Tilburg University

Reliability of Information

Vedder, A.H.

Published in:
Proceedings for Cepe 2003

Publication date:
2003

Citation for published version (APA):
Vedder, A. H. (2003). Reliability of Information. In F. S. Grodzinsky, R. A Spinello, & H. T. Tavani (Eds.),
Proceedings for Cepe 2003: Computer ethics in the post-september 11 world (pp. 144-155). Boston College.

Reliability of Information

© A.H. Vedder
Tilburg University, Faculty of Law
P.O. Box 90153
5000 LE Tilburg, Netherlands
anton.vedder@uvt.nl

Abstract

In this paper, I will make a few distinctions with regard to some qualities of information and the receiver's perspective, which may clarify discussions on the topic of reliability of information. I will not go into all of the deep questions and philosophical debates associated with the idea of truth. Truth of information can mostly only be judged by people who are experts on the subjects of the information involved. I am mainly interested in the qualities of information on the Internet that is predominantly used by the general public, i.e., people who are not themselves experts in the fields where they look for information. Therefore, I will focus on related dimensions, such as the fit between the information involved and the information already possessed by the receiver, the qualities of the sources and intermediaries of information, "external" markers of quality of information, and on qualities such as functionality and significance that are familiar but not identical to the qualities that make up reliability. In order to assess the reliability of information – from traditional media and from new media such as the Internet – non-experts and experts have to rely on the degree of consistency and coherence between the information involved and the information they already have on the one hand and on external markers of authority and reliability of sources and intermediaries of information on the other. Regarding information on the Internet licensing and certification systems have been developed, meant to assist users of information to assess its reliability. Hitherto, these systems are not very successful. My contentions are: 1) With regard to information from traditional media, the markers used by receivers of information to assess its reliability are based on a tangled network of socially, culturally, and institutionally embedded credibility conferring systems. 2) With regard to the assessment of the reliability of information from new media such as the Internet, these markers are either based on that same tangled network or lacking. 3) Recently developed licensing and certification systems are not successful in filling the remaining void, because they are simplistic and lack the intricacies and network-features that are typical for the credibility conferring systems that are at our service for deciding the information from traditional sources. 4) When developing new credibility conferring systems and markers the perspectives of the users and receivers of the information should be taken into account to be able to decide for which kinds of information these markers and underlying systems are needed, and which kinds of information should meet what degree of reliability.

Epistemology, ethics, information, Internet, reliability, truth

1. INTRODUCTION

Because information on the Internet can be used when making decisions, actions, and policies, the reliability of information on the Internet calls for critical assessment (Vedder, 2001). But what exactly does reliability of information mean? The intransitive verb "rely" derives from the Latin "religare" (to tie back, connect, like in "religio", religion). To rely on someone or something seems currently to have

a twofold meaning. It can mean: to depend on a person or a thing, or to have confidence in someone or something. Reliability is the quality or state of being reliable. Reliable information thus would be information that is suitable or fit to be relied on, to be trusted, dependable. In this paper, I will make a few distinctions regarding some qualities of information and the perspective of the receiver of the information that may clarify discussions on the topic of reliability of information. Although I restrict myself to conceptual analysis, my efforts are meant to be more than theoretical redecoration. At the end of this paper, I hope to show that my proposals for definitions and distinctions can help to improve the success rate of new systems for quality assessment of information on the Internet.

  I will not go into all the deep questions and philosophical debates associated with the idea of truth. Truth of information is something that can mostly only be judged by experts in specific types of information. Since I am mainly interested in the quality of information on the Internet that is predominantly used by the general public, i.e., people who are not themselves experts in the fields, in which they look for information, I will focus on related dimensions, such as contextual qualities and the role of the perspectives of the users. It should be clear from the outset that, in a methodological respect, this essay must be looked upon as a modest contribution to the clarification of the debate on the quality of information on the Internet. It is a modest contribution since it consists largely of putting forward stipulations, (tentative) definitions, and articulating partially implicit or latent assumptions etcetera. In the course of the argument, I will every now and then defend some options against alternative options on general grounds and, sometimes, refer to certain intuitions, in the hope that they are shared with the reader. I do not, however, cherish hopes of delivering conclusive, convincing arguments. In principle, I believe that conceptual analysis can have more persuasive force than aspired in this contribution. Such is the case, for instance, when it is elaborately combined with the method of (Wide) Reflective Equilibrium (Vedder, 1998). The method used in this contribution cannot be but a pale reflection of this approach. The current, early stage of the debate on reliability of information on the Internet invites contribution with prudent explorative studies. As is often the case with conceptual analysis, this contribution *proposes* definitions and distinctions in the hope that they are to some degree convincing and that they at least invite the readers to be more precise and accurate in the reflection and the debate on the issue, even if they do, in the end, decide to use different definitions and distinctions… as long as they make these explicit and argue for them. Presenting my analysis is best compared, then, neither with solving problems in the way a plumber does, nor with tidying up the plumber's toolskit so that she can do her job more accurately and swiftly. It is best compared with making modest suggestions so that the plumber is stimulated to rearrange her tools more purposively and effectively.
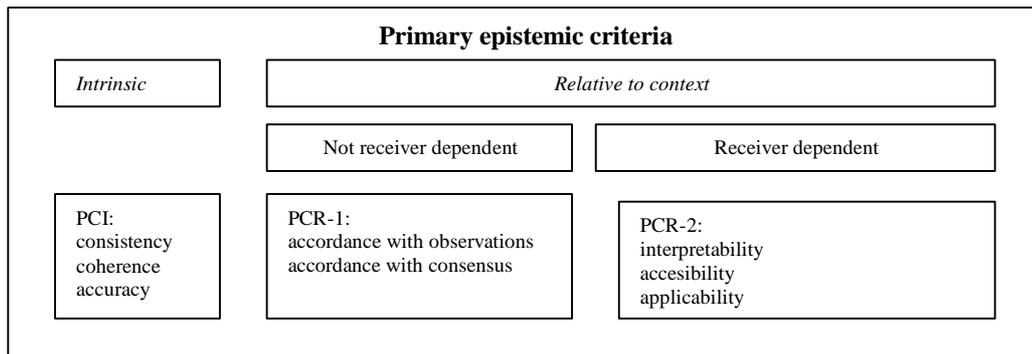
2. PRIMARY EPISTEMIC CRITERIA: TRUTH AND CONTEXT

