1. Project information

Disruption in scholarly communication: Future potential and current limitations of textual knowledge production

This programme re-evaluates the role of text in humanities scholarship. It takes its cue from the current wholesale adoption of digital means, which offers a wider range of communication modalities than ever before. The programme aims to establish how the modalities of text, sound, still, and moving images relate differently to knowledge, both epistemically (where the nature of knowledge is concerned) and processually (where the inscription, dissemination and preservation of knowledge are concerned). Which properties of the conventional knowledge system are deemed to be essential to the knowledge system, and how can they be provided in a digital knowledge environment? It will test a widely-held dependency thesis, namely that the production of scholarly knowledge depends on our textual habits. This dependency thesis will be tested through a practice-based approach. Text scholars actively participate in existing scholarly or publishing ventures aimed at shaping new instruments or working practices that support scholarship, and reflect on their contributions through shared learning conversations. In doing so, the project seeks to replace the current dependency thesis with a more exacting theory about the relationships that hold between scholarship and text.

2. Main applicant
Prof. A.H. (Adriaan) van der Weel

3. Co-applicant
Dr. E.D. (Ernst) Thoutenhoofd

IRIS application

4. Previous and Future Submissions
(Not applicable)

5. Institutional Setting
Book and Digital Media Studies, Institute for Cultural Disciplines, Faculty of Humanities, Leiden University.

6. Period of Funding
5 years (September 2011 – August 2016).

7. Composition of the Research Team

Chief applicant	Prof.dr. Adriaan van der Weel
Co-applicant	Dr. Ernst Thoutenhoofd
Intended researchers (Doctoral candidates)	(A) Mariya Mitova, MA
	(B) Drs. Peter Verhaar
	(C) Drs. Corina Koolen, MA
Members of the Advisory Board	K.F.K. (Kurt) De Belder MA MLIS, bibliothecaris, UB Leiden
	Drs. Y.P.D. (Yvonne) Twisk, Uitgever, Leiden University Press
	Drs. J.S.M. (Bas) Savenije, Lid van het Platformbestuur ICT en Onderzoek, SURFfoundation

8. Structure of the Proposed Research

I. Four subprojects

A. 'Constructing "primers" of disruption in scholarly communication: Peculiarities; historical, social, technological and cultural settings of early scientific periodicals' (Doctoral candidate 1; 100% fte over 4 years; supervisors Prof.dr. Adriaan van der Weel and Dr. Ernst Thoutenhoofd);

B. 'Knowledge representation in digital literary studies' (Doctoral candidate 2; 80% fte over 5 years; supervisors Prof.dr. Adriaan van der Weel and Dr. Ernst Thoutenhoofd);

C. 'The function of the discursive long-form text in scholarly communication in the humanities' (Doctoral candidate 3; 100% fte over 4 years; supervisors Prof.dr. Adriaan van der Weel and Dr. Ernst Thoutenhoofd).

All dissertation research is to take place in the Institute for Cultural Disciplines, Faculty of Humanities, Leiden University.

II. Synthesis: 'Disruption in scholarly communication', Prof.dr. Adriaan van der Weel and Dr. Ernst Thoutenhoofd.

9. Description of the Proposed Research

A. Research questions and aims

At the heart of our collective knowledge system is a record of research and research results in books and journals. It is characterised by attributes that we associate with print products, such as:

• Order (shelving and cataloguing systems);

- Closure (each text being a finished account of a certain area of knowledge);

- Stability (enabling readers at other times and places to consult the same knowledge);

- Registration (title pages and tables of content attributing texts to known authors), and

- Authority (the texts having been deemed of sufficient quality to be printed).

This knowledge system includes not just books and other forms of print as material and intellectual products, but also a vast material and intellectual infrastructure: schools and universities, publishers and bookshops, libraries and catalogues, bibliographies and footnotes, etc.

At this time many textual techniques of scholarly communication have already shifted from paper to electronics. This sociotechnical change is challenging the knowledge system as it has grown familiar over the centuries (Van der Weel 2011b). Since the digital textual medium has different inherent properties than paper, it is leading to different modes of textual knowledge production, dissemination, and consumption. For example, the networked computer transforms the conventional transmission *chain* to a transmission *web,* and digital instability threatens many if not all of the characteristics of the traditional knowledge system listed above. Most crucially, however, the digital medium makes available other modalities besides text and images. This has already spawned the phenomenon of 'enhanced' publications and experiments with video instead of the more usual textual discursivity. The change to a digital scholarly communication environment thus challenges the prominent position of text in the spectrum of available modalities.

Indicators for the weakening role of text in the humanities lead us to hypothesise that the reliance of scholarship on text has been the result of historical sociotechnical contigency, contradicting the widely shared belief that scholarship depends on textual habits to such an extent that these must be exactly replicated in digital environments. The programme therefore aims to determine to what extent contemporary scholarship weakens the assumed dependency of the knowledge system on text. Which properties of the conventional knowledge system are still deemed to be essential, and which properties might be redundant? The central question can then be stated thus:

To what extent can and does modern scholarship continue to depend on networks of text production and circulation, both for knowledge production and for scholarly communication?

Three subprojects will be undertaken, chosen for their relevance because each

addresses an innovatory knowledge-generating practice. Each subproject furthermore focuses on a specific aspect of the transition from a paper-based to a digital knowledge environment. These subprojects are embedded in the twofold objectives of the research programme as follows:

1. The first aim is to understand the origin of the historically contingent connection between scholarship and text. Subproject (A) will therefore trace the emergence and development of the earliest scientific periodicals. The project investigates the particular manner in which the printing press, and thereby textual narrative, have helped to shape the properties that we commonly associate with scholarship. Subproject (C) will analyse the establishment of the socio-technical relationship between the discursive long-form text and the field of humanities, thus providing the context for the focus described in the second objective.
2. The second aim is to establish which limitations of the textual modality in conveying knowledge exist, and if, and how, these limitations can be overcome in the digital medium. The research will focus predominantly on humanities scholarship, a field where not only the products of knowledge inscription but also the primary data mostly consist of text. Two subprojects explore the new possibilities, and potential losses, resulting from the shift from analogue to digital textuality. Subproject (B) focuses on the implications for the use of text as primary data, while subproject (C) focuses on the use of text to create secondary resources, analysing the characteristics of discursive long-form text in inscribing and communicating knowledge and establishing to what extent these qualities can be replaced by (other) modalities in the digital medium.

