

CHAPTER 4

INTEGRATING APPROACHES TO RELEVANCE

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1. INTRODUCTION

Relevance is the distinguishing feature of IR research. It is the intricacy of relevance, and its basis in human decision-making, which defines and shapes our research field. Relevance as a concept cuts across the spectrum of information seeking and IR research from investigations into information seeking behaviours to theoretical models of IR. Given their mutual dependence on relevance we might predict a strong relationship between information seeking and retrieval in how they regard and discuss the role of relevance within our research programmes.

However often, too often, information seeking and IR have been continued as independent research traditions: IR research ignoring the extensive, user-based frameworks developed by information seeking and information seeking underestimating the influence of IR systems and interfaces within the information seeking process. When these two disciplines come together we often find the strongest research, research that is motivated by an understanding of what cognitive processes require support during information seeking, and an understanding of how this support might be provided by an IR system.

The aim of this chapter is to investigate this common ground of research, in particular to examine the central notion of relevance that underpins both information seeking and IR research. It seeks to investigate how our understanding of relevance as a process of human decision making can, and might, influence our design of interactive IR systems. It does not cover every area of IR research, or each area in the same depth; rather we try to single out the areas where the nature of relevance, and its implications, is driving the research agenda.

We start by providing a brief introduction to how relevance has been treated so far in the literature and then consider the key areas where issues of relevance are of current concern. Specifically the chapter discusses the difficulties of making and interpreting relevance assessments, the role and meaning of differentiated relevance assessments, the specific role of time within information seeking, and the large, complex issue of relevance within evaluations of IR systems. In each area we try to establish where the two fields of IR and information seeking are establishing fruitful collaborations, where there is a gap for prospective collaboration and the possible difficulties in establishing mutual aims.

2. RELEVANCE

From its inception as a distinct research tradition, IR has engaged in a continuing discussion on the nature of relevance. The issues are large and significant: what does relevance mean as a concept, how does relevance manifest itself in online searching, and is relevance sufficiently robust to enjoy its predominant role in our understanding and measurement of IR systems? The latter is not a trivial point; several authors have argued that relevance is too weak and ephemeral to be used in understanding the human experience of searching.

However, as Saracevic (1996) notes, relevance has stuck as the core concept in IR research and this because relevance has many attractive features as a research tool: it is a concept that is intuitive to both searchers and investigators, it can be classified into different types and, within certain bounds, it is a concept that is measurable both quantitatively and qualitatively. Unlike other concepts that have been suggested as substitutes, e.g. information value or information quality, relevance does not require to be formalised within a specific information seeking situation to be of use, and unlike an evaluation metric such as searcher satisfaction, it is a measure that allows for a certain degree of repeatability across investigations.

Relevance emerges in many stages of the IR process: we use relevance to design retrieval algorithms, we ask users to provide assessments of relevance for relevance feedback and we exploit various measures of relevance to evaluate IR systems. This broad use of relevance means that relevance stands as the central force in our perception of the retrieval problem itself and concerns over the validity, reliability, and scope of relevance have been played out in the IR literature for decades.

Maron's (1964) early observation regarding the relationship between searchers and information indicates the nature of the relevance problem. "... information is not a *stuff* contained in books as marbles might be contained in a bag—even though we sometimes speak of it in that way. It is, rather a *relationship*. The impact of a given message on an individual is *relative* to what he already knows, and of course, the same message could convey different amounts of information to different receivers, depending on each one's internal model or map" (p. 9).

If, as Maron indicates, information is personal, the relevance of information is an even more personal notion. To help searchers find *relevant* information, our IR systems must deal with people in all their complexity: their tasks, knowledge, personality, motivation, etc. These variables are not simple and a simple notion of relevance does not suffice for the task of IR. This is why, the more we learn about the way people search and the way they assess information, the more complex the concept of relevance may appear. It is also why we have not agreed on a definition of relevance for IR.

This lack of consensus on a common definition of relevance may seem problematic; a science that cannot define its basic constructs would appear to be in trouble. However, relevance, rather than being a confounding characteristic, is an illuminating concept and one that helps us differentiate and appreciate the multifaceted nature of searching. It is not true as Mizzaro (1997) claims "relevance is not a well understood concept" (p. 810). Indeed, we understand it at many different levels and in many different ways, even if we do not properly understand yet what to do with all we have learned.