What kinds of instruments do people have to measure the reliability of information? Let me first distinguish two types of criteria of reliability, i.e., primary and secondary epistemic criteria. The former deal with the information itself; the latter are more concerned with the source and the intermediary of the information (more about these in the next section). People who are experts in or at least somewhat familiar with the field or the subjects of the information may use primary criteria. These primary criteria are all directly related to the information itself. Primary criteria are first of all of the kind that Berti and Graveleau (1998) have labeled very neatly: "criteria relating to intrinsic quality." Criteria relating to intrinsic quality (PCI) are, for instance, requirements of consistency, coherence and accuracy.

  Primary criteria, however, are not restricted to these rather absolute criteria; they also include relative criteria, such as criteria relating to accordance with observations, or with a consensus among experts, in short all the types of criteria that are just like the criteria relating to intrinsic quality traditionally associated with truth. For the sake of convenience, I will refer to these as PCR-1. Berti and Graveleau (1998) even distinguish another kind of relative criteria. These are concerned with the users and receivers of the information.. They include criteria relating to management and presentation, which have to do with the interpretability and accessibility of the information and the applicability by the user. Let me refer to these as PCR-2. This latter type of criteria is complicated. They seem to be strongly connected to PCI. One should keep in mind that all these criteria are not generally applied as isolated or independent items but that varying selections of criteria of the three types are applied jointly, to obtain

mutually reinforcing or conflicting indications. It is perfectly clear that PCR-2 criteria such as interpretability, accessibility, and applicability depend to large extent on PCI criteria of consistency, coherence, and accuracy. Nevertheless, they are rightfully categorized separately because they are also, to a certain degree, dependent on the receivers of the information. In sections 4 and 5, I will explain more about the primary criteria and, in particular, about the connection between PCR-2 and PCI.

Figure 1: Four types of primary epistemic criteria

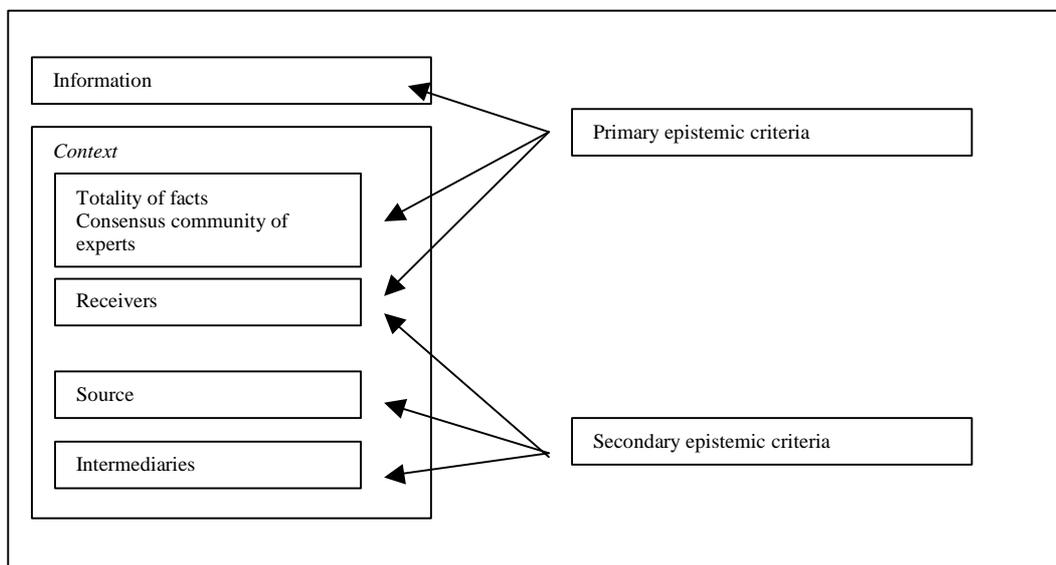| **Primary epistemic criteria**		
Intrinsic	*Relative to context*	
	Not receiver dependent	Receiver dependent
PCI: consistency coherence accuracy	PCR-1: accordance with observations accordance with consensus	PCR-2: interpretability accesibility applicability

3. SECONDARY CRITERIA: CREDIBILITY AND CONTEXT

People looking for information are often unable to assess the reliability of the information in relation to the aforementioned primary criteria. In general they are not experts, and sometimes even lack the slightest knowledge about the topics they seek information on. This also applies to information published through the traditional media and to information published through new media such as the Internet. In order to judge whether one can trust the quality of information in the traditional media, most people seem to apply what I call secondary epistemic criteria. (For some empirical support for this claim, see: Vedder 2002 and 2003.)