B. Theoretical framework

In line with a modern sociotechnical understanding of text, the theoretical framework for this programme derives from combining studies in the philosophy and sociology of science (STS or science and technology studies, cf. Sismondo 2004) with book history and text scholarship. The STS perspective recognises that science and scholarship entail an indivisible combination of social and technological activity, hence the reference to sociotechnical process. From this follows the attendant claim that evidence always underdetermines the beliefs we hold, so that any evidence can support multiple projections of reality. Consequently, a central claim arising from inquiries into the nature of science and scholarship is that the world could always have been different, since alternative choices are always available (Bijker 1997): text became privileged in scholarship partly because the printing press was restricted to multiplying text and images, not because knowledge is ideally contained in text.

Book history and text scholarship will provide the focus on the history, present and future of the textual practices and habits of scholarship as a formally literate activity, locked into a much larger publishing and new media infrastructure. From scrolls copied by professional scribes in monasteries via incunables to print and digitality, knowledge practices and innovations have coincided with the textual practices that applied at that time (Burke 2000; Hudson 1994). These textual practices have in turn been decisively shaped by the inherent characteristics of these textual media (Van der Weel 2011a).

In the *Phaedrus* Plato famously reports Socrates finding fault with writing, and in the process contrasting the properties of writing and speech as knowledge instruments. Similarly, the digitisation of text has made us aware of a number of properties of paper-based text which had not been consciously noted before, such as its linearity, and fixity of form and content. The printed book was thus found to have propagated a hierarchical relationship between author and reader (Landow 1992; Bolter 1999). Using this same contrastive approach the distinctive properties of digital text have been fruitfully explored (Van der Weel 2011a), but its productivity has not yet been exhausted. A comparative historical approach will be the basis for the examination of the potentialities and limitations of the use of text in knowledge production, inscription and dissemination in the past and in the present.

C. Method

The method combines an interdisciplinary comparative historical approach with action research (participant-observation) and shared learning conversations. In line with commonplace methods for testing a relationship (such as that between scholarship and text), doctoral candidates will formulate theoretically grounded research hypotheses and join sites where they can actively participate in existing scholarly or publishing ventures aimed at shaping new instruments or working practices that support scholarship. Hypotheses are therefore tested in external practice.

The methodology has four elements:

1. Classic analysis of past and current scholarly communication practices, in terms of both process (stakeholders, institutions, conventions, methods) and products (demonstrations, lectures, monographs, articles, correspondence);
2. Participant-observation, highly successful in STS laboratory studies;
3. Action research (direct intervention in objects of study); and
4. Learning conversations (a way to enable all participants to learn from work-based experiences by formulating questions and testable hypotheses

about what makes a reported activity work, cf. Earl and Timperley 2008).

Together, actions 2-4 function as a community of practice, where the community includes the researchers as well as institutions in the field as knowledge partners in the programme. (Arrangements have already been made with the institutions represented on the Advisory Board.)

D. Relevance and scientific merit

This research programme is particularly timely because the use of digital media in scholarship has yet to achieve the same transparency as printed text (Van der Weel 2011a and 2011b). Scholars are experimenting with the wide-ranging new possibilities and are assessing how digital media affect the way they do their research, report their research findings, interact with others, and even the very research questions that may be asked. But our imagination of future scholarship is constrained by our inherited textual habits. The key merits of the programme are therefore to identify limitations that a textual epistemology places on contemporary scholarship and to explore post-textuality in digital forms of knowing.

E. Prior work

This research builds on the NWO-funded project 'Electronic Text and the Gutenberg Heritage' (whose outcome is the monograph *Changing Our Textual Minds: Towards a Digital Order of Knowledge*; Van der Weel 2011a, forthcoming from Manchester UP, May 2011). The researchers in the team have been involved in research on enhanced publications (SURFfoundation; Verhaar 2009); the curation of primary data in the humanities and the digital workflow of humanities scholars (SURFfoundation; Verhaar et al. 2010); and the effects of digital transformations in text culture on textual scholarship (2008 KNAW colloquium 'Text comparison and digital creativity'; proceedings published in 2010 in the new Brill book series *Scholarly communication*, founded and edited by the current applicants and Ray Siemens of INKE; see http://www.brill.nl/sc). In December 2010 in the Koninklijke Bibliotheek the conference 'Texts and literacy in the digital age: Assessing the future of scholarly communication' was organised jointly with INKE, an international research group at the forefront of computing in the humanities, text analysis, information studies, usability and interface design with which the programme aims to collaborate.

F. Availability of sources

Primary resources (evidence of current and historic practices in scholarly knowledge production and communication) as well as secondary sources

(academic journals and monographs in all relevant disciplines, from science studies to book history and text scholarship) are copiously available in print and on the web. The published work is predominantly in English.

G. Innovation and originality

The programme is original in testing the widespread belief among scholars in a dependency of scholarship on text, along with its implications for the future of scholarship and the development of new (digital) instruments and techniques. It is innovative in the connections made between science studies, book history and text scholarship and its use of participatory methods for testing a commonplace scholarly belief. The combination of interdisciplinary grounded theory and action research in humanities scholarship is original methodologically.

H. Programmatic coherence

The subprojects (whose coherence has already been outlined above) will provide essential input for the synthetic part of the research, which will explore if and how the textual nature of traditional scholarship can be continued in a digital knowledge environment.

I. Institutional embedding

The programme arises from ongoing work of the Book and Digital Media Studies (BDMS) department at Leiden University. In its 'Visiedocument 2008–2013' the department declared scholarly publishing a core expertise development area. BDMS staff already supervise PhD dissertations in the field, and collaborate extensively with partners in the scholarly publishing world. Project members will participate in the BDMS teaching programme.

