

The Role of Ontological Design in an Object-Led 21st Century Skills Curriculum

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Research Background

- Based on a 'hunch' based on anecdotal observations of changing behaviours and habits
- A belief that there is something interesting and significant going on
- Particularly (though not exclusively) through engagement with and use of technological objects
- Pace of change is rapid... the time to act is now

JAN 2015

GLOBAL DIGITAL SNAPSHOT

A SNAPSHOT OF THE WORLD'S KEY DIGITAL STATISTICAL INDICATORS

TOTAL POPULATION



7.210
BILLION

URBANISATION: 53%

FIGURE REPRESENTS TOTAL GLOBAL POPULATION, INCLUDING CHILDREN

ACTIVE INTERNET USERS



3.010
BILLION

PENETRATION: 42%

FIGURE INCLUDES ACCESS VIA FIXED AND MOBILE CONNECTIONS

ACTIVE SOCIAL MEDIA ACCOUNTS



2.078
BILLION

PENETRATION: 29%

FIGURE REPRESENTS ACTIVE USER ACCOUNTS, NOT UNIQUE USERS

UNIQUE MOBILE USERS



3.649
BILLION

PENETRATION: 51%

FIGURE REPRESENTS UNIQUE MOBILE PHONE USERS

ACTIVE MOBILE SOCIAL ACCOUNTS



1.685
BILLION

PENETRATION: 23%

FIGURE REPRESENTS ACTIVE USER ACCOUNTS, NOT UNIQUE USERS

We Are Social • Sources: Wikipedia; InternetLiveStats; InternetWorldStats; Facebook; Tencent; VKontakte; LiveInternet; GSMA Intelligence

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- Unique mobile users increased by **4%** thanks to **141 million** new users;
- Mobile social media users leapt **17%**, adding **283 million** new users.

Digital Growth since January 2015:

- The number of reported internet users is up by **10%**, growing by **332 million**;
- The number of reported social media is up by **10%**, an increase of **219 million**;

JAN 2016

GLOBAL DIGITAL SNAPSHOT

A SNAPSHOT OF THE WORLD'S KEY DIGITAL STATISTICAL INDICATORS



TOTAL POPULATION



7.395
BILLION

URBANISATION: 54%

FIGURE REPRESENTS TOTAL GLOBAL POPULATION, INCLUDING CHILDREN

INTERNET USERS



3.419
BILLION

PENETRATION: 46%

FIGURE INCLUDES ACCESS VIA FIXED AND MOBILE CONNECTIONS

ACTIVE SOCIAL MEDIA USERS



2.307
BILLION

PENETRATION: 31%

FIGURE BASED ON ACTIVE USER ACCOUNTS, NOT UNIQUE INDIVIDUALS

UNIQUE MOBILE USERS



3.790
BILLION

PENETRATION: 51%

FIGURE REPRESENTS UNIQUE MOBILE PHONE USERS

ACTIVE MOBILE SOCIAL USERS



1.968
BILLION

PENETRATION: 27%

FIGURE BASED ON ACTIVE USER ACCOUNTS, NOT UNIQUE INDIVIDUALS

we are social

Sources: Population: UN, US Census Bureau; Internet: ITU, InternetWorldStats, CIA, national government ministries and industry associations; Social & Mobile Social: Facebook, Tencent, VKontakte, LiveInternet.ru, Nikkei, VentureBeat, Niki Aghaei; Mobile: GSMA Intelligence.

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Research Focus

- Questions about the relationship between learners and the digital technologies that surround them is not new. 'Technology is not a behavioural phenomenon; rather it responds to (and affects) virtually all other human behaviours' (Schiffer, 1992).
- Objects have been used to support teaching and learning since the earliest days of art and design education, for example through 'object-centred' or 'object-based' learning (Paris, 2002). However, understanding of 'user' as learner and 'object' as teacher is less well developed.
- The focus of this small-scale research exploration enters newer territory to consider how designers and design educators might consciously and explicitly consider the role designed objects (including technological objects) might occupy in pedagogy integral to 21st century learning.

Research Methodology

- Research was done in two phases (and is ongoing)
- Phase 1: Examines the literature to reflect on the object-subject relationship, building and explores whether human behaviours, and associated skills, are increasingly influenced by design and if there is potential for object-led pedagogy.
- Phase 2: Is an evidence-building case study with a dual focus. A sample of five users will be interviewed and observed to develop understanding of how object-subject interaction might form the basis of a conceptual learning space. Secondly, a sample of five design students and five design educators will be interviewed to consider how this might inform design practice.
- As the research is ongoing, this presentation/ paper reports on early analysis of data.

