What are we supposed to be learning?

Motivation and autonomy in Smart Learning Environments

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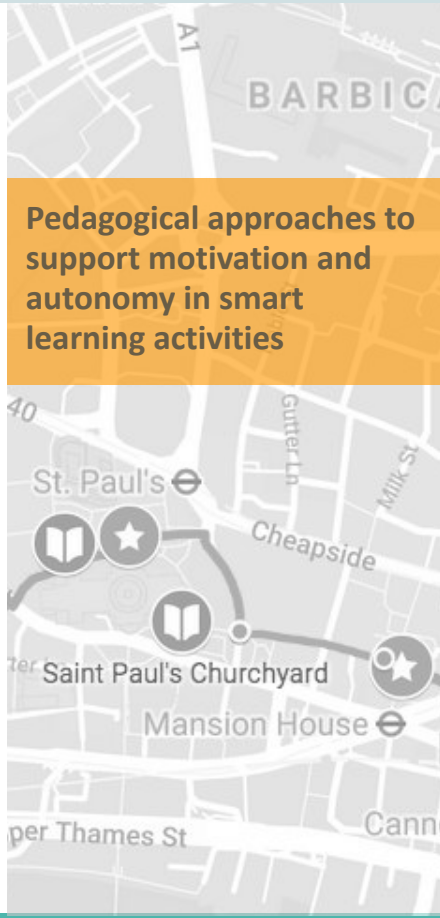
https://tinyurl.com/motivated2learn

Lister, P. (2021). What are we Supposed to be Learning? Motivation and Autonomy in Smart Learning Environments. In N. Streitz and S. Konomi (Eds.), *Distributed, Ambient and Pervasive Interactions*. *HCII 2021*, *LNCS* 12782, pp.235-249. https://doi.org/10.1007/978-3-030-77015-0_17

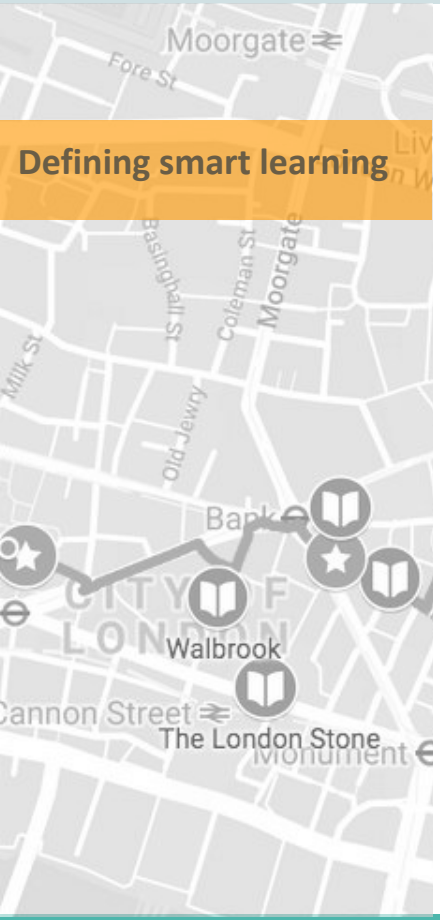
Introduction

- A Smart Learning Activity (SLA) is *autonomous* with *voluntary participation*
- Participants might not be expecting (or even desiring) to learn
- Value may be associated with other aspects than credentialised or explicit learning outcomes
- Learning *as and when need or curiosity necessitates* may be part of the landscape of future connected learning cities
- Understanding potential learning in these contexts can help to ***flexibly support participant engagement*** more effectively in smart learning activities

Pedagogical approaches to support motivation and autonomy in smart learning activities



Smart learning & smart learning environments



SLA's are conceptualised as ***journeys*** in real world ***urbanised digitally connected spaces, of several *hyperlocal* locations*** [9] ***related by topic of activity, with digitally mediated participant interactions.***

Smart learning often associated with 'personalised' learning using AI with detailed learner profile ontologies, e.g. [47], however, ***citizen quality of life is increasingly at the centre of discussions about what may constitute smart cities and smart learning*** e.g. [16, 42, 55]

Smart learning environments (SLE) can only be considered smart if effective learning is possible [12, 54]

Effective learning in a SLE

How can we plan to offer effective smart learning?