J. Social, cultural and/or technical relevance

Large investments are currently being made in e-infrastructure (Libratory and e-Humanities in the Netherlands; CLARIN and DARIAH in Europe, etc.) and in the development of new forms of scholarly publishing, such as enhanced publications (SURFfoundation), and Open Access monograph publishing (OAPEN, *e*Content*plus* programme). The Dutch contribution to the field of scholarly publishing and dissemination is both economically significant and internationally highly respected, and the programme offers an opportunity for the Netherlands to remain in the vanguard of relevant developments. The proposed research will be carried out in close collaboration with industry partners, such as the University Library Leiden and Leiden University Press.

SUBPROJECTS

(A) Constructing 'primers' of disruption in scholarly communication: peculiarities; historical, social, technological and cultural settings of early scientific periodicals

The current process of digital remediation is seen as 'disruptive' (Cope and Kalantzis 2009) of the existing knowledge system, which has over the centuries come to be based on stable records, individual authorship, common formats for scholarly publications and peer evaluation, as well as an enduring infrastructure through which the different stakeholders comprising the world of scholarly communication such as authors, publishers, libraries, universities, etc. are collectively mobilised.

This research project concentrates on the factors of time and setting as they contribute to the historical formalisation of peer review texts. It can be considered a re-visit of the past as a starting point for critically (re-)examining current discussions about contemporary scholarly communication (Cope and Kalantzis 2009, Atkinson 1998). The main question the project addresses is how the press, and by extension textual narrative, has come to be 'the most proper way to gratifie those' who engage in knowledge making (Oldenburg 2009).

Peer-reviewed academic journals have long been pivotal to scholarship, achieving levels of stability and familiarity which persist to the present day. Academic journals are regarded as fundamental to the whole scholarly communication infrastructure, not only in the natural and social sciences but increasingly also (especially in recent years) in the humanities. In order to understand these contemporary changes in the peer-review habits of scholarship it will be useful to re-analyse how and why peer-reviewed journals developed.

The 'first scientific periodicals', the precursors of today's academic journals, have been unanimously identified – *Philosophical Transactions* (*PT*) and *Journal des Sçavans* (*JdS*) (Bluhm 1960, Kronick 1962, Kronick 2004). The proposed research investigates how and why these journals achieved this status, and how their game-changing position was constructed. Amidst spreading views of science as a cumulative process of reproducible experiments, scholarly societies became the promulgators of the very form of communication, the printed publication, that would effect a shift away from their traditional transactions – 'doing science' through informal discussions and participation in collaborative experiments – and the rise in importance of textual accounts presenting the thinking of independent, credited authors (Kronick 2004). The writing up of experiments led

to the gradual disappearance of the live, collective witnessing of experiments and their replacement by formal post-hoc accounts that could be circulated in print.

The simultaneous emergence of the two journals in the seventeenth century (Kronick 2004, 27) and the subsequent adoption of their model reflect the needs and habits of the scholarly community at that time and how these were or were not addressed by the first academic journals and by print technology in general. Research into this purported turning point in the history of scholarly communication will allow us to examine specifics of the transformation process that occurred, in particular those continuities and discontinuities in scholarly activities and practices that contributed to the current dominance of printed text as the main vehicle for scholarly communication. Such an overview is especially pertinent in the current moment of flux with respect to the formats and infrastructure of scholarly communication, when a point of stability and familiarity comparable to that of print not only has no clearly discernible features, but some even argue will never emerge at all (Van der Weel 2011b).

Specific questions driving this research include the following:
- What historical, social, economic, cultural, technological settings determined the properties of the earliest scientific journals and what were those properties specifically? What factors besides the (new) technology of print led to the simultaneous 'invention' of *PT* and *JdS*?

- What scholarly needs did the creators of *PT* and *JdS* (aim to) serve?

- What did scholarly transactions entail prior to the emergence of *PT* and *JdS*? What was done to guarantee the quality of ideas prior to live experiments, that did or did not carry through into the new era of scholarship ushered in by these scholarly journals?

- What were the specifics of the transformation process? What role did early scientific periodicals have in the gradual separation of sciences and humanities?

- What part of the pre-existing system of scholarship was transferred to, served and altered by print, and what new features did print introduce that were eventually embraced by the community?

In its methodology, this research will be led by notions developed by scholars of the so-called 'digital humanities' field, who argue for the conscious blurring of practice and theory in humanities research as a driver of new academic insight in the digital environment (Borgman 2007, Unsworth 2006, Drucker 2002, McGann 2001).

(B) Knowledge Representation in Digital Literary Studies

This research project explores possibilities and weaknesses of converting literary texts to computable data for scholarly purposes, especially in the emergent

humanities domain of digital literary studies.

Since the creation of the *Index Thomasticus* by Father Roberto Busa in 1949, literary scholars worldwide have been engaged in developing a variety of computer-based methodologies for the analysis of literary texts. Research projects invariably face the challenge of representing linear textual sources in a format which can be processed by computers. Concretely, this means that texts need to be converted into disparate data items which can be analysed systematically. This process may be referred to as 'tokenisation', or 'morselisation' (McCarthy 2005). Such conversions are generally based on ontologies, or predefined explicit descriptions of the knowable entities that can exist within a particular domain. All operations that computers can be asked to perform on texts are based on a prior assessment of the sort of properties that those texts can have. Unsworth explains that, when scholars prepare electronic texts for the purpose of computer-based analysis, this is essentially 'a practice of representation, a form of modeling or, as Wallace Stevens has it, mimicry' (Unsworth 2002). Furthermore, it entails formulating 'a set of ontological commitments'. The results of such ontological analyses usually become available in the form of software requirements, database designs or XML schemas (Unsworth 2001).