Secondary epistemic criteria come in two types. The first consists of criteria concerning the fit or the coherence of the new information with the information that the user already has. Criteria of this type are for instance: the degree to which the new information is in accordance with information that is already available, the degree to which it is inconsistent with that information, the degree to which the new information reinforces or supports the available information and vice versa, etcetera. Criteria of this kind are easily overlooked, but, nevertheless, play an important role when people try to ascertain the quality of information. Depending on whether the person involved is an expert or a non-expert, the required coherence may concern information on the same subject or general background information. Of course, the degree of fit itself is a reliable indicator of the quality of the information only if the information already available for the user is itself reliable as well. Here, the criticism of the "subjectivist" footing that is often brought up against coherence theories in ethics should be taken into account, just like the (un-)likelihood that new information will undermine the reliance on information that is already available, a possibility playing a prominent role in coherence theories such as those of Reflective Equilibrium.

The second type of secondary criteria is completely different from the first one. These criteria do not concern the information itself but rather the authority, trustworthiness and credibility pertaining to persons or organizations behind the information. These may be the authors or, more generally speaking, the sources of the information, or intermediaries, such as libraries and librarians, newspapers, television stations, publishers, Internet providers etcetera. Viewed rather superficially, this assignment of authority, trustworthiness and credibility may seem to happen on the basis of just the history and the reputation of these persons or organizations. On a more profound level, however, the application of

secondary epistemic criteria appears to be based on complicated credibility conferring systems. A credibility conferring system is an intricate complex or pattern of all kinds of manifest or latent recognition procedures for persons and organizations, and traditions of reputations and usage. Most of these are built in or embedded in conventions, social and institutional arrangements and practices. People look for traces of the reliability of the information and of the information provider by gathering all kinds of information on the background and the institutional setting of the source of information. People can find out, for example, whether the information provider works at a university, what kind of university, whether it has a good reputation, whether it is recognized as one where people work according to commonly accepted methodological criteria, etcetera. Also, people seem to be interested in the context in which the information is presented or made accessible, such as a university library, a scientific journal with a well-established reputation.

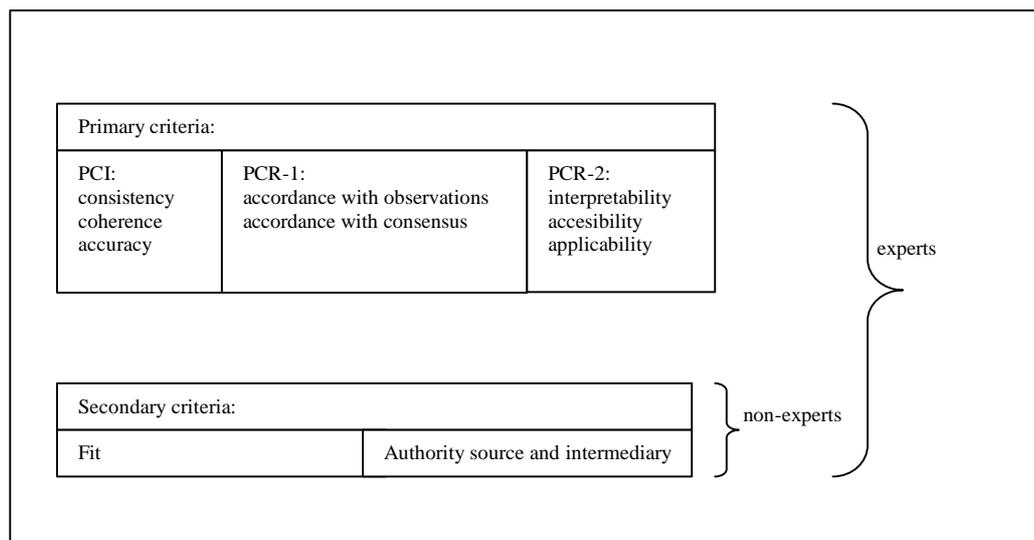*Figure 2: Interrelatedness of primary and secondary criteria and context*