Phase 1 Findings

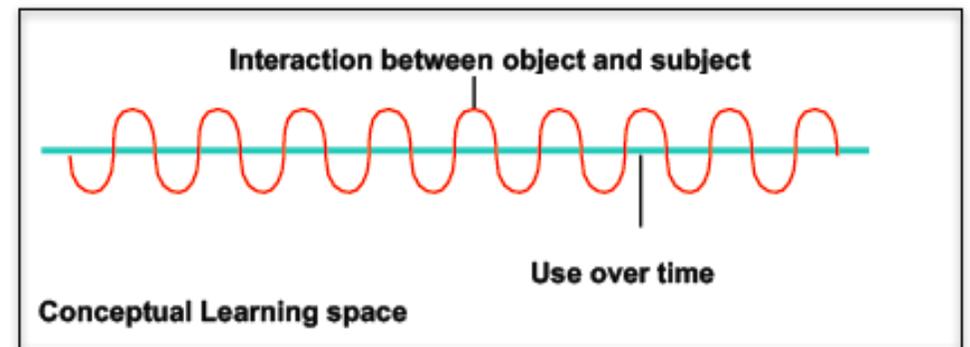
- Supported speculation of a future based on the notion that objects are not static but capable of responding to humans (Antonelli, 2011; Dunne and Raby, 2013; Tilly, 2007; Rose, 2005; Malafouris, 2013).
- Established that ‘artefacts bear meaning, communicate and signify beyond themselves’ (Tilly, 2007, p258) and, as such, have direct impact on the human condition (Latour, 1996; Sage, 2004; Tilly, 2007).
- Consolidated a view that our behaviours, and associated skills, are increasingly influenced by design; we design our world, whilst that world ‘acts back on and designs us’ (Willis, 2006, p80) and a vision that design is more pervasive than we understand and can influence us as users through a form of interaction. (Chapman, 2005; Turkle, 2007).

- Supported repositioning the stance of the designer in order to study beyond the 'user', establishing objects as fundamental components of meaning and communication in everyday lives and, thus, having the capacity to claim a role as 'teachers' (Shove, 2007: Tilly 2007).
- Reveal object agency, here understood simply as the ability to act. As opposed to the user taking control over the object, Tilly suggests that 'things may be attributed agency, not in the sense that they have minds and intentions, but because they produce effects on persons' (Tilly, 2007: p.260).
- Reveal the potential of object as teacher, through behaviours and associated skills increasingly influenced by design practice that might be termed 'ontological design'. 'Ontological designing, is concerned with the nature and agency of design, which understands design as a subject-decentred practice, acknowledging that things as well as people design' (Willis, 2006: p.81).

Phase 2 Findings - User

Build on the concept of object-led pedagogy as revealed in phase 1 of the research.

Observations and interviews focused firstly on exploring a conceptual learning space, drawing on Dewey's premise that, in experiential learning, every form of interaction can be considered to be an actant that is relevant (Dewey, 1938). Collection and analysis of data focused on exploring this principle, by speculating that each interaction might be considered a learning connection between object and subject (user)



User interviews and observations:

- Confirm the potential of object-led pedagogy in forming the basis of learning connections, or interactions, between object and subject in a conceptual learning space.
- Confirm the potential of designed objects to act as 'teacher' and reveal that this must be considered in terms of perceptible, hidden, and false affordances when developing ontological design practice.
- Reveal that designers must consider how features of designed objects, such as aesthetics, function and ergonomics, have influence on the subject (learner) in terms of understanding, habits and capabilities.

Phase 2 Findings – Designer/Educator



- Interview data confirms that both design students and design educators consider that designing takes shape in many forms such as; planning, thinking, considering, making, improving, prototyping, testing, probing, quantifying, judging, inventing.
- However, few yet identify consideration of object-led learning as a concern.
- Interestingly, data reveals that when introduced to the concept of object-led pedagogy all participants recognised both its potential and its importance.
- When introduced to concepts such as ‘The Ontology of Prototyping’ (Tonkinwise et al., 2015) where prototyping activities highlight the impact designers have in determining agency, participants started to consider how ontological design for object-led pedagogy might be possible.

- Participants valued and understood the role that speculative design might have in considering the impact of designed objects beyond the intention of the designer.
- A key approach to developing ontological design learning appears to be in differentiating between 1st order design, where the designer takes responsibility for the design form and function, and 2nd order design, which might be termed the unintended or unforeseen impact of designed objects on users (Willis, 2006; Fry, 2012; Tonkinwise, 2015).

Conclusions and Final Thoughts

- Both phase 1 and phase 2 confirm the potential to develop more considered object-led pedagogy.
- Both phase 1 and phase 2 findings reveal a range of ways that the complexity of such object-led pedagogy might be considered, revealing a key role for designers and design educators.
- The research underlines the necessity to explore such pedagogy, illuminating the potential of object-led learning to impact on individuals and societies.

The central challenge for such research, is to develop ontological design that considers object-led pedagogy that might move beyond 'design as the practice of social construction' (Tonkinwise, 2011: p4). This means that consideration should be given to both 1st and 2nd order design that develops more critical humanist object-led pedagogy.