Gordon Pask asks: ***can 'gaining versatility' be equated with 'learning to learn'?*** [44, p. 144]

'Education for the Internet Age' is dialogic, … as "***learning to learn, think and thrive in the context of working with multiple perspectives and ultimate uncertainty***" [57, preface]

Learning to learn, think and play are the focus of ***Papert's "art of learning"*** [43, p. 82]

Metacognition as the basis of 'learning to learn' - a learner must "tailor their activities finely" in order to become "flexible and effective learners" [4, pp. 16, 17] [15, p. 137]

Learning effectiveness can be usefully summarised in the context of smart learning within hybrid urban settings as ***"learning to learn, learning to do and learning to self realisation"*** [34, p. 209]

Motivation & Autonomy

Intrinsic and extrinsic motivation are significant in relation to smart learning activities

Autonomous learning … assumes people are 'meta-cognitively, motivationally and behaviourally active' in their own learning process [35, p. 89]

Meta-awareness of learning to learn may mean that ***motivation*** and ***autonomous agency*** are defining influencers for how *awareness about learning is perceived by participants* of smart learning activities

- If an activity is obligatory it may only be valued in reward terms
- If an activity is not obligatory, perhaps motivation is absent to participate at all
- Intrinsic motivation [12, 48] is adversely affected by extrinsic factors of reward and assessment…
- Studies show increased instructional design results in less being learned [38, p. 169] as learners feel obligated to jump through the hoops

The Research

Discussion in this paper has been inspired by primary research

- **Research investigated two smart learning real-world journeys**, formed by several *hyperlocal*[9] points of interest related by topic in a locality
- Points of interest were **augmented with digital interactions** using ad-hoc free smartphone apps, to access to context aware content
- Original knowledge content was hosted on a custom website, together with other digital knowledge commons content
- Participants were requested to **create their own content** relating to their journey and upload to Edmodo group areas.
- **Participants took part voluntarily in their own time**, and did as much or as little of the journey as they chose.
- **Participants often took part in small groups**.

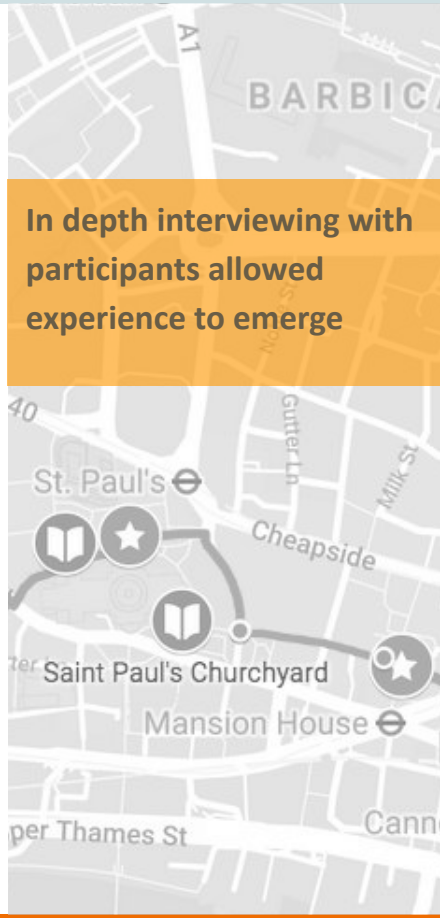
Apps used:

a. **HP Reveal** https://hpreveal.com **(defunct).**
b. **Edmodo** https://edmodo.com
c. **Google MyMaps** https://google.com/mymaps
d. **Custom website** https://smartlearning.netfarms.eu

The Research: sample & method

- ***24 participants*** agreed to take part in the research
- Two universities in two countries, ***London*** Metropolitan University, UK and the University of ***Malta***
- Sample was purposeful and convenience [46, p. 6, 14, p. 22]
- All participant ***interviews were voluntary***
- ***Students*** were studying BEd. & MA education related programs, and BA English Literature & Creative Writing
- A wide ***international demographic*** was represented across cohorts in both countries
- Age range approximately ***20 to 35***
- A ***potential limit of the study was gender balance***, with nineteen female and six male students represented.

