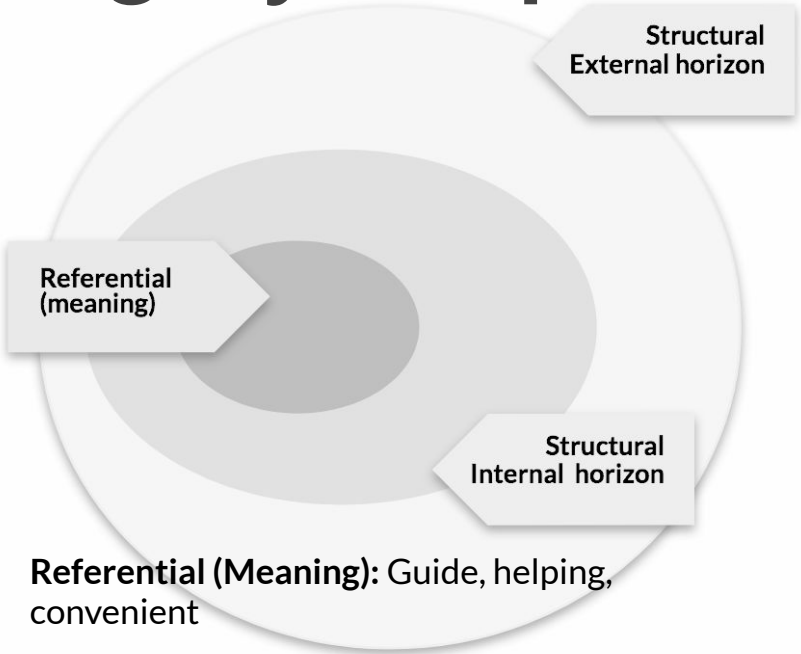
Category: Easy



- **Referential (Meaning):** Simple, easy to use, fun
- **Structural/Internal Horizon:** Fast, normal, straightforward, works
- **Structural/External Horizon:** The (assumed) normality of it, ease of using, 'it was great'

1. "If you have to check about it before you would get it, it's a simple technology but on the day on the task they couldn't set it up or whatever... because *they haven't paid attention"; (P8) (*referring to classmates)
2. "... I was quite scared of it at first but like now it makes more fun, You know it's fun going into different things and just pressing a button and, and saying oh my like wow a video popped up"; (P11)
3. "I think its much easier with technology (...) I said this, that you are immersed in the technology, you are not just there. You are immersed in the visual sphere"; (P13)
4. "... it was very easy to tap on individual things, erm, and my data was working well, so I had a really quick internet response, so when I clicked on the links, I was able to load pretty quickly, erm, so, I, er, yeah, thought it was great."; (P23)

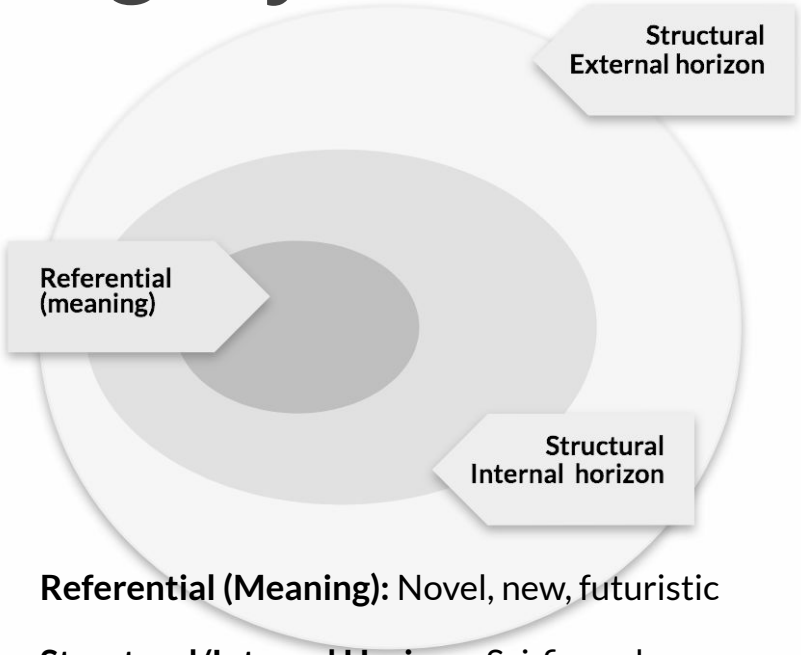
Category: Helper



- **Referential (Meaning):** Guide, helping, convenient
- **Structural/Internal Horizon:** Convenient, right there, personal assistant
- **Structural/External Horizon:** Providing content you would not know about, sparking ideas and interest

