

Promoting the growing field of dynamic decision making

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A new journal is starting with this page, and we – the editors – hope that this launch will be a successful one! Before we start with the normal course of the editorial business, let us explain why we made the decision to start a new journal.

Most decisions in our everyday lives are part of dynamic decision making processes. They usually are not isolated acts but take place in a context, with a history of events leading up to the decision and a future unfolding after the decision has been taken shaping our options for later decisions. Additionally our preferences about what we consider a desirable outcome may also change over time. It is this emphasis on *agency* – the effect our decisions have on a situation – and *dynamics* – the unfolding of a situation over time – that are the hallmarks of dynamic decision making.

Examples of dynamic decision making can be found virtually everywhere, be it scheduling a workday, managing a company, establishing a medical diagnosis, or complex political negotiations. We therefore note with pleasure that dynamic decision making (DDM) has recently become a quickly growing field of research in the behavioral sciences. While simple single-shot decision making has long been the staple of decision research and DDM was the exotic exception, we agree with other decision researchers that it may be time to reverse this view (cf. Hertwig & Erev, 2009). Even our understanding of biases and fallacies in simple single-shot decision making may improve when considered from the more comprehensive DDM perspective.

Since the beginning of systematic empirical research on DDM about forty years ago (e.g., Dörner, 1975), it has evolved in many different niches of psychology and other disciplines, with fruitful contributions in areas such as experimental research (e.g., Berry & Broadbent, 1984; Dutt, Arló-Costa, Helzner, & Gonzalez, 2014; Funke, 1995; Hertwig & Erev, 2009; Huber, Wider, & Huber 1997), cognitive modelling (e.g., Busemeyer & Johnson, 2004; Gonzalez, Lerch, & Lebiere, 2003), training (e.g., Kluge, 2008), problem solving (e.g., Danner et al., 2011; Fischer, Greiff, & Funke, 2012), assessment of real-world skills (e.g., Dörner, 1986; Fischer, Greiff, Wüstenberg, Fleischer, & Buchwald, 2015), education (e.g., Klahr & Dunbar, 2000), or political decision making (e.g., Verweij & Thompson, 2006). In philosophy, dynamic choice even contributed to redefining what it may mean to be rational (e.g., Hammond, 1976). A literature search in the database “Web of Science” for the phrase “dynamic decision making” reveals a steep exponential growth in number of publications (see Figure 1) distributed over more than 80 journals. Additionally, there are many different labels for research essentially investigating the same phenomenon.

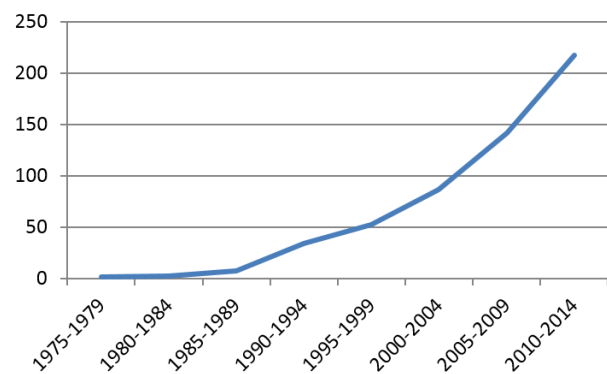


Figure 1. Growth of publications containing the phrase “dynamic decision making” in the “Web of Science” database between 1975 and 2014.

Seeing that dynamic decision making is a growing field of research without a dedicated platform for exchange we decided to start the *Journal of Dynamic Decision Making* (JDDM) as an outlet for international research in this area. Our aim is to offer a home for the growing number of publications that do not always neatly fit traditional disciplinary categories and to act as an exchange hub for the DDM community to share tools, results, and ideas.