However, since research in the humanities is often carried out by individual scholars, the 'semi-manufactures' (Van der Weel 2010) that they produce often reflect idiosyncratic methodologies and practices, and consequently the semantic contents of the data that are produced often vary considerably. Most tools that have been developed are tied uniquely to the research questions of particular research projects and there are still very few examples of projects which are cumulatively built on the results of previous studies. This research project aims to explore the impact of the use of the digital medium on scholarly practices and on the possibilities for data reuse in digital literary studies.

In recent years there has been increasing pressure on researchers to seek more collaboration and to make scholarly practices more transparent and more accountable. The open access movement, for instance, is centrally concerned with stimulating authors to transfer publications and research data from private environments into the public sphere of open repositories (http://oa.mpg.de/openaccess-berlin/berlindeclaration.html). It has often been recognised that the field of humanities has largely failed to move along with this general evolution towards more openness. Collaboration is relatively rare and scholars frequently conform to the stereotype of the 'solitary humanist; the ideal, derived from the Romantic Era, of the great mind communing with itself' (Davidson 1999). Humanities scholars usually provide access to their final articles or monographs only, and since the use of digital research instruments is not as

widespread as in other fields, it is also uncommon for authors to provide digital access to materials prepared during earlier stages of the research process.

This subproject will address the following three sets of questions:

(1) In what ways do the questions that have been asked in digital literary studies differ from questions that have been asked in traditional, 'analogue', literary studies? Does 'the discipline of expressing oneself within the limitations of computability' (Unsworth 2002) also render certain types of research impossible? Answers to these questions will help define the nature of the difference between analogue and digital textuality at large, and the differential limitations of both in particular.

(2) In fields such as ecology and physics, researchers have managed to deal with heterogeneous data collections by representing them using a set of technologies which are frequently referred to collectively as the 'semantic web' (Fox and Hendler 2009). One of the central components of the semantic web is a mechanism for describing general concepts and instances of those concepts in a uniform way, combined with a set of facilities for capturing the manifold relationships that can exist between these facts and concepts. Can new technologies such as the semantic web provide a way to deal with differences in the way in which literary texts have been represented?

(3) How can literary scholars reuse the semi-manufactures that have been produced by others? Expressing formal requirements to reuse materials or to standardise data formats is desirable for important intellectual and economic reasons, but can it also be restrictive?

(C) The function of the discursive long-form text in scholarly communication in the humanities

The production of knowledge is central to the academic community. Despite differences in the form, content and status of formal knowledge all disciplines use the same means of information transmission: the discursive long-form text. Discursive text, whether it is an explanation of structured data obtained by empirical research or a standalone text based on the analysis of unstructured primary data such as a novel, is used to report new findings. These research findings are largely transmitted to the community through journals and books. The central position that the long-form text has come to occupy is entirely dependent on the stability and accessibility of the print text (compared to manuscript or oral transmission of knowledge; Van der Weel 2011a). While hypertext theorists have often stressed the downsides of print as compared to the

computer, for sustained discursive reading the print text remains a near ideal technology (Hillesund 2010).

The networked computer has broken up the chain of *author – publishers and peer reviewers – reader* by making publishing more instantaneous, interactive and diffuse. It allows anyone to produce, disseminate and consume information in a single environment. Moreover, other modalities such as video and sound can be produced, edited and published as easily as text. Yet, though new possibilities are being explored and exploited, the discursive long-form text remains the undisputed means of information transmission, even in digital humanities research, where researchers are more comfortable with the digital medium and its possibilities than many other humanities scholars are (Schreibman and Siemens 2008).

This centrality of long-form text in the digital networked environment is increasingly in doubt. Individual authority and attribution of ideas – the core of the discursive argumentative text in humanities – is difficult to sustain as digital productions rapidly become participatory, fluid and open-ended. The mounting instability of formal knowledge is readily visible in the hybrid print–digital environment researchers now work in, for instance in making reference to texts that might have been altered or removed shortly after consultation.

The aim of this project is to appraise critically the function and workings of the discursive long-form text in light of the current transformations in humanities scholarship. The working hypothesis is that the discursive text has necessary properties that cannot be easily replaced by other modalities or structured data. Research questions that arise include:
  • What properties of discursive text are essential to knowledge building in research?
  • What other modalities or other data have these same properties in digital humanities research?
  • And in particular, how do the longer textual units of long-form text relate to inverse aspirations to tokenise argument in the information sciences?

The analysis will be three-tiered, focusing on both the technological and social aspects of the discursive long-form text and the interrelations of those aspects (cf. Bijker 1997). Firstly, a formal description of the discursive long-form text based on its properties will be used to define this central concept, using a number of examples from different disciplines and comparing this scholarly text type to others, such as narrative, and other, non-textual, modalities such as video. The analysis will be based on several case study comparisons, one of which will be a comparison of traditional literary humanities research versus digital literary

humanities research.

Secondly, the text will be positioned in its context; theories on how authors 'encrypt' information, respectively how readers extract information from texts – for instance the reading modes suggested by Vandendorpe (2008), the distinction between continuous and sustained reflective reading by Hillesund (2010) and how they form knowledge based on this information (by using the construction-integration model by Walter Kintsch (1998)) – will be operationalised in analysing how the discursive text functions as an information carrier between its producers and consumers. Based on these two steps the key properties of the discursive text relevant for the inscription and dissemination of scholarly knowledge can be formally described.

Finally, the social context of the production of scholarly knowledge will be taken into account. One particular widely held scholarly belief will be tested against the data collected. Many humanities researchers see the tradition of long-form publication as inherently important, elegant and unique. The stability of the print text, combined with the 'gate-keeping' by publishers and peer-reviewers, are taken to be necessary guarantees for reliability and quality. The analysis of this value system will be supported by a series of interviews with researchers from several disciplines, including the social sciences and the sciences. The current socio-technical environment of the discursive long-form text will thus be constructed from a combination of theoretical and empirical research.

Appendix: References

Atkinson, D. (1998). *Scientific discourse in sociohistorical context: The Philosophical Transactions of the Royal Society of London, 1675-1975*. London: Routledge.

Bernal J. (1972). *Science in history*. Cambridge, US: MIT Press.