The distinction between primary and secondary epistemic criteria can help us to understand certain problematic phenomena that are related to the assessment of information in general and to the assessment of information on the Internet in particular. Exemplary of the former are in general those situations, in which people consider information as reliable whereas it ought to be considered unreliable when measured (by an expert) against primary criteria. In contrast information can be considered unreliable (because of the inadequacy according to secondary criteria) when it is reliable information according to primary criteria. Problems related to the Internet are variations on these themes. As I have pointed out extensively elsewhere (Vedder 2001), the very possibility of adequately applying secondary epistemic criteria is often lacking where the Internet is concerned. Often, the content provider is anonymous or has only a virtual identity. Generally, the influence of individuals in providing information on the Internet is diminishing, whereas the influence of intelligent systems is increasing. Also, the lack of traditional intermediaries (such as libraries, librarians, specialized publishers) may have a negative influence on the capabilities of information seekers to assess the reliability of information. These kinds of factors, i.e. the lack of information about content providers, the diminishing human influence in the provision of information, and the lack of traditional intermediaries, are responsible for the fact that an information seeker often lacks clues or any indication whatsoever about the character, background, and institutional setting of the content provider. To compound the problem there is the phenomenon of globalization, which is inherent to the Internet. Even when the recipient has some information about the content provider, the individual might be unable to estimate the credibility

of that provider, simply because the individual will often not be acquainted with the relevant backgrounds and institutional settings from completely different cultures. The recognition procedures and traditions that make up the institutional basis of the application of secondary epistemic criteria may be different in different cultures. A recipient from one culture may not recognize the procedures and traditions of the culture's provider. It could even be the case that if the recipient from one culture were able to recognize them, he or she would not accept them as credibility conferring patterns.

   I would like to conclude this section with two short notes. One on the fundamentalist ring to the use of the notions of primary and secondary criteria and a second on experts and the use of epistemic criteria. First, I hasten to say that the use of the terms of "primary" and "secondary" epistemic criteria is not meant to suggest a hierarchy of reliability or trustworthiness. Information which satisfies primary criteria is not necessarily always more reliable than information which satisfies the secondary criteria. Whether information that satisfies secondary criteria in the end also satisfies primary criteria will not be dealt with in this paper. (And the same holds for the even more intricate questions, such as: Which primary criteria should be met by information that satisfies secondary criteria, and to what degree?) It might be the case that although empirically there is not necessarily a relationship between the two, in the sense that information may satisfy secondary criteria without eventually meeting primary criteria, there might be a conceptual relationship between the two, meaning that there are – sort of – moral or epistemologically normative reasons to hold that information satisfying secondary criteria should on principle also be able to pass the test of primary criteria, even though it will never be put to the test. My second note is on experts and their use of criteria. One should not think that there is an easy way of telling the difference between primary and secondary criteria by saying that experts use only primary criteria and non-experts content themselves with secondary criteria.[1] Things are more complicated than that. Even experts use secondary criteria very often: they rely on information because it is published in a well-known professional journal or provided to them by a trusted librarian etcetera. They often use combinations of primary and secondary criteria. Cases, in which they use only primary criteria, may be very scarce. The use of primary criteria, however, will be mostly and largely (except, perhaps, for the criterion of consistency) the prerogative of experts. In section 5, on markers of reliability of information, I will return to the theme of the use of criteria by experts where I point out that in order to recognize markers of reliability, one sometimes be an expert. I will now deal with some qualities that are familiar and relevant to the reliability of information, and by some authors believed to be elements of reliability, but which, in my view, should be carefully distinguished.

Figure 3: Experts' and non-experts' usage of epistemological criteria

Primary criteria:		
PCI: consistency coherence accuracy	PCR-1: accordance with observations accordance with consensus	PCR-2: interpretability accesibility applicability

experts

Secondary criteria:	
Fit	Authority source and intermediary

non-experts

[1] Robert Wachbroit of the University of Maryland brought this point to my attention.

4. FUNCTIONALITY AND SIGNIFICANCE: INFORMATION AND THE USER/RECEIVER

Some of the primary criteria that are relative to a context, i.e., those of interpretability, accessibility, and applicability (PCR-2 criteria) have to do with the relevance of the information for the users/receivers of the information. The dimensions referred to, however, hinge more on the information itself, or rather its appearance and structure and hands-on character (applicability), than on a particular user's interest in the information. They relate, in other words, to qualities of the information that are simply present regardless of the specific interests and preferences of the users. They are necessary conditions for application but not for specific usage. My view of the relationship between reliability and individual receivers of information should thus be distinguished from the one put forward by, for instance, Frawley et al. (1993) who extend their notion of quality to cover the degree of fulfillment of specific interests and preferences of the individual user. They distinguish requirements of novelty, usefulness, and non-triviality. They include the functionality of information in terms of fulfillment of subjective preferences in their idea of "interestingness" of information, thereby pointing to the importance of the receiver's perspective. Their proposal must of course be understood against the background of their attempts to make a meaningful distinction between information and knowledge. Although for the purposes of this discussion of reliability of information (on the Internet), it is necessary to pay attention to the position of the receiver, we should not include the subjectivity of the individual receivers' perspectives in the definition of reliability of information (at least not in ways that would transcend their inclusion as presumed in the PCR-2 criteria, but this is something that I will explain below.). The extent to which certain information meets an individual's preferences does not – at least as far as I can see – influence the reliability of the information. If this were the case then a bunch of lies could add up to reliable information, just because the receiver preferred to be told lies instead of the truth. In order to avoid this kind of idiosyncrasies, I think it is best to make some distinction between reliability and functionality and significance in terms of the individuals' purposes.

