

# Users in the spotlight: study on the use of the Dutch scientific portal NARCIS, 2009

Elly Dijk, Arjan Hogenaar, Marga van Meel<sup>1</sup>

Department of Research Information

Royal Netherlands Academy of Arts and Sciences - KNAW

## Summary

The Royal Netherlands Academy of Arts and Sciences (KNAW) conducted three user studies in 2009. The first two studies were online surveys concerning the NARCIS portal. NARCIS ([www.narcis.nl](http://www.narcis.nl)) is a gateway to (Open Access) publications published by all the Dutch universities, the Academy, the National research Council (NWO) and a number of research institutes, to datasets managed by the DANS institute, and to descriptions of research projects, institutes and researchers (CRIS information). The surveys produced information about NARCIS users and usage, and how users rate the content and functionalities of NARCIS. The results will be used to help redesign the NARCIS website. The third study was a general survey of the need for research information, based on semi-structured interviews with various user groups in the Netherlands (researchers, policy-makers and the media). The interviews reveal that these groups make scarcely any use of NARCIS, if at all, but that they would already benefit from doing so. In addition, they have a number of wishes that NARCIS may be able to fulfil at a later stage.

## 1. Introduction

This mission of the Royal Netherlands Academy of Arts and Sciences (KNAW)<sup>2</sup> reads as follows:

*As the forum, conscience, and voice of the arts and sciences in the Netherlands, the Academy promotes the quality and represents the interests of scientific and scholarly work and strives to ensure that Dutch scholars and scientists make the best possible contribution to the cultural, social, and economic development of Dutch society.*

The task of the Academy's Research Information Department (KNAW-OI) is to make Dutch publicly financed research (research projects, publications and datasets) visible and accessible, and to make the knowledge of researchers (experts) and research institutes visible and traceable. In short, it serves as a showcase for scientific research. Its target groups are researchers, policy officials, trade and industry, the media, information services and a wider audience at national, European and global scale.

In order to perform this task, the department maintains and manages the Dutch Research Database [*Nederlandse Onderzoek Databank*, NOD]<sup>3</sup> and develops, maintains and manages the NARCIS

---

<sup>1</sup> With acknowledgements to Repke de Vries and Henk Voorbij for their assistance in preparing, conducting the user studies, and processing the results.

<sup>2</sup> <http://www.knaw.nl>

<sup>3</sup> <http://www.researchinformation.nl>

scientific portal<sup>4</sup>. The NOD is the national Current Research Information System (CRIS) and contains information on current and recently concluded research, researchers and research institutes.

A 2002 study<sup>5</sup> investigating the information needs of various target groups (including researchers) demonstrated that in addition to the NOD's information, those surveyed also felt the need for full-text publications and datasets. This demand was expressed at the same time as a global trend arose towards Open Access publication in repositories. Between 2003 and 2007, the Netherlands' SURFfoundation headed the Digital Academic Repositories (DARE) project, in which the Dutch universities, the NWO and the Academy set up institutional repositories of Open Access publications. The National Library of the Netherlands administrates the e-depot in which the publications are permanently stored and made accessible. The main portal, DAREnet, provided access to the university repositories.

After the DARE project ended, DAREnet was transferred to the Academy and integrated with the NOD. This resulted in the National Academic Research and Collaborations Information System (NARCIS), a scientific portal that brings together harvested NOD data and Open Access publications from the repositories.

NARCIS has gradually been extended by adding non-open access documents published by the universities and datasets from the EASY repository managed by the Data Archiving and Networked Services Institute (DANS)<sup>6</sup>, which archives datasets in the social sciences and humanities. It also harvests a number of repositories managed by major research institutes and makes their publications available via its portal.

At the time of writing (April 2010), NARCIS provides information on almost 50,000 current and recently completed research projects, 3,000 organisations, 45,000 researchers and 314,000 non-open-access publications. It also provides access to 218,000 Open Access publications and 15,000 datasets. Of the Open Access publications there are 33,000 e-theses.

