

City Research Online

City, University of London Institutional Repository

Citation: Bawden, D. (2015). Encounter, synthesis, immersion and construction: information and the gaining of understanding. Paper presented at the ncounter, synthesis, immersion and construction: information and the gaining of understanding.

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: https://openaccess.city.ac.uk/id/eprint/12150/

Link to published version:

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

City Research Online: http://openaccess.city.ac.uk/ publications@city.ac.uk/

Encounter, synthesis, immersion and construction: information and the gaining of understanding

David Bawden
City University London

information: interactions and impact

- information behaviour
- · information literacy
- impact

Ī			
-			
-			
-			
_			
_			
_			
_			
-			
-			
-			
-			
-			
-			
-			
_			
_			
_			
_			

The noblest
pleasure is the joy
of understanding



Understanding

in relation to

- information behaviour
- information literacy
- impact of information
- (information systems and documents)

Understand

• to comprehend; to grasp with the mind; to know the meaning of; to realize; to have knowledge of, or information that; to have been informed; etc.

(Chambers Dictionary)

"There is presently no agreed upon account of what understanding is, which creates difficulties for the precise use of this concept"

Ryan Smith (University of Arizona: Synthese, 2014

Something to do with explanation

- If someone can explain something to us, we think they understand it (Wilkenfeld, Plunkett and Lombrozo, Philosophical Studies, 2015)
- Trying to explain something to a group of people is the surest way to know if you understand it (any lecturer in the audience)

Something to do with knowledge (and information)

"what we understand is based on what we know, and what we already know comes from being able to understand"



• They are well-informed • You are knowledgeable • But I understand Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information? (T. S. Eliot) • Data • Information Knowledge • Wisdom • Enlightenment • Action

• Understanding?

Russell Ackhoff (1989)
Additional
'understanding' layer
between knowledge
and wisdom
Understanding =
appreciation of why
Wisdom = evaluated
understanding



Luciano Floridi

Knowledge and information are members of the same conceptual family. What the former enjoys and the latter lacks ... is the web of mutual relations that allow one part of it to account for another. Shatter that, and you are left with a ... list of bits of information that cannot help to make sense of the reality they seek to address



David Deutsch

- understanding rather than mere knowing
- · about knowing 'why'
- about deep explanations
- about the inner working of things
- about coherence, elegance, simplicity



Jonathan Kvanvig

 understanding requires the grasping of explanatory and other coherence-making relationships in a large and comprehensive body of information. One can know many unrelated pieces of information, but understanding is achieved only when informational items are pieced together



Jeroen de Ridder

 [understanding is] a kind of 'higher order knowledge', in a network of knowledge with internal coherence and explanatory power



Information systems and understanding

- knowing why
- coherence
- explanation
- coherence
- links
- relations
- networks

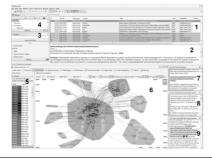
The University of Aberdeen	
www.accur.acc.co.* Information about the university - faculties and departments, undergraduate and postgraduate prospectuses, admissions and bursaries, contact details, job	
Aberdeen - Wikipedia, the free encyclopedia https://en.wikipedia.org/wiki/Aberdeen >	
Aberdeen received Royal Burgh status from David I of Scotland (1124–53), transforming the city economically. The city's two universities, the University of	
Aberdeen (disambiguation) - Aberdeen FC - University of Aberdeen - Aberdeenshire	
Aberdeen City and Shire - Scotland VisitScotland www.visitscotland.com/destinations-maps/aberdeen-city-shire/	
Aberdeen City and Shire is adored by the Royal Family, and is a region with a maritime heritage which offers lively events and a selection of thrilling activities.	
Aberdeen City Council: The official website www.aberdeencity.gov.uk/ ~	
Offering a wide range of information and services for residents, businesses and visitors. Abordeen is a thriving, cosmopolitan port in the North-east of Scotland.	
Aberdeen FC www.afc.co.uk/ ~	
The Official website of Aberdeen Football Club with the latest news, fixtures, ticket and merchandise information.	



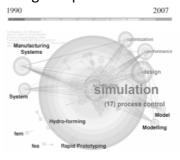
screening finding facets
filtering finding analogies
relating finding themes
visualizating chunking
analytics showing similarity
summarising showing diversity
reviewing finding outliers and oddities

Literature-based discovery: Don Swanson Magnesia Representation Representat

Rapid understanding of scientific paper collections: integrating statistics, text analytics, and visualization



A rapid review method for extremely large corpora of literature



Information behaviour and understanding

'understanding' does not feature explicitly in most theories and models of information behaviour

- Foster's 'consolidation' "knowing enough"
- sense-making

Gaining understanding

- encountering
- browsing



Browsing: "the art of not knowing what you want until you find it"

Browsing

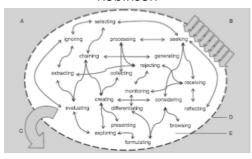
see also Discovering, Encountering, Foraging, Grazing, Navigating, Scanning, Zapping

- purposive
- semi-purposive
- capricious

How to behave to gain understanding

- reflecting
- sitting down and thinking about things
- looking for a good explanation
- seeing how things fit together

Informational balance: Poirier and Robinson



Understanding and information literacy

- 'understanding' does not feature explicitly in most theories and models of information literacy
- evaluation
- critical thinking
- Knowledge construction (Bruce's 7 faces)
- synthesise (SCONUL)

Paul Gilster

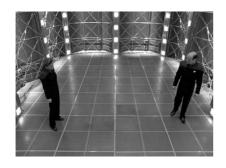
- Knowledge Assembly
- combining a 'reliable hoard' of information from diverse sources



Qualitative synthesis

critical review systematic review meta-ethnography historical analysis conceptual analysis content analysis discourse analysis interpretive synthesis evidence synthesis concept maps rich pictures mapping review narrative review grounded theory







Immersive understanding

- A fuller form of understanding?
- ubiquitous media
- multisensory interfaces
- interactive narratives



Impact of understanding?

- Is it better to understand than to be knowledgeable, or well-informed?
- If so, how and why?
- How could we show a difference?

The ultimate impact?

Knowledge creators, such as people, [are] central to fundamental physics for the first time since Copernicus (David Deutsch, New Scientist, 2014)



1	17
	- ≺
	$_{\perp}$

 information is a fundamental and objective 	
physical quantity	
• 'constructor theory' recasts the laws of physics	
in term of information	
 'constructors', the abstract forces that cause 	
all physical changes, are made of information	
 explanatory knowledge is the most powerful 	
force in the physical universe	
Torce in the physical arriverse	
The ultimate impact?	
The ditillate impact:	
Almost any [part of the universe] would, if the	
right [explanatory] knowledge ever reached it,	
instantly and irrevocably burst into a radically	
different type of physical activity	
(David Deutsch, The beginning of infinity,	
2011)	
A C III . I II	
A full understanding of understanding	
would be really good	