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**MEASURING INTERNET BEHAVIOUR: TOTAL TIME DIARY
AND ACTIVITY DIARY AS RESEARCH METHODS****KARIANNE VERMAAS, Utrecht University***Dialogic innovatie & interactie, PO box 80089, 3508 TB UTRECHT, Email: K.Vermaas@cs.uu.nl, Tel: +31-2536417, Fax: +31-2513791***LIDWIEN VAN DE WIJNGAERT, Utrecht University***PO box 80089, 3508 TB UTRECHT, Email: L.vandeWijngaert@cs.uu.nl, Tel: +31-2536417 Fax: +31-2513791***ABSTRACT**

The central research question in this paper is: How do Total Time Diaries and Activity Diaries measure online behaviour? First a comparison is made between diaries and other methods to obtain information about user behaviour on the internet. Also the practical value of both Total Time and Activity diaries is discussed. The research question is answered by examining two diary studies on online behaviour conducted in the Netherlands in 2001 and 2003. Theoretical issues as well as practical issues that need to be taken into account to perform such a study successfully are addressed. Also the practical applicability of diaries as research instruments is elaborated on. This examination shows that, although not fully optimised yet, diaries are a good way to gain both quantitative as well as qualitative information on Internet behaviour.

INTRODUCTION

Diary research as a method in which respondents keep track of their daily activities is all but new. In the late thirties Sorokin and Berger (1939) made attempts to collect continuous 24-hour records of human behaviour. Since then the diary approach is often used in mobility studies (Breese, 1950; Timmermans, Waerden, Alves, Polak, Ellis,

Harvey, Kurose and Zandee, 2003) time use studies (Broek, Knulst and Breedveld, 1995; Breedveld and Broek, 2001) and in medical research, where it is often used as an instrument to, for example, get more detailed information on patients' pain experience (Jamison et al., 2001; De Wit, 1999). In mass communication studies the diary approach of data collection is used to obtain a most

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accurate record of all communication activities (Wheeler and Nezelek, 1977; Gudykunst and Shapiro, 1996; Robinson and Godbey, 1997). For example, since 1930, the BBC has undertaken the Daily Life survey every decade to track changes in the way people spend their time and consume media. Since 1965 research is done on the media behaviour (radio and television) in the Netherlands. Participants keep a daily diary during one week, six times a year (Continued Listeners Research in The Netherlands). In this paper we focus on the use of diaries to study internet behaviour. The central question that will be focused upon is the following:

How do Total Time Diaries and Activity Diaries measure online behaviour?

In order to answer this question, first, a comparison is made between the diary and other methods to obtain information about Internet behaviour. After answering the central question the practical value of both methods of data gathering is discussed.

This paper will reflect on the experiences and results of two Internet diary studies that have been conducted in the Netherlands in 2001 (Maltha, Schuurman, Vermaas, Vandeberg, Bongers, Bekkers & van de Wijngaert, 2002) and in 2003 (Maltha, Bongers, Schuurman, Vandeberg, Vermaas & van de Wijngaert, 2003). As the vast amount of literature on diary research points out, many efforts have been made to help solve the theoretical issues involved in conducting diary research. Moreover the diary has shown to be a valid and reliable method in a variety of research areas, including the research area of communication. Surprisingly, diaries in which respondents are asked to write down daily Internet activities are virtually unknown. The two Dutch studies can be seen as a first exploration in developing understanding about how to implement diaries in Internet behaviour research.

DIARIES VERSUS OTHER METHODS TO STUDY INTERNET BEHAVIOUR

Over the years many methods have been used to study user behaviour regarding new media, such as the Internet. Online surveys are probably most often used to study

CONTRIBUTION

This paper contributes to IS research in several ways. Diary research is of interest for both the scientific area as well as in commercial contexts. Although it has been used in several research areas, such as medical and mobility studies, the use of diaries for in IS research is very new. This paper can be seen as a step in the validation of a method to study the adoption and usage of new technologies. Furthermore, this paper provides guidelines for the practical implementation of diaries in order to monitor and understand the adoption and use of new technologies, especially more specifically, (broadband) Internet. This research is particularly of interest for Internet Service Providers that have a need for a new and useful instrument to get to know their (potential) customers. But also managers in companies that are to implement a new technology within their company may find it interesting, as may providers of other technologies, such as WiFi and mobile telephony.

what people do on the Internet in their daily lives. This method has proven to be a useful method, in which many users can be reached. A possible concern with regard to (online) surveys however, is the fact that people have to rely on their (selective) memory. This may lead to an incomplete or incorrect view on daily Internet usage. Also, in many cases there is a need for more qualitative information about the way people use the Internet to complement results from online surveys.