In 2009 1,290,000 users visited the NARCIS portal. The number says little about the portal's use, however. To find out who these users are, where they come from and why they use NARCIS, Research Information conducted a user survey in 2009. The study consists of three parts: two online surveys and 17 semi-structured interviews. In addition, in January 2010 log-file analysis was performed to identify the IP addresses of the 400 biggest users and trace them to the names of institutions.

## 2. IP address analysis

NARCIS's user figures were high in 2009: the portal had approximately 120,000 visitors a month, with 85,000 unique users. On an annual basis, that is 1.29 million users. Of these users, approximately ten percent use NARCIS intensively, meaning that they spend at least five minutes on the site. Others look up, for example, the address of a research institution or search for a

---

<sup>4</sup> <http://www.narcis.nl>

<sup>5</sup> <http://www.upress.uni-kassel.de/online/frei/978-3-933146-84-7.volltext.frei.pdf>

<sup>6</sup> <http://www.dans.knaw.nl>

publication and then click to the publication in the repository.<sup>7</sup> Of the visitors, 52% come from the United States, 23% from the Netherlands, and 25% from elsewhere.

Knowing the IP addresses made it possible to trace the users' institutions, using the IP locators offered by Topwebhosts<sup>8</sup>, Geobytes<sup>9</sup> and IP2Location<sup>10</sup>. Table 1 shows the origins of the 400 biggest users, broken down by category, in January 2010. For non-institutional users (telecommuters and so on), however, the analyses revealed nothing more than the name of their Internet providers.

Category	Origin of NARCIS use in %
Research university	36%
Research institution	4%
University of Applied Sciences	8%
Government	6%
Not for profit	2%
Hospital	1%
Business	11%
Media	1%
Provider	32%

*Table 1: Origin of NARCIS users based on IP address*

The table shows that at least 48% of NARCIS usage can be traced to the IP address of a research university, a university of applied sciences or a research institution. The level of usage at these institutions will actually be higher, because visitors who enter the portal via an Internet provider may also be employees of these institutions.

### 3. NARCIS surveys

The first survey was held in the summer of 2009. It focused mainly on identifying the field of activity and occupation or discipline of NARCIS users, to learn more about the types of information the users were searching for, and what developments they would like to see in NARCIS. In order to find out how users rated the NARCIS functionalities and how they use the various sections of the portal, Research Information conducted a second survey in late 2009.

<sup>7</sup> Source: log data, provided by AWStats: <http://awstats.sourceforge.net/>

<sup>8</sup> <http://topwebhosts.org>

<sup>9</sup> <http://geobytes.com/ipLocator.htm>

<sup>10</sup> <http://www.cqcounter.com/whois/domain/ip2locations.com.html>

### **3.1. Survey of NARCIS users and usage**

The first survey was uploaded to the NARCIS website in June 2009. Respondents were led from the NARCIS site to the survey, available on SurveyMonkey.<sup>11</sup> The survey was available both in Dutch and English. The purpose of the survey was to gather information on NARCIS users and what sort of information they were looking for on NARCIS. It consisted of six questions. A total of 268 respondents completed the entire survey (207 the Dutch version and 61 the English version).

With respect to the respondents' field of activity, 59% of the users work for a research university, university of applied sciences or research institution; 15% work in trade and industry; and 15% work for a not-for-profit or government/semi-government organisation. Among English-language respondents, no less than 79% work for a university or research institution.

These figures roughly corroborate the figures obtained in January 2010 by analysing the IP addresses of NARCIS users (see section 2). Thirty-six percent of the respondents were researchers and 21% information specialists. Forty percent gave a different occupation to these, for example university lecturer, legal expert, PhD candidate and student. If graduates of university are included, almost half of those surveyed turn out to be scientists/scholars. Of the English-language respondents, 62% identify themselves as researchers and 10% as information specialists. Almost half of the information specialists work for a university or research institution.