I would like to suggest that we define functionality and significance in terms of the connection between the information involved on the one hand and the purposes of the receivers (including organizations of receivers) on the other. Functionality could then be stipulated as the most neutral and basic term of the couple: indicating that the information involved has in some way or other a positive bearing on the ways in which the receivers' purposes can be realized. In other words: referring to information as functional would mean that the information contributes to the realization of the receivers' purposes. Functionality is subjective in the sense that it depends on the purposes of the receivers. In order to keep things clear, I would prefer to distinguish between functionality as such, on the one hand, and perceived functionality, on the other. This is to ensure that the functionality of information can be established not only by the receiver, but by an external observer as well – provided that he or she either knows the aims of the receiver and the information involved or assumes to know them on the basis of general knowledge about the needs and interests of human individuals. Now, it is possible that both the receiver and the external observer erroneously believe the information to be functional whereas in fact it is not. In that case, the information is not functional although it is *perceived* to be functional. Of course, there is also the possibility that only one of them – the receiver or the external observer – is erring with regard to the functionality of the information.

The possibility of a correct external judgment on the functionality of information points to an "objective" side of functionality. This takes us back to my earlier suggestion that receivers' perspectives are to a certain – be it minimum – degree already included in the primary criteria of the second category, which in turn overlap partially with criteria of consistency, coherence and accuracy (PCI). In order to be functional, information must at least in some way or other be suitable to be grasped and understood by the receivers involved: it must have some structure, some clarity, must make some sense.

This capacity of the information itself, however, must be present whatever the purposes and aims of the receivers might be. In this shallow sense the receivers' perspectives belong to the primary criteria. The further qualities that information must have in order to be functional build on these minimal requirements, and they do so in a gradual transition.

Significance is also different from reliability. Significance adds a degree of urgency to functionality. Whereas functionality – in my view – is an all or nothing concept, significance is a matter of degree. Information can be more or less significant, depending on the types of purposes for which it is relevant. Here it is critical, whether one takes what one might call the subjectivist stand or what one might refer to as the objectivist stand. In the subjectivist point of view, the significance of information will depend on the individual's appreciation of the purposes for which the information is relevant. The more important the receiver considers his or her purposes to be, the more significant the information will be for these purposes. From the objectivist view, the receiver's exact estimate of the importance of the purposes is irrelevant. The objectivist will measure the importance of the purposes against objective external standards, such as a certain ranking of basic human needs or a certain view of the good life, for example. The more a certain purpose is in accordance with these external standards, the more significant the information is according to its relevant purpose. I do not think that it would be very fruitful to try to argue conclusively for or against one of these two conceptions of significance like, for instance, Swanton (1992: 162-177) has tried to do in her account of significance in relation to her conception of freedom. I consider the restriction to either the subjectivist or the objectivist version of significance as highly artificial. It is far more important to be aware of both interpretations.

Figure 4: Continuum of PCI, PCR-2, functionality, and significance
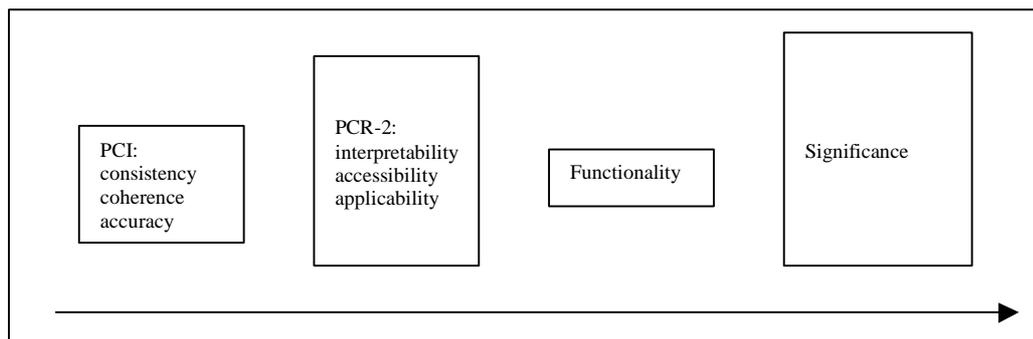
The distinction between reliability on the one hand and functionality and significance on the other, and the objectivist version of the notion of significance are seriously advantageous from a practical point of view. They provide us with some clues and starting points to make sense of discussions regarding different regimes of measures of reliability of information from various sources. First they enable us, to understand why people care more about the reliability of certain types of information than of others. Second, they enable us to articulate a requirement that many people would subscribe, i.e., that the more significant information is, the more reliable it must be. For instance, regarding the reliability of medical information on the Internet, it would probably make sense to say that, in general, the information should be reliable. More specifically, if someone looks for information on diagnostics or therapeutic treatment because he or she has a severely ill member of the family, he or she would like this information to conform to higher standards of reliability than somebody is merely interested in a certain type of ailment.[2]

