

# Researching Serendipity in Digital Information Environments

# Synthesis Lectures on Information Concepts, Retrieval, and Services

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**Gary Marchionini**, *University of North Carolina, Chapel Hill*

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# Researching Serendipity in Digital Information Environments

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## ABSTRACT

Chance, luck, and good fortune are the usual go-to descriptors of serendipity, a phenomenon aptly often coupled with famous anecdotes of accidental discoveries in engineering and science in modern history such as penicillin, Teflon, and Post-it notes. Serendipity, however, is evident in many fields of research, in organizations, in everyday life—and there is more to it than luck implies. While the phenomenon is strongly associated with in-person interactions with people, places, and things, most attention of late has focused on its preservation and facilitation within digital information environments. Serendipity's association with unexpected, positive user experiences and outcomes has spurred an interest in understanding both how current digital information environments support serendipity and how novel approaches may be developed to facilitate it. Research has sought to understand serendipity, how it is manifested in people's personality traits and behaviors, how it may be facilitated in digital information environments such as mobile applications, and its impacts on an individual, an organizational, and a wider level. Because serendipity is expressed and understood in different ways in different contexts, multiple methods have been used to study the phenomenon and evaluate digital information environments that may support it. This volume brings together different disciplinary perspectives and examines the motivations for studying serendipity, the various ways in which serendipity has been approached in the research, methodological approaches to build theory, and how it may be facilitated. Finally, a roadmap for serendipity research is drawn by integrating key points from this volume to produce a framework for the examination of serendipity in digital information environments.

## KEYWORDS

serendipity, digital information environments, user experience, human-centered information retrieval, human-computer interaction

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# Preface

Serendipity...the word conjures up an image of that fortuitous finding, one that evokes a happy human response. From its unassuming roots in literary scholarship in the Georgian era, the concept emerged in the 20th century to represent fortuitous discoveries perceived to be by chance, but clearly informed by significant knowledge and experience. Often equated with scientific discoveries it has evolved to be now associated with that unexpected but informed outcome in the social sciences and humanities and indeed in everyday life.

When we think of serendipity in digital information environments, we are constrained by physicality of that setting—the digital device, and also by the range of activities that may occur within that space and contexts. This book starts with an understanding of its initial origins and application and transfers that understanding to its application to and evolution in digital spaces. It examines the motivation for a renewed and intense interest in serendipity in research and development (R&D), and identifies the various interpretations of serendipity (e.g., event, outcome, process) that have been made to inform a better understanding of where and how to approach the concept in R&D. It examines how we can and do facilitate serendipity in digital spaces, and how, methodologically, to research the concept in these spaces.

To start such a work, we put our assumptions and perspectives about serendipity aside, and began with a “clean slate.” We conducted a systematic review of the research on serendipity, first searching broadly in four databases (Web of Science, ProQuest, EBSCO, and ACM Digital Library) for papers that serve as the basis for Chapters 2–5. In May 2016, we downloaded 1,293 citations but after removing duplicates and doing an initial cull based on title and abstract to ensure topic fit, we selected 550 for a closer look. From these, as well as papers subsequently gathered through other methods (e.g., citation chaining), we selected approximately 100 papers that met the following conditions for a more thorough examination.

- Paper was a published, peer-reviewed study of serendipity in digital environments; literature reviews, conceptual papers, and theses were not considered in the systematic review.
- Papers that mentioned serendipity only superficially were not considered.
- No restrictions on how authors defined serendipity.
- Research was empirical, using either or both qualitative or quantitative methods, but with no restrictions on method or methodology.

- No restrictions on research area or topic with respect to:
  - information use environment (e.g., work leisure, learning, commerce);
  - domain, field, or area (e.g., science, history, education);
  - platform, application, or service (e.g., Twitter, WorldCat);
  - type of digital device (e.g., mobile, laptop, wearable); and
  - content or its format (e.g., text, image, sound).

Seminal works that do not meet the above criteria (e.g., Merton and Barber, 2004) are also referenced throughout the volume, but by conducting the systematic review, we hope that we have provided a useful “state-of-the-art” synthesis of the research on serendipity in digital information environments.

Lori McCay-Peet and Elaine G. Toms

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We also acknowledge financial support for the research that informed much of the thinking behind this volume. Toms' initial research on browsing in digital user environments (which serendipitously introduced her research to serendipity) was funded by a NSERC (Natural Sciences and Engineering Research Council of Canada) grant to her Ph.D. supervisor, Professor Jean Tague-Sutcliffe, University of Western Ontario (now Western University). Their individual and joint research, including McCay-Peet's Ph.D. work, was partially funded by a SSHRC (Social Sciences and Humanities Research Council of Canada) Research Grant, on *Serendipity in Knowledge Work* to Toms; and a SSHRC Doctoral Scholarship to McCay-Peet. Finally, we acknowledge the support of the Canada Foundation for Innovation that funded the research infrastructure that enabled multiple research projects, and Dalhousie University, Halifax, Nova Scotia, Canada who hosted the research projects.