Bijker, W. (1997). *Of bicycles, bakelites and bulbs: Toward a theory of sociotechnical change*. Cambridge, Mass. / London, England: MIT Press.

Bluhm, R.K. (1960). 'Henry Oldenburg F.R.S. (c. 1616-1677)'. *Notes Rec. R. Soc. Lond.* 1960 15, 183-197. http://rsnr.royalsocietypublishing.org/content/15/1/183.full.pdf+html.

Bod, R. (2010). *De vergeten wetenschappen: Een geschiedenis van de humaniora*. Amsterdam: Bert Bakker.

Bolter, J.D. (1991). *Writing space: The computer, hypertext, and the history of writing*. Hillsdale, N.J., Hove and London: Lawrence Earlbaum Associates. 2nd edn (2000). *Writing space: Computers, hypertext, and the remediation of print*, Hillsdale, N.J., Hove and London: Lawrence Earlbaum Associates.

Borgman, C.L. (2007). *Scholarship in the digital age: Information, infrastructure, and the Internet*. Cambridge, Mass. / London, England: MIT Press.

Burke, P. (2000). *A social history of knowledge: From Gutenberg to Diderot*. Cambridge, UK: Polity.

Chartier, R. (2004). 'Languages, books, and reading from the printed word to the digital text'. *Critical Inquiry* 31, 141-152.

Cohen, F. (2010). *How modern science came into the world: Four civilizations, one 17th-century breakthrough*. Amsterdam: Amsterdam UP.

Collins, H. (2010). *Tacit and explicit knowledge*. Chicago, US: Chicago University Press.

Cope, B. and M. Kalantzis (2009). 'Signs of epistemic disruption: Transformation in the knowledge system of the academic journal'. *First Monday* 14: 4-6, April 2009. http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2309/2163.

Cope, B., et al. (2010). *Towards a semantic web: Connecting knowledge in academic research*. Oxford, UK: Chandos.

Davidson, C. (1999). 'What if scholars in the humanities worked together, in a lab?'. *The chronicle of higher education*. May 28. http://chronicle.com/article/What-If-Scholars-in-the/24009.

Drucker, J. (2002). 'Theory as praxis: The poetics of electronic textuality'. *Modernism/modernity* 9: 4, Johns Hopkins UP.

Earl, L. and H.S. Timperley, eds. (2008). *Professional learning conversations: Challenges in using evidence for improvement*. New York: Springer Academic Publishers.

Eisenstein, E. (1979). *The printing press as an agent of change: Communications and cultural transformations in Early-modern Europe*. Cambridge, UK: Cambridge UP.

Flanders, J. (2009). 'The productive unease of 21st-century digital scholarship. *Digital Humanities Quartly* 3:3. http://digitalhumanities.org/dhq/vol/3/3/000055/000055.html.

Fox, P. and J. Hendler (2009). *Semantic eScience: Encoding meaning in next-generation digitally enhanced science*. In: Hey, Tony, et al. *The fourth paradigm: Data-intensive scientific discovery*. Microsoft Research. http://research.microsoft.com/en-us/collaboration/fourthparadigm/4th_paradigm_book_part3_fox_hendler.pdf.

Frasca-Spada, M. and N. Jardine (2000). *Books and the sciences in history*. Cambridge, UK: Cambridge UP.

Frickel, S. , et al. (2009). 'Undone science: Charting social movement and civil society challenges to research agenda setting', in *Science, technology and human values* 35(4):444-473.

Frohmann, B. (2004). *Deflating information: From science studies to documentation*. Toronto, Canada: University of Toronto Press.

Grafton, A. (1997). *The footnote: A curious history*. London: Faber and Faber.

Hayles, K. (2002). *Writing machines*. Cambridge, Mass. / London, England: MIT Press.

Hillesund, T. (2010). 'Digital reading spaces: How expert readers handle books, the Web and electronic paper'. *First Monday* 15. http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2762/2504.

Hockey, S. (1999). *Electronic texts in the Humanities: Principles and practice*. Oxford, UK: Oxford UP.

Hudson, N. (1994). *Writing and European thought 1600-1830*. Cambridge, UK: Cambridge UP.

Kintsch, W. (1998). *Comprehension, a Paradigm for Cognition*. Cambridge, UK: Cambridge UP.

Kronick, D.A. (2004). *'Devant le deluge' and other essays on Early Modern scientific communication*. New York: The Scarecrow Press.

Kronick, D.A. (1962). *A history of scientific and technical periodicals: The origins and development of the scientific and technological press 1665-1790*, New York: The Scarecrow Press.

Landow, G.P. (1992). *Hypertext: The convergence of contemporary critical theory and technology*. Baltimore and London: Johns Hopkins UP.

Latour, B. and S. Woolgar (1986). *Laboratory life: The construction of scientific facts*. Princeton, N.J.: Princeton UP.

McCarty, W. (2005). *Humanities computing*. London and New York: Palgrave.

McGann, J. (2001). *Radiant textuality: Literature after the World Wide Web*. New York [etc.]: Palgrave.

Schreibman, S. and R. Siemens (eds.) (2008). *A Companion to digital literary studies*. Oxford: Blackwell. http://www.digitalhumanities.org/companionDLS/.

Shapin, S. and S. Schaffer (1989) *Leviathan and the air-pump: Hobbes, Boyle and the experimental life*. Princeton: Princeton UP.

Sismondo, S. (2004). *An introduction to science and technology studies*. Oxford: Blackwell.

Unsworth, J. (2001). 'Knowledge representation in humanities computing'. http://www3.isrl.illinois.edu/~unsworth/KR/KRinHC.html.

Unsworth, J. (2002). 'What is humanities computing, and what is not?' In *Jahrbuch für Computerphilologie* 4. Georg Braungart, Karl Eibl and Fotis Jannidis, eds. Paderborn: Mentis Verlag. http://computerphilologie.uni-muenchen.de/jg02/unsworth.html.