---

[2] On the basis of observations like these, a taxonomy of dimensions or starting positions of Internet users seeking medical information may be made. The taxonomy would at least include two, and perhaps even three, dimensions: (1) starting question / primary motive (e.g.: general interest, having symptoms, looking for treatment, looking for participation in trial), and (2) severity of the condition involved (cold, cancer). Maybe, since a person must also be able to judge the reliability of the information – even

5. PERCEIVED RELIABILITY AND MARKERS

Now we can take up the thread of the argument in section 3 again. Just as functionality and significance are delivered in subjectivist and objectivist versions, with regard to the reliability of information it may also be useful to distinguish between reliability as such on the one hand, and perceived reliability on the other. Information may be as such perfectly reliable even though it is not considered to be reliable. The receiver of the information may be unable to assess the quality of the information according to primary criteria because he or she is not an expert while at the same time he or she neither is able to assess the quality of information according to secondary criteria. The latter may have all kinds of reasons: maybe it is difficult to perceive the ways in which the information fulfills the secondary criteria because they are hidden or very subtle; maybe the receiver of the information is not knowledgeable enough or even completely unacquainted with the specific social and cultural expressions of conferring credibility. Of course, the opposite can also be the case. Information can be unreliable as such, whereas it is not perceived to be so. This can be the case when the receiver of the information is not an expert and unable to correctly perceive or to interpret the ways in which the information fulfills the secondary criteria *or* the social and cultural expressions of credibility conferring mechanisms are ambiguous or in some way or other misleading. Here, I return to the point that I made earlier on, at the end of section 3. In order to be able to see whether information satisfies secondary criteria, one also needs to have a certain expertise. Depending on the specific type of information, this expertise can be widely shared and consist of experience and understanding of, for instance, one's cultural context. But it can also be the expertise that is typical of certain specialists who have received thorough education or training in a certain field. An important part of academic education, for instance, seems to consist of teaching students to become habituated to all kinds of credibility conferring systems.

Distinguishing between reliability of information (Ri), markers of the reliability of information (Mri), and the recognition of markers of reliability of information may further help to clarify this. Mri are the external signs indicating that the information to which they are attached must be considered as reliable. Traditional Mri are for instance: being published in a well-reputed academic journal, being published in a journal with an editorial board whose members have a good reputation, being published in a book with a hallmark of a well-known university library, being broadcast by a public non-commercial radio station etcetera. As soon as one starts to think about the markers of reliability of information, and most saliently, the traditional ones, one becomes aware of the enormous complexity of what I have referred to earlier on as the credibility conferring systems. Most Mri cannot simply be considered as isolated, independent items. They are embedded in networks of other Mri and themselves dependent on the authority or credibility of entities or persons of, sometimes, a completely different type. For instance, the fact that being published in a well-reputed academic journal is a Mri itself is based on certain academic practices and traditions, the reputation of a publisher and of the board of the journal, the reputation of authors of other materials in (earlier numbers of) the journal etcetera. This tangled network is not only in a way constitutive of the Mri itself; understanding it as such or understanding it indirectly – from hearsay, when, for instance, a person with some authority tells you to consider this Mri as being backed up by such a tangled net – is also constitutive of understanding that a certain sign is truly a Mri. Misunderstanding the system behind a marker may be one of the most important causes of misperceiving Ri.

This brings us, finally, to the recognition of Mri. Here it may be of important to know that for two reasons some people may not recognize Mri. It may be the case that they themselves are unable to find and recognize the Mri because they do not know where to look for it. This, in turn, may be due to the fact that they are not acquainted with the tangled network of the credibility conferring system behind the Mri or to the fact that they have not been taught where to look. In any case, they lack the required expertise to recognize the markers as markers of reliability. Another cause of deficient recognition may be more trivial and be situated in the Mri itself: deficient visibility of the Mri or, generally, the deficient presentation of the Mri. I will return to the issue of recognition of Mri in the next and final section of this paper.

---

more to the extent that the dimensions are more relevant to the fulfillment of for instance basic needs – the (3) starting position regarding background information / knowledge should also be included.