Therefore focus groups and interviews have been used for the same purpose. Of course, these methods can be of importance in order to answer certain research questions. But focus groups are perhaps not the most satisfying way to gather information about the actual usage patterns of technology in the daily lives of people. Again people are not at home, behind their computer and connected to the Internet and again, there is a focus on their mnemonic abilities.

To avoid problems with remembrance of the conducted online activities web statistics or log files are often used to get an idea of

what people do on the Internet. Web statistics, although an unobtrusive way to study user behaviour, do not always give an accurate view on that behaviour. For example, failing to log in and trying again may be perceived as visiting the same web page more than once, while in reality the page has not been visited at all. Also there is no information on the identity of the user and therefore it is not clear which person or people accessed the Internet during a session.

In most cases the aim of diary research is to obtain data that is close to how people perceive their behaviour. Higgins, McClean and Conrath (1985) claim that the frequency of recorded activities is to be regarded with care as it may not always be a reliable indicator of the actual frequency of those activities. Diary data could be biased in several ways: activities that are more important to the respondent could be reported as lengthier activities. Other issues that need to be kept in mind (Higgins et al., 1985) are duration (are longer activities more likely to be recorded? And are brief activities less likely to be recorded?) and direction (are initiated activities more or less likely to be reported?).

There is however no evidence that diary research is more prone to these problems than questionnaires. In fact more often diaries have been found to be a more valid and reliable method to gather information on activities than questionnaires (Ettema et al., 1996; Robinson, 1985; Arentze, Hofman, Kalfs and Timmermans, 1997). Greenberg, Eastin, Skalski, Cooper, Levy and Lachlan (2004) compare on-line survey, diary and questionnaire to measure Internet use. Their results show that weblogs are the most accurate way to collect data.

Because respondents do not have to rely so much on their retention, accurate data can be collected. The chance of overestimation, exaggeration or underestimation of the duration and/or frequency of activities tends to be smaller than with, for example, online surveys.

Table 1 summarises the characteristics of several methods to study online behaviour. These characteristics embed the advantages and disadvantages of the methods. Choosing a method depends on how these characteristics comply with the research goals. In the next section we focus on the choices that have to be made once a diary has been chosen as a research method.

TYPES OF DIARY STUDIES

Solicited versus unsolicited

This paper takes into account the solicited diary. Unlike unsolicited diaries that are spontaneous life documents (such as Anne Frank’s diary) solicited diaries are kept at the request of a researcher. Usually the solicited diary is supplemented by interviews and / or questionnaires (National Research Council, 2000, Broek et al., 1995; Breedveld & Broek , 2001). Another distinction can be made between *full activity diaries* (Ettema et al. 1996) or *total time diary* (Robinson & Bostrom, 1994) on the one hand and *activity diaries* on the other hand. The first type of diary records facts about all activities that take place in a 24-hour period. The latter records facts about certain activities only, such as travel diaries (Ettema et al. 1996). In diary research concerning Internet activities this could be translated to “cybertravel diaries” that record about online activities only.

Table 1. Characteristics of methods to study online behaviour

	Need to rely on (selective) memory	Risk of over or underestimation	Obtrusiveness or intensity	Contextual Information
(Online) Survey	High	Medium	Medium	Medium
Focus Group	High	High	Medium	High
Monitoring	Low	Low	Low	Low
Diary	Low	Medium	High	High

Time spans

The periods that respondents are asked to keep track of their activities is also an issue. The time spans of different diary studies have been diverse. Kay, Axhausen, Zimmermann, Schönfelder, Rindsfuser and Haupt (2002) for example, report their findings from a six-week travel diary. In the various time-use studies the Dutch Social and Cultural Planning Office has conducted since 1975 (Broek et al., 1999) respondents are asked to report their time use for one week with 15-minute intervals. Hinds & Kiesler (1995) requested communication logs of employees for only two days. The period should ideally be long enough to capture the behaviour patterns of interest without putting at risk the completion by making it too much of a burden for the respondents. Carp and Carp (1981) conclude that a one-day diary is not an adequate substitute for a one-week diary. Respondent conditioning might be influenced by the length of the diary-keeping period. The respondents may alter their behaviour by being aware of the studied behaviour for a longer period (Hilton 1989; Webb et al. 1990).