Unsworth, J., et al. (2006). 'Our cultural commonwealth: The report of the American Council of Learned Societies Commission on Cyberinfrastructure in the Humanities and Social Sciences'.

Vandendorpe, C. (2008). 'Reading on screen: The new media sphere'. In Schreibman and Siemens 2008.

Van der Weel, A. (2011a). *Changing our textual minds: Towards a digital order of knowledge*. Manchester: Manchester UP (forthcoming).

Van der Weel, A. (2011b). 'Explorations in the libroverse'. In the proceedings of the Nobel symposium 'Going digital: Evolutionary and revolutionary aspects of digitization. Ed. Karl Grandin (forthcoming). http://www.let.leidenuniv.nl/wgbw/research/Weel_Articles/NobelPaperPub.pdf.

Van der Weel, A. (2010). 'New mediums: New perspectives on knowledge production. In *Text Comparison and Digital Creativity*. Eds. Wido van Peursen et al. Leiden: Brill, pp. 253-68.

Verhaar, P. (2009). 'Enhanced publications: Object models and functionalities'. http://www.driver-repository.eu/component/option,com_jdownloads/Itemid,58/task,view.download/cid,54/.

Verhaar, P., et al. (2010). *Data curation in arts and media research*. SURFfoundation. http://www.surffoundation.nl/nl/themas/openonderzoek/cris/Documents/SURFshare_Collectioner en_Data_Curation_in_Arts_and%20Media_Research_DEF.pdf.

Wells, E.B. (1976). Review of David A. Kronick's *A history of scientific and technical periodicals. The origins and development of the scientific and technological press 1665-1790*. 2nd ed. Metuchen, N.J.: Scarecrow Press, 1976 in *Bulletin of the Medical Library Association* 64:4 (October 1976): 441.

10. Summary in Key Words

Scholarly communication; knowledge inscription; digital textuality; scholarly publishing.

11. Work Programme

Year	Quarter	Person	Task
2011	Q4	Doctoral candidates 1, 2, 3	• Initial structuring of research project. • Meetings with programme applicants and program co-researchers for discussing project structure and general approach. • Studying selected secondary sources of co-researchers to establish a level work base.
		Applicants	• Establishing working arrangements with institutional partners. • Meetings with doctoral candidates for discussing project structure and general approach.
		Doctoral candidate 2	• Teaching in MA Book and Digital Media Studies.
2012	Q1	Doctoral candidate 1	• Identify primary sources and their locations. • Overview relevant secondary literature on early scholarly periodicals. • Writing draft framework.
		Doctoral candidate 2	• Selection of secondary sources; appraisal of theories on textuality and digital literary studies.
		Doctoral candidate 3	• Library research, selection of secondary sources; appraisal of theories on discursive long-form texts and academic writing. • Plan meetings with scholars for collection of case studies.
2012	Q2	Doctoral candidate 1	• Obtain access to necessary primary sources and store for personal use. • Overview relevant secondary literature on early scholarly periodicals (continued). • Write draft version of introduction.
		Doctoral candidate 2	• Write draft version of introduction.
		Doctoral candidate 3	• Write draft version of introduction. • Meetings with relevant scholars for collection of case studies.

Year	Quarter	Person	Task
2012	Q3	Doctoral candidate 1	• Research on primary documents. • Writing draft chapter on history and features of early scientific periodicals. • Holiday (two and a half weeks).
		Doctoral candidate 2	• Collection of research data; comparative analysis of existing results of projects in digital literary studies. • Meetings and interviews with relevant scholars in the field of study. • Holiday (1 month). • Teaching in MA Book and Digital Media Studies.
		Doctoral candidate 3	• Meetings with relevant scholars for collection of case studies. • Holiday (three weeks). • Case studies selection and analysis.
2012	Q4	Doctoral candidate 1	• Identify and contact interdisciplinary academic institutes, digital humanities groups and/or library departments to cooperate with for the conceptualisation of an electronic resource to present research findings and data. • Devise ways of preserving and presenting underlying research data. • Holiday (one week and a half).
		Doctoral candidate 2	• Write draft chapter on digital literary studies. • Teaching in MA Book and Digital Media Studies.
		Doctoral candidate 3	• Write draft chapter on initial results of case studies. • Holiday (one week).
2013	Q1	Doctoral candidate 1	• Devise ways of preserving and presenting underlying research data. • Write draft Chapter on current and past 'points of disruption' in scholarly communication.
		Doctoral candidate 2	• Exploration of use of semantic web technologies. • Write draft chapter on the reuse of scholarly semi-manufactures.

Year	Quarter	Person	Task
		Doctoral candidate 3	• Library research, selection of secondary sources, and appraisal of theories on reading, writing, knowledge encoding and extraction.
2013	Q2	Doctoral candidate 1	• Cooperate with identified external institutional partner for the creation of electronic research component (scholarly tool). • Research existing and related electronic tools.
		Doctoral candidate 2	• Write draft chapter on the reuse of scholarly semi-manufactures. • Appraisal of theories in the field of traditional literary studies.
		Doctoral candidate 3	• Develop qualitative interview in consultation with main applicant on interview structure. • Start making appointments for interviews with scholars. • Holiday (three weeks).
2013	Q3	Doctoral candidate 1	• Cooperate with identified external institutional partner for the creation of electronic research component (scholarly tool). • Write draft Chapter on essential scholarly practices and the role of textuality in scholarly communication. • Holiday (two and a half weeks).
		Doctoral candidate 2	• Write draft chapter on differences between traditional and digital literary studies. • Holiday (1 month). • Teaching in MA Book and Digital Media Studies.
		Doctoral candidate 3	• Write chapter on formal description of key properties of the discursive text relevant for the inscription and dissemination of scholarly knowledge. • Start interviews.
2013	Q4	Doctoral candidate 1	• Create electronic research component (scholarly tool). • Write draft Chapter on essential scholarly practices and the role of textuality in scholarly communication (continued).