Twenty-one percent of NARCIS visitors used NARCIS more than ten times in the first half of 2009; 18% used it between four and nine times, and 60% between one and three times. The information specialists use NARCIS more frequently than the other respondents.

The survey also asked the respondents what kind of information they were seeking in NARCIS. They were allowed to indicate multiple information categories. The majority said they were looking for e-theses (63%) and other types of publications (53%). Information on researchers (CRIS information) also received a relatively high score (30%). Datasets were less popular search items (7%).

Given the foregoing, the respondents find it very important to be able to download publications in NARCIS (78%). They also want hyperlinks to extra information, for example from a person to his publications or work address (60%). In addition, they find it important to be able to search for different categories of information in one go and to find all the relevant information about a person on a single page.

Asked to say what they felt the most interesting development would be for NARCIS, 57% of the respondents mentioned the presentation of similar information from other countries, followed by improving the portal's functionality (45%), in particular the possibility of browsing (31%), and to offer tools for complex analyses.

### **3.2. Second survey on user satisfaction with NARCIS content and functionalities**

The persons who participated in the first survey were asked whether they would be willing to take part in a follow-up survey, intended to investigate usage of the various sections of NARCIS and

---

<sup>11</sup> <http://www.surveymonkey.com/>

information categories and to determine how satisfied users are with the portal's content and functionalities.

The Dutch-language respondents were sent the link to the second survey on SurveyMonkey in December 2009. Of these, 44 took part in the survey.

In terms of their field of activity and occupations, these respondents closely reflected the participants in the first survey. They differed in one aspect, however: they made more frequent use of NARCIS (72% had visited NARCIS at least four times in the preceding six months; in the first group, that figure was 45%).

NARCIS integrates various categories of information that had previously only been accessible via different information systems. Almost all of the respondents (95%) said that they found this useful or very useful.

In the first survey, respondents were able to indicate the category of information that they searched for, with multiple answers being possible. That question was refined in the second survey: respondents were asked whether they were searching for each separate category of information, and why.

An important conclusion is, as became clear in the first survey, that almost 87% of the respondents indicated that they were searching for Open Access (full-text) publications. They said that they benefited greatly from having direct access to the full text. More than three quarters of the respondents (76%) said they were searching for current research. They said they needed this information for their own research, to write publications, and to find researchers working in a particular field. Thirty-two percent of the respondents were searching for experts, 21% for research organisations, and only 16% for datasets.

Almost 80% of the respondents said that they were satisfied with the NARCIS search functionalities. In addition, the survey asked whether they were satisfied with the search results for each category of information. The Open Access publications received a particularly good score: 82% of the respondents are satisfied with the search results in this category. The figures are somewhat lower for current research (65%), persons (63%) and organisations (50%). Ten percent of the respondents are dissatisfied with the search results.

The respondents are most impressed by the broad access that NARCIS gives them to Open Access publications (68%) and experts (58%). They are least impressed, relatively speaking, by the search speed (19% are not impressed).

#### 4. Semi-structured interviews

In the final quarter of 2009, KNAW Research Information conducted 17 semi-structured interviews with individuals from the various NARCIS target groups: nine researchers (equally divided over humanities, science, and social sciences), four policy-makers, two information specialists, and two journalists.

The main questions for these interviews were:

- To what extent does the target group for whom NARCIS may be relevant actually use the service? Can any conclusions be drawn about non-users?
- To what extent could NARCIS be useful for non-users, given their information behaviour?

The interviews were based on a script covering the following subjects: Which information sources does the interviewee use? How does the interviewee search for information? What problems does the interviewee encounter when searching for information?

The interviewers did not ask the interviewees explicitly about their use of NARCIS. They did, however, consider whether NARCIS could meet the interviewees' information demands.

It turned out that none of the interviewees made much use of NARCIS, if at all. The interviews made clear, however, that NARCIS would be very useful to some of them.