In depth interviewing with participants allowed experience to emerge



The Research: methodology

Phenomenography examines experience variation using an emergent interview approach

Is a ***non-dualist*** interpretivist paradigm (there is only one world, the relationship between inner and outer world for those being researched)

Takes ***a 'second order' perspective*** - the researcher attempts to assume the position of the researched, rather than analyse them as an 'object' of research

Uses a ***'structure of awareness' analytical framework***, with internal (with a referential 'meaning') and external horizon

Analyses at collective level, though individual context is retained

Commonality and variation of experience form ***an 'outcome space'*** with ***'categories of description'*** to describe possible ways of experiencing a phenomenon

Figure 1: Diagram of a structure of awareness (after [21] & [10])

The Research: analysis

- A phenomenographic outcome space (e.g. [39, 46, p. 8]) of '***experiencing a smart learning journey***' was formed, with four categories of experience variation, each with four layers of complexity (Table 1).
- Descriptive guidelines were noted for the emergent categories and levels of experience complexity, to assist interpretation of utterances in interviews.
- Using the descriptive guidelines summary (of Table 1), a model of pedagogical considerations for smart learning was formed - the ***Pedagogy Of Experience Complexity For Smart Learning*** (PECSL), further outlined in Lister [31, 32].

	Category A Tasks & Obligations	**Category B Discussing**	**Category C Being there**	**Category D Knowledge & place as value**
Level 4	Research tasks and topic beforehand, take time doing and reflecting on tasks	Share tasks and content, do additional learning, discuss related experience and knowledge	Live it, being in the picture, live the atmosphere, take more time, seeing the whole and related parts	Knowing and seeing knowledge and place as valuable, personal experience, deeper engagement and 'possibilities'
Level 3	Tasks indirectly related to coursework or assessment	Discuss tasks and topic in relation to time and place	Experience in the place relating to other people, aspects and memories. Make connections between places and knowledge	Engage further with knowledge in topics, create upload content for tasks and at locations
Level 2	Do the tasks of interest, directly related to coursework or assessment	Discuss the tasks, help each other with tasks and tech	Locations are of some interest, potential for learning, creativity or inspiration	Click a few content links, save links 'for later', make screenshots of augmentations or tasks
Level 1	Do the tasks, go home	Discuss who does the tasks, how technology works	Go to locations, do tasks, go home	No engagement with content or knowledge, don't create or upload content

Table 1: Understanding the experience complexity of a smart learning journey

Structures of Experience Variation

- This experience variation may show potential signifiers of ***participant motivational factors*** from an experience perception perspective.
- May act as indicators of the ***significance of participant reflection*** in relation to self-awareness and meta-cognition for learning, e.g. [33].

- A summary of topics (Table 2) show aspects of significance in the activity as related by participants, demonstrate multiple topics and depth of interest. *(Extrinsic motivators are omitted.)*
- This provides a glimpse of the richer, deeper scope of intrinsic motivational experience…

Personal motivation for learning and taking part
- Value of being there for creativity and authenticity in written work
- The novelty of the digital assistant
- The wow factor and sci-fi experience of using the (AR) app
- A natural sparking of interest while using the (AR) app
- Appreciating potential for SL activity in other scenarios for own future practice

Value in place and being there
- Getting to know the detail and atmosphere of a place
- Being outside away from the classroom
- Appreciating global cultural value differences
- Sharing memories related to location and topic of activity
- Learning more about local surroundings than would normally be noticed
- Becoming like a tourist in one's own locality