1. "what it does is in putting you in the place it almost gives you another level of access to something that really we don't have anymore, get a deeper understanding of what that part would've been like at a certain time and what was going on around that time. I think, I think it did help."; (P3)
2. "It's more alive, It's like you're a tourist and seeing the sights of Malta and at the same time learning about them it's like you have a person but a personal digital assistant telling you about the place, the historical background about the things you are seeing..."; (P7)
3. ""the most significant part was using our smartphones in this learning experience like you could access the content that's very important just by taking a photo of that monument for example "; (P15)
4. "... without your phone, you're looking at a building, which is pretty, and there's a couple of statues, and a small plaque, but that's all you get. Whereas with the phone there are like all these other facts and figures and videos and pictures and stuff and impulses for questions to ask and answer"; (P21)

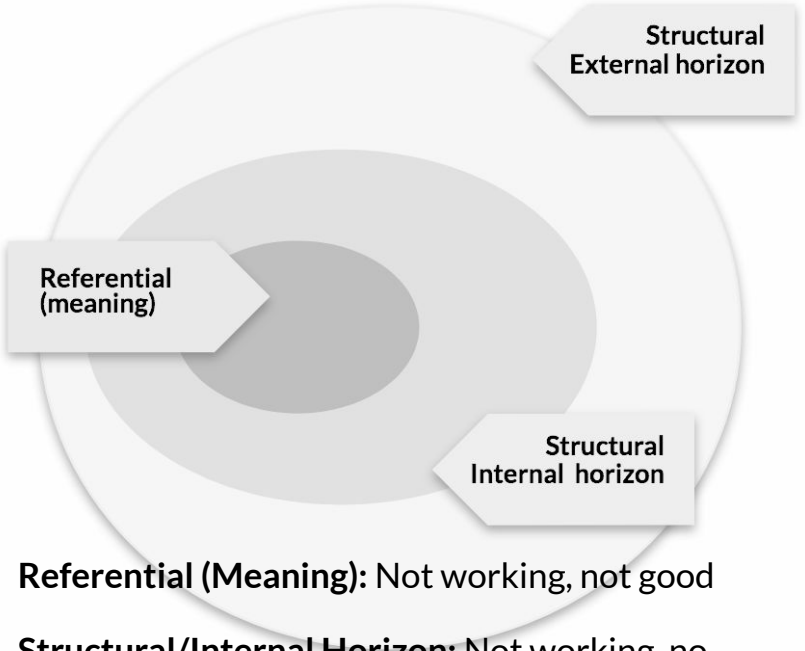
Category: Novel



- **Referential (Meaning):** Novel, new, futuristic
- **Structural/Internal Horizon:** Sci-fi, modern, new, different
- **Structural/External Horizon:** Expectations of new technologies, potentials

1. "I really liked the idea because I've never done a kind of augmented tour before. I liked the idea of going to a place and even though it's mediated and you have to do it on your phone it's as close as you're maybe get to going to a place like, which isn't going to provide you with kind of a document of its history."; (P4)
2. "I guess to *capture their emotions like how they looked when they were revealing the content like it was something unusual so they were like wooaaa oh my god"; (P16) (*refers to taking photos of classmates)
3. "the interactions that the app provides with the environment, that to me was very interesting. Feels a little ... sci-fi?"; (P17)
4. "... when it worked we were like oh that's actually quite cool, like, I don't know because it's a bit like magic, you know, like tschoo (makes sparkly noise) and suddenly it's there. That's kind of cool."; (P18)

Category: Problematic



- **Referential (Meaning):** Not working, not good
- **Structural/Internal Horizon:** Not working, no wifi, no data, no battery
- **Structural/External Horizon:** Overwhelming, too complicated, difficult, tiring, obstructive, self conscious, tech zombies