Leave behind or recall

The choice of the form affects the possible degree of overestimation, exaggeration or underestimation further. The form that this paper will focus upon are *leave behind diaries*, where subjects complete the diaries as the day progresses as opposed to *recall diaries*, where subjects are asked to recall their activities for the previous day. Leave behind diaries are found to be of greater quality than recall diaries (Juster, 1986).

TWO DIARY STUDIES

The goal of the two Dutch diary studies that have been conducted¹ is to gain insights into the information, communication, entertainment and transaction (further referred to as ICET) behaviour in the daily lives of Internet users from a user perspective.

In both cases an introduction meeting was organized to make the respondents familiar with the procedures. At the end of the diary period the respondents were invited to a final meeting and to in-depth interviews to give more information about their activities

and about their experiences with the diary itself.

The Total Time Diary study in 2001

In the case of the 2001 measurement there was a diary on paper (figure 1). The first pages contained a short survey on the demographic backgrounds and Internet experience of the respondents. The following pages of the diary consisted of 12 days (two working weeks and one weekend). Every day was divided into several parts. First the sixteen respondents were asked to give an overall time schedule of their day (did they work most of the day, did they do some shopping or were they actively sporting, and so on). In the second part the respondents gave an overview of their *online* and *offline* ICET- activities of that particular day, as well as the media and mode chosen. Activities ranged from talking to the neighbour at the door and going to the supermarket to e-mailing friends abroad and playing online games.

Codes were used to denote these activities. But because codes in itself do not give an extensive view on what people do, respondents wrote down what they did exactly, with whom and why. Also the time (beginning and end) was written down. Every page also contained some space for comments (wishes, frustrations, achievements, etc.) on the activities.

The Activity Study in 2003

During the month of February of 2003 36 people filled in a diary (figure 2). A difference with the diary in 2001 was that respondents were asked to denote only the *online* activities they had conducted. Respondents could use three different forms of the diary; one on paper, one on CD-ROM and an online version.

As a supplement to the 2001 version there was more emphasis on the motivation for the activities that were conducted and the satisfaction they got out of it. Also every day there was an issue of the day. These were issues concerned with (broadband) Internet related matters, like online shopping, communities and e-health.

Comparing the two studies

Table 2 summarizes the different features in both diaries.

RESULTS

The research design for the 2001 TTD study provides us with information about the role that the Internet and online activities have among other media and offline activities, whereas the 2003 AD measurement provides more in depth information about the online

activities. Basically, we can distinguish between three types of results: results that provide information with regard to the when, results that relate to the how and results that relate to what or why. The results that are presented here are not meant as a complete description of all the results of the two studies. Rather, we want to point out which kinds of results one can obtain from a diary research regarding Internet behaviour depending on the research design.

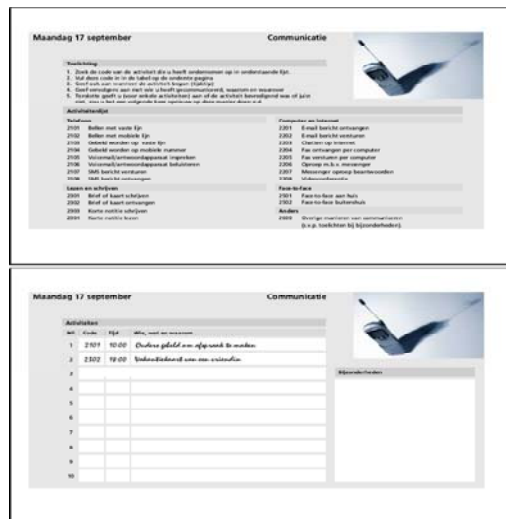


Figure 1. Paper Total Time Diary (2001 TTD study, Dialogic, 2001)