Scope of JDDM

We are interested in the various kinds of decision making that are assembled under the umbrella term “dynamic decision making”. The defining features of dynamic decision making are: (1) Decisions are made at multiple points in time, and (2) between decisions the environment may change as a result of previous decisions, or (3) the environment may change spontaneously as a result of autonomous processes (cf. Busemeyer, 2002; Edwards, 1962). By analogy to the physical environment, the mental prerequisites for a decision – e.g., the decision maker’s preferences – may also be subject to change between decisions. In summary, dynamic decision making refers to decision processes in a series of interdependent decisions at multiple points in time in an environment that may change substantially in between decisions.

The main focus of JDDM is the multidisciplinary and multi-methodological study of cognitive processes in dynamic decision making. We explicitly encourage research on different aspects of dynamic decision making and expect

a wide range of research methods to be applied. Dynamic decision making is a broad field of research with contributions from cognitive science, psychology, neuroscience, informatics, economics, or mathematics. While the focus of JDDM is on cognitive processes in DDM, we welcome contributions from all disciplines, from classical behavioral research to mathematical driven simulation studies or theoretical analysis. JDDM is open to all approaches as long as they follow scientific standards of objectivity, transparency, and reproducibility.

Journal Policies

In addition to offering the standard features of an academic journal, such as independent peer review and long-term archiving, JDDM implements a range of additional policies.

Reproducibility. We want to foster transparency and reproducibility of research results and encourage our authors to publish research tools, code, and datasets to the extent possible. Our digital platform (“Open Journal System”, OJS) offers a repository for different types of material that researchers may want to make accessible to their colleagues. The more material we share, the easier it becomes to replicate a study. We also explicitly encourage authors to submit replication studies as part of our commitment to ensure reproducible results.

Constructive peer review. Each paper will be reviewed by at least two peer reviewers with a focus on quality (and without commercial interests). Our instruction for reviewers is not to primarily find the weakest spots in a study but to make good papers even better and give advice for how to get the most out of the initial submission. Together with our reviewers, we want to come to a quick decision about publication, revision, or rejection of a submitted paper. Once a paper is accepted it will be published without delay.

Sustainable open access. The world of journal publishing is changing fast. Open access has become an important advantage for authors: their articles are available freely around the world without a “paywall”. We try to run the journal without any fees for authors or readers, hosted by Heidelberg University Library (HUL), a publicly funded institution. Our publishing partner, Heidelberg University Library, grants availability of the service for the next 100 years (and because HUL already exists for more than 625 years, we believe this is a credible promise). All published papers will be available online without access restrictions, and independent of commercial interests. At present, there is no fee for publishing in JDDM, and we will try our best to always offer a publication option that is free of charge. The publication infrastructure is provided by HUL and the editorial work and reviews are done by the editorial board and by volunteers.

Editorial Board

We are grateful that many colleagues and established researchers from the field of dynamic decision making followed our call to become member of the Editorial Board that will give advice on strategic issues and that support us in building a high-quality outlet for dynamic decision making. Specifically, members of the Editorial Board will assist

in the process of review and quality-control and they will hopefully help to attract interesting papers. Of course, the Editorial Board may undergo substantial changes as the journal develops and over the years to come; new members may join and old members may leave the Editorial Board. We refer the interested reader to our journal website for the current Editorial Board. Although this list is always a work in progress, it already shows the variety of research on dynamic decision making in terms of personal characteristics (senior researchers as well as younger ones; mixed with respect to gender and nationality), research themes (learning, knowledge, uncertainty, risk, failures, culture) and research methods (cognitive modeling, experiments, psychometric assessment). We are happy to have these friends and colleagues around us! Hopefully others will join us in the future, supporting our initiative and helping us to produce a journal that brings together the community by means of interesting research on dynamic decision making.

Conclusion

Just in time for the 40th anniversary of the pioneering work of Dörner (1975), who initiated computer-based research on dynamic decision making in complex environments in Europe, we are glad to present the first issue of the *Journal of Dynamic Decision Making* (JDDM) as an outlet for international research in this field. So, if you have an interesting data set, a good theory, or a convincing simulation study just waiting to get published, get in touch!

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Author contributions: All authors contributed equally to the manuscript.

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