1. "... on the app I think I remember that things were quite layered they was kind of quite a lot of information on the screen at once so it was a little bit overwhelming"; (P1)
2. "... but like I hate that because it's like people walking around and looking just like zombies and not paying attention to anything or anyone you know like they're in this beautiful park and all they're doing is like looking at their phones"; (P22)
3. "... we did run into a couple of issues at the very end being we, I wanted to continue doing the walking tour but all of our phones were dying. And I didn't have a power bank or anything"; (P23)
4. "I was trying to make it happen, and, like, it did pop up at the beginning and then when I er, clicked on one of the icons, that's where it started hanging, started crashing and went crazy."; (P24)

Interpreting technically mediated interactions in an SLJ

AR triggers offered an **'AR interface'** of content choices, creating an assimilation of a smart digitally augmented and interactive integrated city.

Technology used was a **'future-present'** representation of what may happen more seamlessly in the future but was still somewhat primitive.

The combination of apps and services for technically mediated interactions were in general found to be ***fairly easy and understandable to use***

Even though participants had never used augmented reality and context-aware content triggers, there appeared to be an implicit understanding of what AR was or could be.

Sociomaterial: people & machines

- Latour (2005) declares “from now on, **everything is data”, and whether something is ‘digital’ or not “no longer matters”.**

- Thompson (2012) describes “**technologies and people fold into each other**. Human and non-human actants are in a co-constitutive relationship [...] co-constituted in webs of relations with other actants”

- Morville (2014) contends that “**we are what we find**”, indicating the influence of the technical networked system on the individual's perception and 'wayfinding' in knowledge and understanding.

- Jones (2015) describes “...both human and non-human ... sociomaterialist approaches offer the prospect ...that encompasses **people and machines in a symmetrical way**”

Post-digital experience

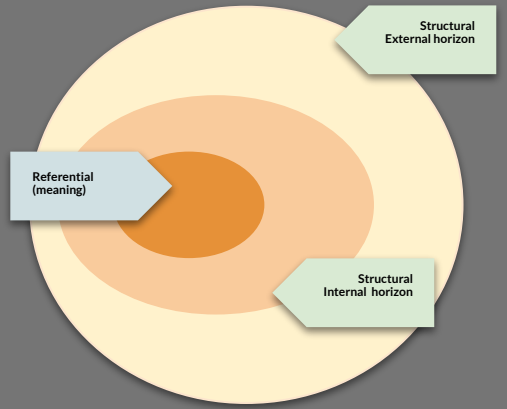
- The term post digital was coined in 2000 by Cascone, "because **the revolutionary period of the digital information age has surely passed**".
- Post digitality is "the pervasiveness and consequent normalisation of computationalism … to the point where **to describe something as 'digital' becomes almost meaningless**" (Jordan, 2021, p. 176)
- McKenna, referring to Streitz (2007), describes the ***'multidimensionalities'*** of smart cities where "***the computer disappears into the background and environments are more generally infused with technologies***" (2020, p. 6)
- **Participants experience this variously, both within internal and externalised contexts**

'Being in place' in digitally augmented environments as intertwined layers of

- ***physical real-time presence, virtual telepresence*** (Stuer, 1992, Gorman et al., 2019)
- toward ***hypersituationism*** (Moreira, 2021)
- ***socio-cultural glocalities***: multiple time zones, languages, personal cultural connotations (Meyrowitz, 2005)

Conclusion

- In the near future, **AR interactivity will become more streamlined** and lead to SLJ activities as a regular feature of learning in urban initiatives
- Though still unusual, in the post digital city **many participants already appear to greet AR with urbane nonchalance**
- While not explicitly acknowledging technical mediations, **citizen learners experience technology in multilayered socio-spatio-temporal meaning and context**
- Acknowledging **this spectrum of variations between individuals and non-human actants can contribute towards improving design** for more effective and useful activities



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Biography

Pen is currently an RSO III for the SMARTEL Erasmus+ Project and occasional lecturer in digital pedagogies, based at the Faculty of Education, University of Malta. She holds an MA Learning & Teaching in Higher Education and MSc Multimedia Systems, is a Fellow of the Higher Education Academy and Member of the British Computer Society. Her recent doctorate investigated learner experience in smart learning journeys using the methodology of Phenomenography. A former Lecturer and Senior Lecturer at London Metropolitan University, she recently gave lectures and talks at the Royal College of Art and University of Oxford. Pen regularly presents at the International Human-Computer Interaction Conference.

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