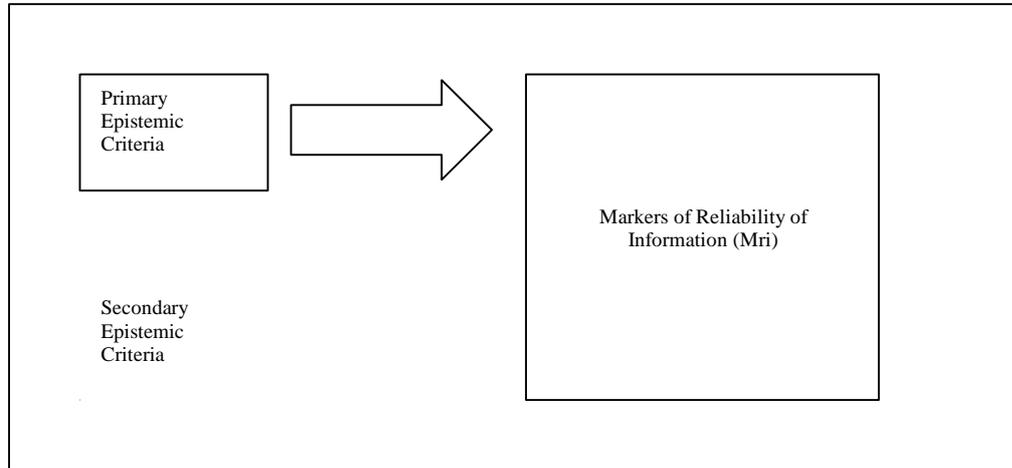*Figure 5: Markers of reliability of information from traditional media*
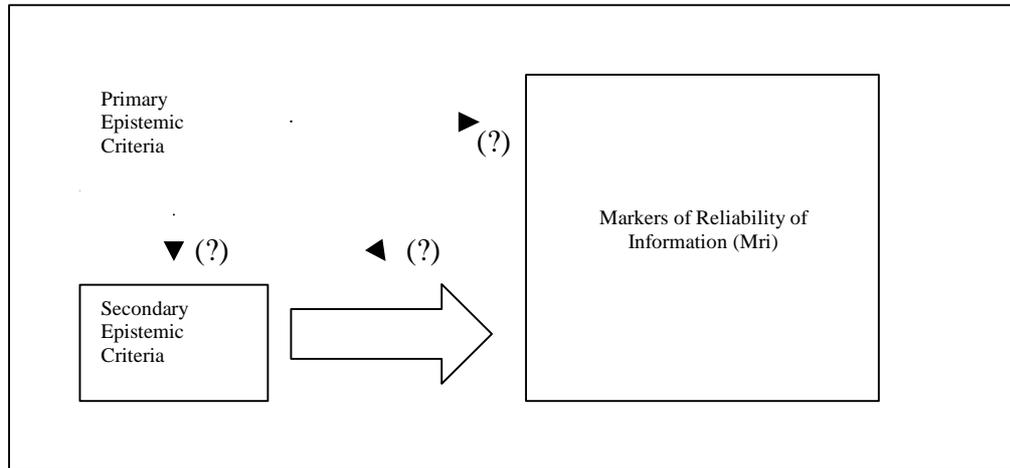
6. CONCLUDING REMARKS: WHAT ABOUT THE INTERNET?

With regard to information from traditional media and from new media such as the Internet, non-experts (and often experts as well) have to rely on external markers of the reliability of information. With regard to information from traditional media, these markers are outward expressions of reliability that are based on a tangled network of socially, culturally, and institutionally embedded credibility conferring systems. In the case of information from traditional media, these markers have primarily to do with "secondary" epistemic criteria: they are signs of the authority and credibility of the sources and the intermediaries involved. With regard to information from new media such as the Internet, markers and the underlying credibility conferring systems such as these are still largely lacking. Where they are present, they are based on that same existing tangled net (for instance, when well-known brand names are used on the Internet or reference is made to well-known names and titles of newspapers, journals and broadcasting networks) or they are highly artificial, awkward and simplistic. The latter is the case when the markers appear in the form of a label or certificate on the web pages indicating that the information is reliable or that the provider conforms to a self-imposed code guaranteeing reliable information. Generally an organization or authority that has been especially established backs up these systems to license information providers to use the label or certificate. As regards medical information many of these initiatives have been shown to be poor, ineffective and generally deficient. One of the problems is that the systems supporting these markers are not well established and too dependent on one form of expressing reliability or, simply, on one licensing authority (Gagliardi, Jadad, 2002). Other problems also relate to the intricacies of the systems: the general public is not familiar with them or does not trust the systems to be persistent or viable (Vedder 2002 and 2003).

Of course, as regards the inadequate situation concerning the Internet, one must take into consideration that it lacks the long and rich history that most of the other information media has as far as the wealth of credibility conferring systems that have been developed over the decades and centuries is concerned. The people who elaborated the first marker-systems have simply assessed the quality of information on the basis of primary criteria and then provided markers for information which meets the primary criteria to a sufficient degree. They have completely overlooked the important role that secondary criteria and the social and cultural embedding of their application play in the ways in which experts as well as non-experts deal with the quality of information.

Figure 6: "First generation" markers of reliability of information on the Internet

```
┌──────────────────────────────────────────────────────────────────┐
│                                                                    │
│   ┌─────────────┐                                                  │
│   │ Primary     │          ╲                                       │
│   │ Epistemic   │  ═══════════╲       ┌─────────────────────────┐  │
│   │ Criteria    │  ═══════════╱       │                         │  │
│   │             │          ╱          │                         │  │
│   └─────────────┘                     │  Markers of Reliability  │  │
│                                       │   of Information (Mri)   │  │
│                                       │                         │  │
│   Secondary                           │                         │  │
│   Epistemic                           │                         │  │
│   Criteria                            └─────────────────────────┘  │
│                                                                    │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
```

With regard to certain types of information on the Internet it may be useful to start thinking about new credibility conferring systems and ensuing markers of reliability of information. When developing such a "second generation" of quality marker systems, it may be advisable to pay more attention to the credibility conferring systems that corroborate markers of reliability than has been done in the past. Meticulous study of the complicated patterns and network structure that seem to be characteristic for the traditional systems could be of help when trying to work out systems that will not shut down as soon as one licensing authority disappears. It could also help to find ways of involving experts and the general public and to gain their trust. The perspectives of the users/receivers of the information should be taken into account in order to decide for what kind of information these markers and basic systems are needed, and which kind of information should meet what degree of reliability. The designers of the marker systems should have some sense of the functionalities and the significance that information may have for the users. Last, but not least, because the degree of fit is an important (secondary) criterion for assessing reliability, efforts to introduce new systems for quality assessment run the risk of becoming idle as long as they are not combined with raising the degree of information and education of experts and the general public.