Year	Quarter	Person	Task
			• Holiday (one week and a half).
		Doctoral candidate 2	• Teaching in MA Book and Digital Media Studies. • Structuring final frame of dissertation.
		Doctoral candidate 3	• Continue interviews. • Holiday (one week).
2014	Q1	Doctoral candidate 1	• Write a draft chapter on the way the role and status of *JdS* and *PT* were constructed in scholarly literature.
		Doctoral candidate 2	• Structuring final frame of dissertation.
		Doctoral candidate 3	• Library research, selection of secondary sources, and appraisal of meta-information on academic/humanities value system.
2014	Q2	Doctoral candidate 1	• Create web resource to present the research findings and data.
		Doctoral candidate 2	• Organising materials for web resource. • Write draft chapter on digital literary studies.
		Doctoral candidate 3	• Finalise interviews, process results. Meeting with applicants on overall progress. • Write chapter on analysis of humanities value system.
2014	Q3	Doctoral candidate 1	• Create web resource to present the research findings and data (continued). • Write concluding chapter. • Holiday (two and a half weeks).
		Doctoral candidate 2	• Write draft chapter on digital literary studies (continued).
		Doctoral candidate 3	• Write chapter on analysis of humanities value system (continued). • Holiday (three weeks).
2014	Q4	Doctoral candidate 1	• Write final versions of introduction and chapters. • Holiday (one week and a half).
		Doctoral candidate 2	• Write final chapter on the reuse of scholarly semi-manufactures.
		Doctoral candidate 3	• Final structuring of thesis, organisation of materials.

Year	Quarter	Person	Task
2015	Q1	Doctoral candidate 2	• Write final chapter on differences between traditional and digital literary studies.
		Doctoral candidates 1, 3	• Finalising, editing, and revising dissertation after consultation with supervisors.
2015	Q2	Doctoral candidate 1	• Finalising, editing, and revising dissertation after feedback from reading committee.
		Doctoral candidate 2	• Write final version of introduction. • Write conclusion.
		Doctoral candidate 3	• Holiday (three weeks). • Finalising, editing, and revising dissertation after feedback from reading committee.
2015	Q3	Doctoral candidate 1	• Final revision of thesis, organisation of materials. • Defense of thesis. • Holiday (two and a half weeks).
		Doctoral candidate 2	• Holiday (1 month). • Write conclusion. • Teaching in MA Book and Digital Media Studies.
		Doctoral candidate 3	• Final revision of thesis, organisation of materials. • Defense of thesis.
		Applicants	• Write synthesis.
2015	Q4	Doctoral candidates 1, 2, 3	• Paper preparation. • Presentation of a paper at the programme conference.
		Doctoral candidate 2	• Teaching in MA Book and Digital Media Studies.
		Applicants	• Write synthesis (continued).
2016	Q1	Doctoral candidate 2	• Finalising, editing, and revising dissertation after consultation with supervisors.
	Q2	Doctoral candidate 2	• Finalising, editing, and revising dissertation after feedback from reading committee.
	Q3	Doctoral candidate 2	• Holiday (1 month). • Defense of thesis.

N.B.: Conference attendance, conference papers and (single or co-authored) articles (see planned deliverables below) have not been scheduled, since timing depends on the incidence of relevant conferences in combination with actual research outcomes.

12. Word Count section 9

1900.

13. Planned Deliverables

Three dissertations by the doctoral candidates; a minimum of six (single and co-authored) articles in peer-reviewed journals and/or edited volumes, following on from papers presented at relevant conferences; international conference, 'Disruption in scholarly communication'; synthetic monograph by the applicants. The dissertations and the synthetic volume will be published in the Scholarly Communications series (Brill; http://www.brill.nl/sc), under editorship of Ernst Thoutenhoofd, Adriaan van der Weel and Ray Siemens.

14. Short Curriculum Vitae Principal Applicant

Adriaan van der Weel (Rotterdam, 1953) was educated at the Universities of Leiden, Dublin (Trinity College) and Sydney. Van der Weel is currently extraordinary professor of Modern Dutch Book History at the University of Leiden for the Dr. P.A. Tiele-Stichting (since April 2005), and lecturer in Book and Digital Media Studies. He has also taught literature and book studies at the University of Utrecht (1998) and the College of William and Mary, Williamsburg (2003). He is European articles editor of *Digital Humanities Quarterly*; editor-in-chief of *Logos: Journal of the World Book Community*; founder–editor, with Ernst Thoutenhoofd and Ray Siemens, of the *Scholarly Communication* book series (Brill); committee member of the Dr. P.A. Tiele-Stichting (for the promotion of book studies in the Netherlands), and co-founder of the Electronic Text Centre Leiden, of which he was Humanities co-ordinator 1997-2002.

Address: Pijnackerplein 41, 3035 GG Rotterdam, Netherlands.
Email: a.h.van.der.weel@hum.leidenuniv.nl.

Key publications

• *Changing our textual mind: Towards a digital order of knowledge*, Manchester: Manchester University Press, forthcoming (2011)
• 'Explorations in the Libroverse', proceedings of the Nobel symposium 'Going

Digital: Evolutionary and Revolutionary Aspects of Digitization', ed. Karl Grandin, forthcoming (2011).
• 'eRoads and iWays: A sociotechnical look at consumer acceptance of e-books', *Logos*, 21:3-4, forthcoming (2010).
• 'New mediums: New perspectives on knowledge production' in *Text comparison and digital creativity*, eds. Wido van Peursen *et al.*, Leiden: Brill, 2010, pp. 253-68.
• Peter Verhaar, Mariya Mitova, Paul Rutten, Adriaan van der Weel, Frederik Birnie, Abram Wagenaar, Joppe Gloerich, *Data curation in arts and media research*, Stichting SURF, 2010, http://www.surffoundation.nl/nl/themas/openonderzoek/cris/Documents/SURFshare_Collectioneren_Data_Curation_in_Arts_and%20Media_Research_DEF.pdf.
• 'Convergence and its discontents: From a book culture to a reading culture', *Logos* 20:1-4 (2009), p. 148-54.
• 'Modernity and Print II: Europe 1890-1970', *Blackwell companion to the history of the book,* ed. Simon Eliot and Jonathan Rose, Oxford: Blackwell, 2007, pp. 354-67.
• 'Het boek in beweging: De boekcultuur in een digitaliserende wereld', *Jaarboek voor Nederlandse Boekgeschiedenis* 14 (2007), pp. 6-31.