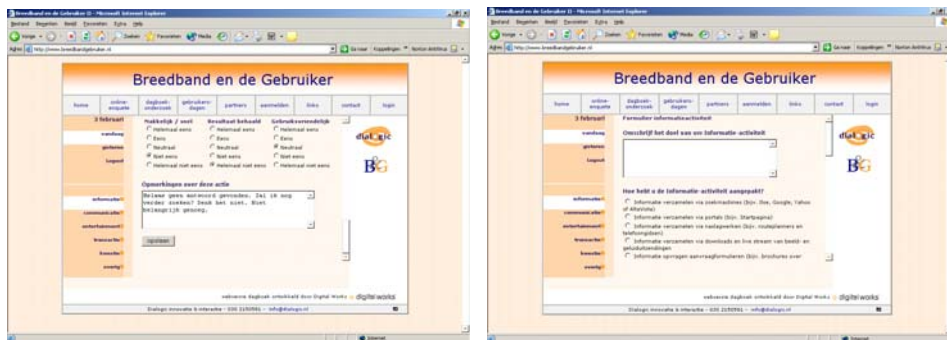


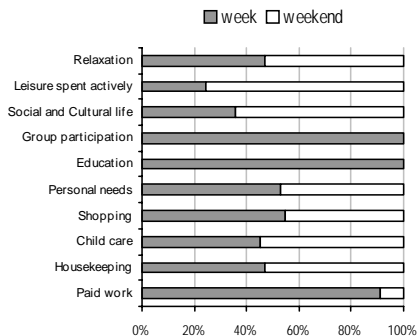
Figure 2. Examples of two pages of diary research of 2003. On the first page the respondents were asked to state the goal of their activity (in this case information activities). Then the approach or mode was specified. The last page starts with the satisfaction and ends with remarks on that activity

The time dimension: insight into daily time schedules

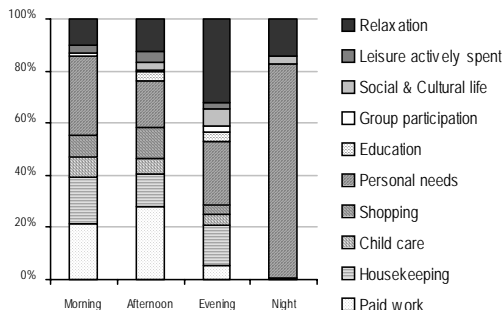
The global time schedules that could be deduced from the first diary show the differences between mornings, afternoons, evenings and the nights (figure 3b). These global time schedules of the diary research could be compared with data from the Dutch Social and Cultural Planning Office (SCP). The overall image appeared to be comparable. Also a distinction could be made between typically weekday activities and weekend activities (figure 3a). A next step that is possible is to determine at what time of the day activities took place and at what time of the day certain media was mostly used. This

made clear there were some peaks and drops (figure 4a and 4b). Different needs are being met on different times of the day.

The time dimensions not only relate to the time of the day that certain activities were performed. In both the 2001 TTD and the 2003 AD study the relation between ICET activities in frequency and duration was measured. In both diary studies it became evident that some activities were conducted more often than others. The example of the measurement in 2003 is given in figure 5a. But the relative importance of activities cannot only be measured by the frequency. Also the difference in duration has to be taken into account (figure 5).