Being with friends and helping each other
- Being able to ask questions of each other outside of classroom pressure
- Meeting others who might usually be only online or names in another similar class
- Helping others to achieve shared goals
- Sharing (discussing) cultural differences related to topics and locations
- Comparing experiences of the activity with peers

Table 2 Aspects of significance of the activity as related by participants (summarized by the researcher)

Structures of Relevance

- Participants form ***relevance structures*** related to learning activities, and **decide how much of an activity to take part in** as a result of intrinsic interest:
- **Explicit relevance** - decisions about value and relevance of task for their grades
- **Implicit relevance** - decisions about whether they are interested in a task or topic
- 'Metacognitive consciousness' of ***what participants interpret as significant may highlight areas of learning that could be supported*** either implicitly or explicitly

- ***The relevance structure*** in terms of the immediate context of a task or action required [38, pp. 143, 144]
- ***The demand structure*** is a way of describing how the learning instructions and requirements might be designed [38, pp. 169, 170]
- ***The global aspects of learning*** are the wider context surrounding the learning activity [38, p. 141]

Alert the awareness of the participant toward aspects they find of interest:

→ *to develop further insight and gain greater depth of engagement and value*

→ *to reflect and expand their awareness, gaining useful learning that they themselves uncover and acknowledge*

Relevance Structure Influencing Factors

Motivation is potentially fostered by active dialogue and reflection

Learning to learn, think and thrive in the context of working with multiple perspectives and ultimate uncertainty [57]

Individuals can learn from each other…through action, participation and reflection. As a result, the learning cycle through experience is formed" [29, p. 55]

Context can impact experience awareness in multiple ways

Physical and virtual presence [56, p. 197], socio-cultural contexts of place [6] can influence interpretations of learning in real-world environments

A three architecture terrain of material, social and epistemic factors, with interactions involving fast and slow thinking [18, p. 55]

Characteristics of autonomy in learning complement the 21st century competency framework

Self-direction, adaptability, flexibility, and collaboration [35, p. 89]

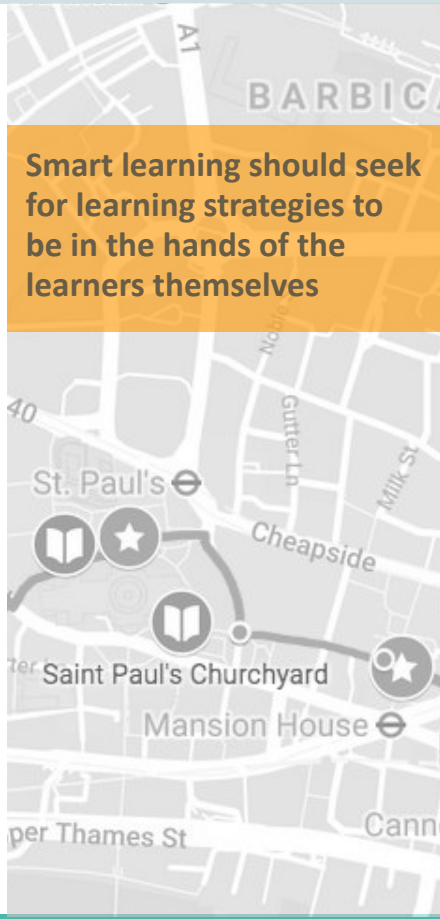
An effective learner has evolved from passive recipient to analyst and synthesizer" [1, p. 26]

A learner is "the major agent in their own learning, which occurs as a result of personal experiences" [1, p. 27]

Conclusions

- ***Autonomous self-directed learning*** in complex learning environments is impacted by motivation, and motivation is impacted by perceived experience and awareness
- ***Understanding participant experience structures of awareness*** and factors defining relevance can aid in supporting design of smart learning activities and environments
- ***Enabling self directed learners*** to foster "metacognitive consciousness of how they are learning to learn" [2] can bring about the 'personal conversational domain' [44] of "learning to learn, think and thrive for learning in the Internet Age [57].

Smart learning should seek for learning strategies to be in the hands of the learners themselves



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NB numbering is retained to match paper

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