15. Summary for Non-specialists

De geschiedenis van de wetenschap laat een toenemend gebruik van tekst zien. Vooral na de uitvinding van de boekdruk met losse loden letters zijn boeken en artikelen zonder twijfel het belangrijkste medium van kennisinscriptie en -overdracht geworden. Het gevolg hiervan is dat het kennissysteem van de moderne wetenschap uitgaat van de ongetoetste – en zelfs onuitgesproken – aanname dat tekst en (wetenschappelijke) kennis samenvallen.

Op het breukvlak van papieren naar digitale vormen van kennisoverdracht wordt deze aanname ter discussie gesteld. Immers, in het digitale medium convergeren alle modaliteiten: tekst, beeld, geluid en video. Dat betekent dat de positie van tekst (en beeld) als enige en dus vanzelfsprekende modaliteit voor kennisinscriptie en kennisoverdracht niet langer vanzelf spreekt. Dit leidt tot vragen over de aard van de relatie tussen tekst en kennis, vragen over welke modaliteiten het efficientst voor welke vormen van kennis kunnen worden ingezet, hoe tekst precies functioneert in het digitale medium, dat immers andere intrinsieke eigenschappen heeft dan drukwerk, en hoe daarom digitale vormen van productie, disseminatie en consumptie van wetenschappelijke kennis gestalte moet krijgen.

Een historische vergelijkende benadering van deze vragen laat zien dat er naast tekstuele ook wel degelijk andere praktijken (en bijbehorende vormen van kennisoverdracht) hebben bestaan – en nog steeds bestaan – maar dat deze door de dominantie van tekst vrijwel aan het zicht zijn onttrokken. Dit onderzoeksprogramma vertrekt vanuit de hypothese dat er geen noodzakelijke relatie tussen kennis en tekst is, en dat de aanname dat tekst en (wetenschappelijke) kennis samenvallen in wezen een historische contingentie is.

De hypothese wordt getoetst door enerzijds bijdragen aan digitale projecten m.b.t. de creatie en disseminatie van wetenschappelijk kennis waarin tekst centraal staat en anderzijds een (her)analyse van de historische ontwikkelingen die hebben geleid tot de dominantie van tekst in wetenschap.

De synthese relateert de uitkomst van de toetsen aan elkaar en geeft een aanzet tot een meer fundamentele, kritische bezinning op de relatie tussen kennis en tekst.

16. Research Budget

BUDGET VRIJE COMPETITIE VAN DER WEEL:

Prof. dr. A.H. van der Weel

Beschikbaar	€ 500.000 en 1 mln. (6 jaar)
Salarisniveau:	VSNU-tarieven per 1-7-10
Startdatum:	9/1/11
Einddatum:	8/31/16

NWO Dossier:

Salary reference (jaar 1–5)

	postdoc vsnu		AIO		SA	
1	63,714	63,714	40,721	40,721	47,422	47,422
2	128,938	65,224	89,804	49,083	96,008	48,586
3	195,706	66,768	142,237	52,433	145,725	49,717
4	264,057	68,351	198,693	56,456	196,619	50,894
5	334,026	69,969	255,896	57,203		

Salarisniveau cao 1-7-10

Dossiernummer: ……	sal.anc.	fte	Begroot 2011	Begroot 2012	Begroot 2013	Begroot 2014	Begroot 2015	Begroot 2016	Begroot Totaal	NWO subsidie tarief 2009
A. Personeel:										
Dossiernummer: ……		1.00								
AIO I, per 1-9-2011 4 yrs			13,574	43,508	50,200	53,774	37,637		198,693	198,693
Benchfee			5000						5,000	5,000
Subtotal			**18,574**	**43,508**	**50,200**	**53,774**	**37,637**	**0**	**203,693**	**203,693**
Dossiernummer: ……		0.80								
AIO II, per 1-9-2011 5 yrs			10,859	34,807	40,160	43,019	45,364	30,508	204,717	204,717
Benchfee			5,000						5,000	5,000
Subtotal			**15,859**	**34,807**	**40,160**	**43,019**	**45,364**	**30,508**	**209,717**	**209,717**
Dossiernummer: ……		1.00								
AIO III, per 1-9-2011 4 yrs			13,574	43,508	50,200	53,774	37,637		198,693	198,693
Benchfee			5000						5,000	5,000
Subtotal			**18,574**	**43,508**	**50,200**	**53,774**	**37,637**	**0**	**203,693**	**203,693**
Totaal A. Personeel			**53,006**	**121,823**	**140,559**	**150,567**	**120,639**	**30,508**	**617,103**	**617,103**
B. Ov. Personeelskn (verv. + SA)										
Replacement	50,000	0.50					50,000		50,000	50,000
Student assistant	30,000	0.20 2 yrs		9,484	9,717	9,943			29,145	29,145
Totaal B. Ov. pers. kn.			**0**	**9,484**	**9,717**	**59,943**	**50,000**	**0**	**79,145**	**79,145**
C. Materieel:										
Internationalisation activities:										
Symposium									0	0
Conference			3,000	7,000	3,000	8,400	20,000	3,600	45,000	45,000
Travel and subsistence			5,000	5,000	5,000	5,000	5,000	4,000	29,000	29,000
Fieldwork									0	0
Equipment (compilation database)									0	0
Totaal C. Materieel			**8,000**	**12,000**	**8,000**	**13,400**	**25,000**	**7,600**	**74,000**	**74,000**
D. Kennisbenutting			2,450	6000	4250	4250	4250	2450	23,650	23,650
TOTAL			**63,456**	**149,308**	**162,526**	**228,161**	**199,889**	**40,558**	**793,898**	**793,898**

793,898
793,898
206,102