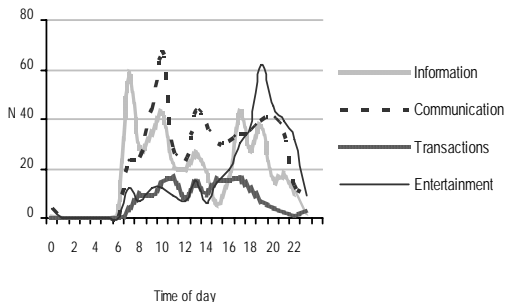


(a) Week and Weekend Activities

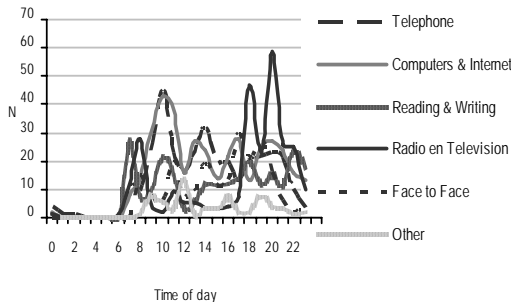


(b) Activities at Different Times of the Day

Figure 3. Activities on Different times of the Week and Day



(a) Activities on Different Times of the Day



(b) Media Used on Different Times of the Day

Figure 4. Activities and Media on Different Times of the Day

Table 2. Items of both diaries

Item	Total Time Diary	Activity Diary
Diary Period	12 days: two working weeks and one weekend 2001	1 month (February) 2003
Form	Leave behind diary on paper	Leave behind diary online, digital (CD-ROM) and on paper at the choice of respondent
Recall period	Maximum of 12 days (no check possible when respondents filled in what day)	Only the present day or the previous day
Activities recorded	Full activity diaries or total time diary	“Cyber travel diary”
Help	Instruction in the diary, assistance through e-mail, telephone	Help files, assistance through e-mail, telephone
Meetings	Introduction and final meeting + interviews	Introduction and final meeting
Incentive	Gift-check and chance to win a digital camera + copy of final report	Gift-check and chance to win a digital camera + copy of final report
Demographics and experience	As a survey on first pages of the diary itself	Gathered at respondents’ registration for the research (e-mail)
Time schedules	To be able to compare to studies of the Dutch Social and Cultural Planning Office	-
Activities	Divided into 4 distinct parts information, communication, entertainment and transactions (as an apprehensive way to group the activities).	Divided into 4 distinct parts: information, communication, entertainment and transactions.
Code	Codes make the distinction between media and mode chosen	No codes, clicking radio button or checkbox/ ticking a checkbox
Time	Beginning and end time	Duration (scales)
Goal	No coding, but open: What, why, with whom? (Global description)	No coding, but open: addressed separately (more precise description than 2001 measurement)
Media / approach	Media and approach	Only ONLINE activities, so only approach
Remarks	Per day, open,	Per activity (open) and per day (open)
Satisfaction	Remarks gave the opportunity to express frustrations, wishes and satisfaction regarding the conducted activities	Per activity, open (scale, more precise than 2001 measurement)
Motivation	No coding, but open: What, why, with whom? (Global description)	Per activity (multiple choice, more precise description than 2001 measurement)
Visions on (future) Internet issues	-	Through ‘the issue of the day’

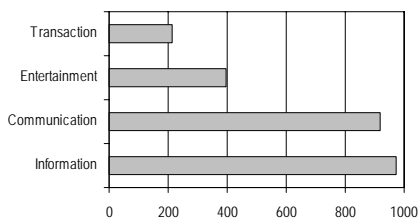


Figure 5a. Number of activities

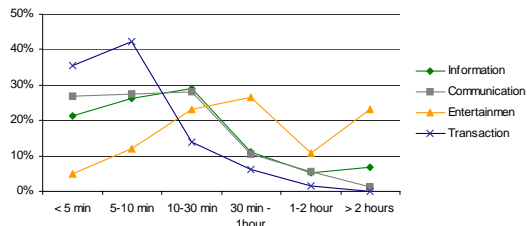


Figure 5b. Duration of activities

Figure 5. Time and activities (2003 AD study, N=2.499)

The How dimension: used media and modes

In the case of the 2001 diary results could be obtained about which media was used for which kinds of activities. Figure 6 shows an example of communication activities. The two most often used ways of communicating (via computer and telephone) are made explicit. Also there was a distinction between received e-mails or phone calls and sent e-mails or phone calls made by the respondent.

The What dimension: motivation and visions (2003)

In the 2003 measurement the focus was on online activities. As a consequence there was no opportunity to analyse the media used. Instead more in depth information was collected about the applications used and the chosen approach. Figure 7 shows the example of online *information* activities (where search engines and favourite sites seem to be the most popular way to find information). This was done for all ICET-activities.

Following theories such as uses and gratifications (Katz, Blumler and Gurevitch, 1974; Katz, Gurevitch and Haas, 1973) in the second diary there was emphasis on the motivation for people to do certain activities online. Besides the result shown in figure 7 there was also the possibility to analyse the motivations for each separate ICET-activity (figure 8).