#### **4.1. CRIS information: information on researchers, organisations and current research**

The interviewees often have access to their own networks, and have no need to consult a database. They have their own contacts and take part in conferences – including international ones – and workshops. They often find out current research from poster presentations.

If, however, they want to explore a new area in their discipline or need information about less familiar researchers, then they need access to databases with the right information.

Researchers use information on people and organisations as background material, allowing them to make a more accurate assessment of the relevant person's or organisation's usefulness. Non-researchers often seek experts in particular fields in order to obtain more detailed information from them. They find it difficult to find the right individuals.

The interviewees said they found it difficult to trace researchers' careers. Some were in favour of assigning researchers a fixed identifier.

#### **4.2. Publications**

Some researchers explicitly mentioned e-theses as an important source of information. Others – especially those in the sciences – said they are mainly interested in journal articles that PhD candidates use later on in their dissertations.

Researchers obtain information through many different channels. Some of the channels they mentioned were the sources available via the Digital Library of their own university, preprints, search engines (Google, Google Scholar), personal contacts, and attending conferences and workshops.

In order to obtain the most up-to-date information, they also visit the web pages of research groups and find out at conferences about publications that are pending. Blogs and Twitter were mentioned as sources of the most recent information and opinions, emphasising the growing importance of digital networks.

Of the interviewees who are not active as researchers, the policy-makers use research reports to aid them in policy development. Journalists report on research; they have their own network of experts and sources of information, consult the archives of their own or other newspapers, make use of news agencies and visit specialist websites. At the very most, e-theses and other academic publications are important as background material.

Non-researchers need very concise summaries of scientific publications, which are generally unavailable. They also have only limited access to publications.

Many researchers are in favour of Open Access, not only so that they can read publications themselves, but also so as to make their own publications available to researchers elsewhere in the world. They would, however, wish to have a budget in order to publish via Open Access channels.

### **4.3. Datasets**

Datasets too are mainly of importance to researchers. The data concerned are not limited to numerical data, but also include audio recordings, for example. Various researchers commented on the limited availability of data as well as educational material. Non-researchers want nothing more than ready-made statistical information.

### **4.4. Notifications**

Most of the interviewees receive some sort of notification of new information, for example in the form of RSS feeds. Some make no use of such services in order to avoid information overload.

### **4.5. Context**

Many researchers commented on the importance of context. They would like links, for example from the raw data to a publication or to background information (on the author, the organisation, the research programme), permitting a better assessment of the usefulness of a particular document. Search engines such as Google do not provide such contextual information.

### **4.6. Determining quality**

The interviewees found it difficult to distinguish between useful and less useful information, especially if the source is the Internet.

## **5. Conclusions**

### **5.1. First survey**

This survey revealed that NARCIS is used mainly at research universities, other research institutions and universities of applied sciences, and that approximately a third of the users are researchers. This matches the results of the analysis of NARCIS usage by IP address in January 2010, which showed that 48% of large-scale users consisted of research and academic institutions.<sup>12</sup>

---

<sup>12</sup> Many users enter via a provider. It is then impossible to trace their background. See also Table 1, pg. 6.

In addition to researchers, information specialists also make considerable use of NARCIS. They can be considered intermediaries: they search through files for others (in almost half of cases within a university or other academic/research setting). It seems plausible that much of the use that information specialists make of NARCIS is actually on behalf of researchers (indirect usage).

Many researchers look for e-theses in NARCIS. That may be because there is no other service in the Netherlands providing integrated access to the collection of Dutch e-thesis. They also seek information on researchers and other full-text publications. They are less inclined to search for datasets, but that may be because they do not know that these can be accessed via NARCIS.

The respondents would like to see NARCIS focus on internationalisation, i.e. respondents mentioned the presentation of similar information from other countries. There are various international academic publication systems currently available, such as DRIVER, Scientific Commons and WorldWideScience.org. These provide access to academic publications in various countries, with NARCIS acting as a national aggregator for the Netherlands. The international systems do not, however, contain information on research, researchers and institutions, and therefore do not provide any context for publications.