Figure 7: "Second generation" markers of reliability of information on the Internet

```
┌──────────────────────────────────────────────────────────────────┐
│                                                                    │
│   ┌─────────────┐                                                  │
│   │ Primary     │                     ┌─────────────────────────┐  │
│   │ Epistemic   │                     │                         │  │
│   │ Criteria    │                     │                         │  │
│   │             │                     │                         │  │
│   └─────────────┘                     │  Markers of Reliability  │  │
│                                       │   of Information (Mri)   │  │
│   ┌─────────────┐          ╲          │                         │  │
│   │ Secondary   │  ═══════════╲       │                         │  │
│   │ Epistemic   │  ═══════════╱       │                         │  │
│   │ Criteria    │          ╱          │                         │  │
│   │             │                     └─────────────────────────┘  │
│   └─────────────┘                                                  │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
```
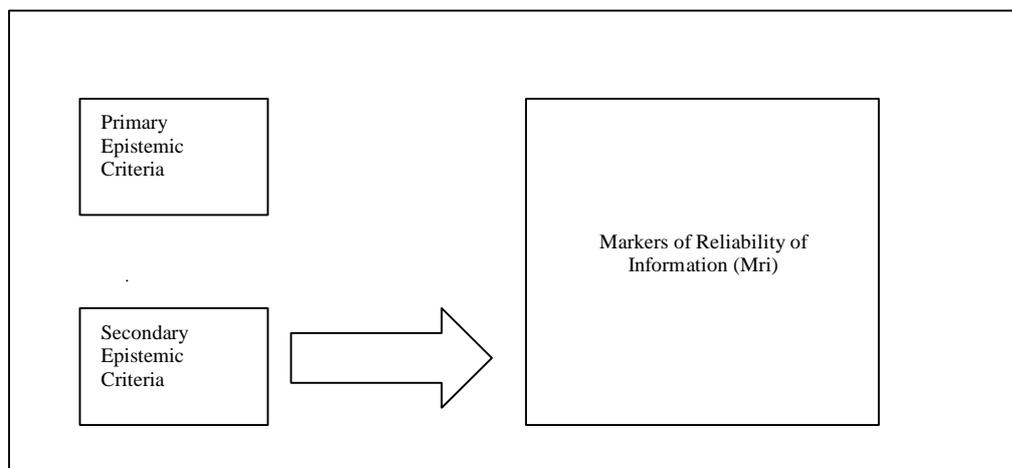
REFERENCES

Berti, L., D. Graveleau (1998) Designing and filtering on-line information quality: New perspectives for information service providers, in: *Proceedings of the fourth international conference on ethical issues of information technology, Ethicomp 98*. EUR, Rotterdam 79-88.

Frawley, W.J., G. Piatetsky-Shapiro, and C.J. Matheus (1993) Knowledge discovery in databases: An overview. In: Piatetsky-Shapiro, G. and W.J. Frawley, *Knowledge discovery in databases.* AAAI Press / The MIT Press, Menlo Park, Cal et cetera, 1993.

Gagliardi, A., A. Jadad (2002) Examination of instruments used to rate quality of health information on the internet: chronicle of a voyage with an unclear destination. *British Medical Journal* **324**, 569-573

Swanton, C. (1992), Freedom: A Coherence Theory. Hackett, Indianapolis/Cambridge: Hackett

Vedder, A. (1998) Considered judgements: Meaning, community and tradition, in: *Reflective Equilibrium* (eds. T. van Willigenburg and W. van der Burg), Kluwer International, Deventer, 55-72.

Vedder, A. (2001) Misinformation through the Internet: Epistemology and Ethics. In: *Ethics and the Internet* (ed. Anton Vedder), Intersentia , Antwerpen, Groningen, Oxford, 2001, p. 125-132.

Vedder, A. (2002) What people think about the reliability of medical information on the Internet, in: *The transformation of organisations in the information age: Social and ethical implications* (eds. I. Alvarez, T. Ward Bynum, J. Alvaro de Assis Lopes, S. Rogerson), Universidade Lusiada, Lisbon, 281-292.

Vedder, A. (2003) Betrouwbaarheid van internetinformatie. in: *Jaarboek ICT en samenleving 2003. De sociale dimensie van technologie.* (eds. J de Haan, J. Steyaert), Boom / Sociaal Cultureel planbureau, Amsterdam, 113-132.

Biography

Anton Vedder is an Associate Professor of Law and Ethics at the Faculty of Law at Tilburg University. His main research topics are currently: law, ethics and information technology and law, ethics and globalization.