The Issue of the day

In this section we have presented several results that can be expected from doing either a Total Time Diary or an Activity Diary. Last but not least we would like to highlight one more way to gather information using a

diary that does not belong to Total Time or Activity Diary. However, this method is closely connected with diary research and provided us with a lot of information on internet usage. During the 2003 study we asked respondents to elaborate on ‘The issue of the day’. The goal of the issue of the day was to gain insights into how people think about different (future) Internet applications and related matters. Every day there was a new issue that respondents were asked to comment on, on different subjects such as e-health, computer criminality, social contacts, e-learning etcetera. It was not the intention to analyse each issue separately. Instead it was aimed to give some overall descriptions of views that people have towards (broadband) Internet. What do people think are the possibilities, weaknesses, opportunities and dangers of this technology? The issues of the day provided a wealth of qualitative data that will be subjected to further exploration. Table 3 sums up the different ways the Internet is seen by the respondents.

Before we will draw our conclusions with regard to the applicability of diary research, we will first highlight some of the practical issues we encountered.

PRACTICAL ISSUES ENCOUNTERED

Diary research, as any method of research is concerned with many practical issues. In this section we would like to highlight some of them: Response, period of measurement, meeting and help lines, Appearance and form of the diary, Respondent conditioning, cost of the diary, data and analysis.

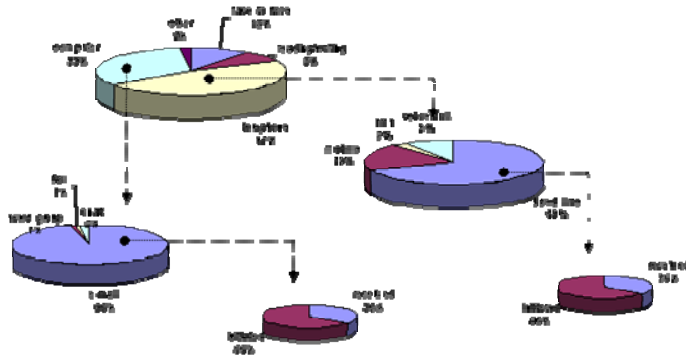


Figure 6. Example of Results (2001); Media, approach and direction of communication activities

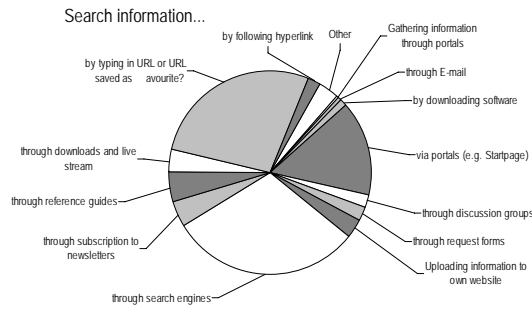


Figure 7. Example of Results (2003); approach of information activities

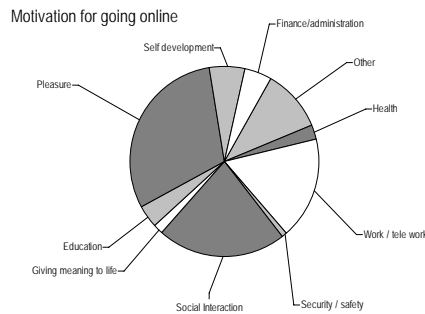


Figure 8. Example of Results (2003); Motivation for All Activities Carried OutResponse

Diary type of research is known as a demanding research, for which it is hard to find respondents. In both diary studies this problem was encountered. Therefore an incentive for their effort was in given. This incentive was carefully chosen; it had to be

more than a symbolic gesture, but smaller than a true payment as this may influence the respondents' attitude towards future research. Every respondent received a gift check (25-50 euro) and a copy of the final report. Furthermore, one digital camera was given

away to one of the respondents. To reach the respondents advertisements were placed in free local papers and on websites. Also flyers were given to people on the streets and put into mailboxes. In 2003 of the 60 people found willing to participate, 22 dropped out before the research had started. Most people stated they did not have the time to participate. In 2001 this problem was not encountered. Of the people that actually started keeping the diary in 2003 only 2 respondents dropped out. Despite the fact that it was a demanding research in both cases, many respondents made explicit remarks that they liked participating.

Period of measurement

Holidays, sport events, elections and other events all have an influence on the willingness of people to participate in or to complete a diary research. Even in a small country like the Netherlands there are some holidays (like carnival and Ramadan) that are not celebrated by everybody, but can have an effect on

activities performed. Both studies have been conducted in ‘regular’ weeks of September and February. In the case of 2001 the happenings of September the 11th were unpredictable. But because information was gathered on what people did exactly, it was possible to analyse what differences in activities were caused by these happenings. Respondents were told that they could miss out on one day a week, but many missed out more days. When there were days with special conditions (not going online, being ill, a day off etc.) respondents were asked to write that down.