EuroCRIS, the international organisation for information on research, institutions and researchers, has been involved in trials to set up international databases in this area, but these efforts never really came to anything.

## **5.2. Second survey**

The second survey, conducted among a subpopulation of respondents to the first survey, revealed that it is considered useful or very useful to have a single access portal to different categories of information. The respondents gave high marks to the ability to search full-text publications and current research. They said they needed this information for their own research, to write publications, and to find researchers working in a particular field. Although the respondents already valued the search options, they were not always aware of all the search functionalities available in NARCIS.

The respondents appreciated the large number of Open Access publications available in NARCIS. Universities and other institutions in the Netherlands are working hard to increase the number of Open Access publications in their repositories. That number will only grow in future.

The respondents also greatly appreciated the information available on experts. NARCIS provides access to the largest database of experts in the Netherlands. Researchers offer information on their expertise on a daily basis, or such information is acquired in some other manner.

## **5.3. The interviews**

NARCIS clearly already meets the demands of the interviewees or may do so shortly.

- **Google and Google Scholar**

The researchers stated that they made frequent use of Google and Google Scholar to find information. What they do not realise is that the information contained in NARCIS can also be traced via Google and Google Scholar (something brought about by the Research Information

Department). That means that a search may lead to NARCIS without the individual performing the search actually entering the NARCIS portal.

- **Information on researchers and organisations**

NARCIS can help trace information on organisations, researchers and research institutes, because such information – specifically on organisations and researchers, in particular professors and senior university lecturers – is constantly updated. With respect to research projects, NARCIS depends on information supplied by systems such as CRIS, for example, containing research information from the universities, but it does have information on many research projects.

- **Digital Author Identifier**

NARCIS has already assigned many researchers a Digital Author Identifier or DAI. By the end of 2010, all Dutch universities will have assigned researchers a DAI in their CRIS systems and repositories. This makes it possible to trace researchers, even if they use different variations on their names.

Given the international nature of science, consideration is being given to internationalising the DAI, for example linking it to international numbers such as the Scopus Author Identifier and the ResearcherID from Thomson Reuters.

- **Notifications**

It is possible for NARCIS users to subscribe to an RSS feed service for a specific information request. This differs from other RSS feeds, for example for newspapers, which are often wide-ranging and supply-driven.

- **Quality of the information sources**

NARCIS only contains material originating at academic institutions and obtained via a harvesting mechanism. In other words, this is material that the institution has decided should be disseminated in the public domain. That is a guarantee of the quality of the information. Also the information on researchers and organisations in NARCIS is reliable, unlike information obtained from Internet sources.

- **Relationship between information categories**

NARCIS already provides access to various categories of information and also shows how they are related, for example a person and his/her publications. But there is room for improvement. NARCIS should also be able to show which publications and datasets are related to a particular research project, for example – known as enhanced publications. There are already projects being carried out in the Netherlands in this area. The Research Information Department is closely involved in these projects.

- **Hyperlinks to all possible types of information items**

The arrival of enhanced publications makes it necessary to be able to insert links in such publications to other publications, datasets, films or audio clips on international websites.

- **Improvement of context**

The context can be shown by, for example, immediately showing the related names, projects and datasets associated with a publication, including impact factors, citation frequency and download statistics.

- **Clustering**

NARCIS provides access to a wealth of information. The NARCIS infrastructure offers a sound basis for introducing a clustering functionality, with researchers using a combination of context and related information (for example via text-mining). This makes it possible to find out which researchers work together, for example, or which publications are related to one another.

## 6. General conclusions

The Academy's Research Information Department conducted a user study in 2009 consisting of two surveys (focusing on NARCIS) and interviews with potential users. The user study produced a great deal of useful information.