The respondents of the second diary made remarks about the length of the research. Although the second measurement lasted 4 weeks compared to 2 weeks in the 2001 measurement) there is no evidence that the longer the respondents are looked at, the more detailed information is collected. These facts may plead for a maximum length of two weeks.

Table 3. Example of results (2003); visions on the Internet (short summary)

The Internet as:	
A	Expensive medium In many reactions on different issues respondents address high costs: electricity costs, telephone costs, subscription costs, delivery costs (when buying online) etc. Some see these high costs as a burden to use the Internet, whereas others think the advantages of having Internet are more important.
B	Exotic dish Many people are not familiar with all the possibilities of the Internet and especially broadband (‘that is out of my league’). The people with less experience seem to be more negative about the technology (‘do not need it’, ‘not interested’, ‘it is too hard to understand’).
C	Replacement of the real world In most cases the respondents agree that the internet can be a supplement to the real world but never a substitute. Virtual counters and buying online do not replace all actual visits to shops (smelling books, touching the tomatoes, talking to other people). ‘A society in which everything is digital seems cold and impersonal to me’ ‘Imagine entering the name of your new born daughter into an input field of the website of the city council. Then something is really missing!’
D	Danger Poor social contacts, RSI, computer criminals and –terrorists, addiction, abuse of personal information are all possible dangers caused by the further spreading of the Internet.
E	Hobby Spreading information through own websites, web- and life logs, playing online games, online spirituality have more to do with hobbies and interests people have than with technology. Even though technology makes everything possible, a large group will not participate. ‘Religion is not my cup of tea’, ‘I never play games, I don’t think that is interesting’, ‘Web logs are a completely uninteresting phenomenon for me’
F	World Reformer For some (broadband) internet has great impact on their lives: ‘Broadband has got enormous impact on my life. Without it I wouldn’t have been the same person. That may sound drastic but it is undoubtedly so.’ And ‘Broadband gives meaning to my life’. They also argue that (broadband) internet can help solve traffic jams, loneliness, medical problems etc.

Meetings and help lines

The final meeting and especially the introduction meeting have shown to be of importance. During these meetings people posed questions, got instructions and were encouraged to participate. The first day of the diary was filled in during the introduction meeting. During the final meeting the first results were presented to the respondents.

Also important is the possibility for respondents to pose questions throughout the diary period. This was done by phone or e-mail. Few people have used these help lines, but some said that they would have given up on the research if they did not receive the needed help immediately.

Appearance and form of the diary

From interviews with the respondents it became clear that the appearance of the diary itself was important. Mistakes could become annoying and a reason to drop out. Also people stated that if it had been a boring and badly designed diary they would have lost the enthusiasm to continue. Regarding the 2003 diary, people were pleased with the fact that they could choose from different forms of the diary. The diary on paper as used in the first measurement was really referred to as 'dear diary' and respondents wrote down a lot of personal information.

Advantages of the online diary were that coding and retyping of the data into the statistical software was not necessary. The statistical software program easily read in the data that were collected in a database. By this, errors could be reduced and a fair amount of time was saved.

Respondent conditioning

Signs of limited respondent conditioning were found during both studies. Especially respondents with little Internet experience sometimes found themselves trying more online activities than they would have done otherwise. But this was not a problem because respondents wrote down when this occurred, so this could be considered during the analysis.

Cost of the diary

The overall costs of diary research may be higher than the costs of traditional or online surveys. There are different sorts of costs involved. First of all there were cost to gather the respondents (advertisements and flyers). Also the incentives took quite a lot of the budget (gift checks and digital camera). Developing and printing or programming of the diary also takes a fair amount of time and money, mainly because the appearance and faultlessness of the diary is important. Also the costs of meetings (accommodation, drinks, snacks, refunding of travel expenses etc.) must not be overlooked.

Analysing

The data of the diaries was analysed through SPSS software. The more qualitative data could be analysed through a special software package Kwalitan. In case of (suspected) errors and ambiguities respondents were contacted. Also, the interviews with the respondents at the end of the measurements provided information on issues such as whether longer activities were more likely to be recorded direction whether received interactions were more likely to be recorded than self initiated ones. There was no sign that people over- or underestimated certain activities.

The examples of the quantitative results mainly take into account frequencies and cross tabulations, but more analyses could and will be performed. Also the qualitative data can be used to answer more specific questions.

Data

The data gathered by the two diary studies provide a wealth of qualitative data. More detailed information can be gathered on what people do exactly. For example, not only will we know that a person has looked for information, but also that that person looked for information on butterflies and that he did that because it is his hobby and that he found something else than he had expected, but what he found was even more beautiful than he expected etc. But also quantitative data can be obtained (especially with larger groups of respondents)

PRACTICAL APPLICABILITY

In this final section we will focus on the practical applicability of diary research. We will outline the specific opportunities that Total Time Diaries and Activity Diaries have to offer. Also we will provide several examples of possible research contexts in which diary research can be applied.

Total Time Diary

A Total Time Diary provides a relatively general insight into human (internet) behaviour. It places certain activities into the broader context of daily (organizational) life. This provides us with a general, relatively slow changing view of how people use (or not use) old and new technologies. This approach towards diary research offers the opportunity to fundamentally understand human behaviour in a very broad sense. From this fundamental understanding it is possible to derive ideas for fundamental changes invoked by new technologies. Taking the people (rather than users of technologies) as a starting point we can think of radically new ways of applying new technologies. Total Time Diaries therefore offer the opportunity to reveal latent needs that can be served with innovative new services. By grasping what people consider frustrating, time-consuming and constraining in their daily lives, it becomes possible to deduce which new technologies and services can offer possibilities to overcome these frustrations. These technologies and services are likely to be adopted, because they fit the (latent) needs of people.

Activity Diary

In contrast to Total Time Diaries, Activity Diaries concentrate on specific behaviours. The diary studies described in this paper concentrated on Internet behaviour. We believe that an Activity Diary is useful when there is a clear direction or domain with regard to which new technologies will be applied. An Activity Diary can provide useful information with regard to how a new technology will fit in the daily lives. An Activity diary can for example provide insight into specific behaviour, for example activities that are unusual task or tasks in a specific context.

If managers for example are to implement new technologies within their

organization they are often confronted with problems. The acceptance of new technologies for professional activities is often far from uncomplicated. One of the explanations is that it is because the technology does not fit in the daily activities that the employees carry out. If a manager is aware of what activities employees carry out, in what way and by which media it will possibly enable the implementation of new technologies.

CONCLUSION

Diary research is successfully applied in many scientific fields, such as communication and health. This paper provides a justification for this method to be used in the IS field.

Conducting diary research enables researchers to create an image of what people do with technology and perhaps more importantly *why* they do it. The results of diary studies can be used to get to know the users of the technology studied, whether they are customers, citizens or employees. These insights into the role that a certain technology plays for people are of considerable importance for scientists that are concerned with understanding the adoption and the usage of new technologies and information systems. As new technologies often emerge in a laboratory situation it is very important to gain insight into what place new technologies can have the daily lives of people, both in the domestic and organizational context. Understanding the user context will help to see how viable a new technology might be.

The insights gained through diary research provide an important addition to and confirmation of the results of online surveys and web statistics. The results tend to be more qualitative and detailed and 'tell the stories behind the figures'. Compared to focus groups the diary approach provides more quantitative results. Especially when the diary research is conducted with a larger group of respondents more quantitative results can be gained.

Although the diary as a scientific research instrument to study Internet behaviour needs further refinements, the two conducted diary studies appear to be a valuable step in the evolution of a valid instrument to measure Internet behaviour.

Furthermore, the results can be used to help for example (Internet) Service Providers investigate the possible opportunities and constraints of new technology and services. The insights that diary research provides can help to develop and shape their products and services to better fit the needs and requirements of their (potential) customers.

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In a broad sense the research of **Dr. L. van de Wijngaert** addresses the adoption, implementation, uses, and effects of information technology both within the

organisational as well as the domestic context. The goal of her research is to obtain insight into how information technology can effective and efficiently be used. Starting point is that this insight can best be obtained by maintaining a user perspective and matching user needs with technological capabilities. The research has a strong empirical basis and seeks collaboration with academia as well as industry and consumer organisations. Currently she is involved in a longitudinal, multi-client research project on 'Broadband and the User' (together with e.g. Min. Economic Affairs, KPN) and a project on Wireless Grids.