The surveys sketched a picture of the background of NARCIS users, what information they look for in NARCIS, and what they think of its content and functionalities. The interviews revealed the information needs of persons who work with information regularly but make little or no use of NARCIS.

It is clear from the interviews that policy managers, journalists and information specialists would already benefit from using NARCIS (notifications of research, finding experts, searching for Open Access and other publications). Researchers would also benefit, given that NARCIS offers information in context and makes personalised RSS feeds possible. Relatively minor adjustments would greatly increase the usefulness of NARCIS for both groups.

We may conclude that the efforts to promote and provide information about NARCIS have been insufficient so far. Priority must therefore be given to a campaign highlighting what users can do with NARCIS and for whom it is intended. The launch of a new, improved version of NARCIS in spring 2010 has provided an opportunity for such a campaign.

The study also revealed that users – particularly those at universities and research institutions – have a clear need for a portal such as NARCIS. NARCIS will be much more valuable, however, if more and better information is provided on the portal and if NARCIS itself continues to develop as a service.

## References

- Dijk, E; Baars, C.; Hogenaar, A.; Meel, M. van. (2006): *NARCIS: The Gateway to Dutch Scientific Information*. Paper presented at ELPUB Conference 2006, Bansko, Bulgaria.  
See: [http://elpub.scix.net/cgi-bin/works/Show?233\\_elpub2006](http://elpub.scix.net/cgi-bin/works/Show?233_elpub2006)

- Baars, C; Dijk, E; Hogenaar, A; Meel, M. van (2008): Creating an Academic Information Domain: a Dutch example. Paper presented at EuroCRIS 2008, Maribor, Slovenia, 2008. pp. 77-78. See: [http://www.eurocris.org/fileadmin/Upload/Events/Conferences/CRIS2008/Papers/cris2008\\_Baars\\_Dijk.pdf](http://www.eurocris.org/fileadmin/Upload/Events/Conferences/CRIS2008/Papers/cris2008_Baars_Dijk.pdf)
- Hogenaar, A. TH.; Vries, R.E. de; Meel, A.M. van (supervisor); Dijk, E.M.S.(collaborator); Voorbij, H.J. (adviser) (2010): *Gebruiker onderzoek NARCIS 2009, Amsterdam*, 11 maart 2010, 22 p + appendix. See: <http://www.onderzoekinformatie.nl/nl/oi/gebruikersonderzoek>
- Hogenaar, A.; Meel, M. van; Dijk, E. (2010): *What are your information needs? Three user studies about research information in the Netherlands, with an emphasis on the NARCIS portal*. The paper will be presented at ELPUB Conference 2010, Helsinki, Finland, June 2010
- Koopmans, N.I (2002). 'What is your question? The need for research information from the perspective of different user groups' in W. Adamczak and A. Nase (eds). *Gaining Insight from Research Information: Proceedings of the 6th International Conference on Current Research Information Systems*, University of Kassel, August 29-31, 2002 (Kassel) pp. 183-192, 2002. See: <http://www.upress.uni-kassel.de/online/frei/978-3-933146-84-7.volltext.frei.pdf>
- Kuil, A. van der; Feijen, M. (2004). *The Dawning of the Dutch Network of Digital Academic Repositories (DARE): A Shared Experience*. Ariadne Issue 41, 30 October 2004. See: <http://www.ariadne.ac.uk/issue41/vanderkuil/intro.html>
- Hogenaar, A.(2009): *Enhancing Scientific Communication through Aggregated Publications Environments*. Ariadne 61, October 2009. Available at: <http://www.ariadne.ac.uk/issue61/hogenaar/>

## Contact Information

*Elly Dijk*

Department of Research Information

Royal Netherlands Academy of Arts and Sciences (KNAW)

P.O. Box 19121,

1000 GC Amsterdam

The Netherlands

E [elly.dijk@bureau.knaw.nl](mailto:elly.dijk@bureau.knaw.nl)