

Adapt or Die: How Watching Others Can Help You to Perform Better*

Felix Meissner, ETHZ and UZH[†]

11th of December 2015

Abstract

Organizations complement experiential learning with social learning in order to optimize their search processes. Watching the activities and performance of other reference organizations that are solving similar problems can stimulate and direct organizations' own explorative activities through heuristics that guide search. With this research project, I aim at improving our understanding of the micro-mechanisms and interactions of direct and social learning from reference organizations in a firm's network. More specific, I investigate how varying degrees of social learning under varying degrees of similarity have an impact on organizational performance. Using a simulation that is based on a modification of the multi-armed bandit model I find the following:

Organizations that complement individual learning with social learning can substantially improve their learning speed and performance in the short run. However, in the long run, organizations that rely too much on watching other organizations will get stuck on lower performance plateaus. This effect is strongly moderated by the heterogeneity among organizations: The more an organization differs from the peers it is watching, the less it can learn from them.

*The author would like to thank Olivia and Stefano for both stimulating and directing the development of this working paper.

[†]felix.meissner@business.uzh.ch

Introduction

The study of organizational search and learning is an important and popular field in organizational theory and strategy research. Learning from search allows organizations to adapt to their environment, better respond to arising problems, take advantage of market opportunities, and increase their competitive advantage (Argote, 2012; Argote and Todorova, 2007; Haunschild, 1993; March and Simon, 1958). To benefit from these opportunities, organizations invest in a variety of different learning activities and approaches (Bingham and Davis, 2012).

Organizations do not only invest in individual search activities to incrementally adjust and improve how a reoccurring problems is addressed (Greve, 2003; March, 1991), but often combine this with social learning from other organizations in their environment that face similar problems (Baum, Li, and Usher, 2000; Miner and Haunschild, 1995; Schwab, 2007). Thereby, organizations observe their own and other firms' past behavior and performance in order to make sense of their past history as a means to direct their future search strategies (March, Sproull, and Tamuz, 1991).

Such social learning takes place in acquisitions (Beckman and Haunschild, 2002; Vermeulen and Barkema, 2001), strategic partnerships and alliances (Borgatti and Cross, 2003; Gulati, 1999; Heimeriks and Duysters, 2007; Inkpen, 1998; Lane and Lubatkin, 1998; Muthusamy and White, 2005) or when another organization's behavior is observed and then imitated (Posen and Chen, 2013). Despite its central role in theories of learning, little research has been conducted on the interaction of direct learning from individual experience and social learning. One of the notable exceptions is Schwab (2007), who investigates this interaction in the baseball setting, an environment that supports social learning through «high levels of industry transparency, organizational homogeneity, and external visibility of the practice» (p. 247). The author explicitly encourages to further investigate how these factors impact organizational learning.

This simulation project aims at improving our understanding of the micro-mechanisms and interactions of direct and social learning from reference organizations in a firm's environment. More specific, we investigate how different degrees of imitating others (by observing them and their performance outcomes) have an impact on organizational performance. Using a simulation that is based on a modification of the multi-armed bandit model we observe the following:

Organizations that complement individual learning with social learning can substantially improve their learning speed and performance in the short run. However, in the long run, organizations that rely too much on watching other organizations will get stuck on lower performance plateaus. This effect is strongly moderated by the heterogeneity among organizations: The more an organization differs from the peers it is watching, the less it can learn from them.

This research outline is structured as follows: After a theoretical conceptualization of social learning, we describe the design of our formal model and thereafter the results from the simulation. Subsequently, we conclude by discussing potential theoretical and managerial implications.

Combining Individual Learning with Social Learning

Individual learning, often also described as experiential learning or direct learning, refers to the ability of an organization to learn from direct performance feedback at the organization level (Schwab, 2007). Such a feedback helps firm to adjust and improve adopted practices incrementally (Greve, 2003; March, 1991). Social or vicarious learning is conceptualized as learning from indirect information and observations of how similar organizations have addressed the same or a related problem (Baum, Li, and Usher, 2000; Miner and Haunschild, 1995).

Both the importance of vicarious as well as direct learning is well-documented within the organizational theory of learning (Baum, Li, and Usher, 2000; Srinivasan, Haunschild, and Grewal, 2007; Terlaak and Gong, 2008). However, these two concepts of learning are rarely looked simultaneously in order to explain their relative performance and possible interaction effects with Schwab (2007) being one of the few notable exceptions.

Social learning permits organizations to learn from others about potential outcomes of alternatives without having to engage in own explorative search activities (Haunschild and Miner, 1997). Promising alternatives can be imitated when searching for better solutions (Csaszar and Siggelkow, 2010; Rivkin, 2001), while potentially harmful activities can be avoided. Thereby, learning from others plays a central role in complementing an organization's direct learning from own explorative search activities and can substantially affect the own decision quality and performance (Beckman and Haunschild, 2002).

Empirical research has found that organizations may imitate successful practices both from firms that have a high degree of similarity (Abrahamson and Rosenkopf, 1993; Reed and DeFillippi, 1990), as well as from firms that differ more substantially in their characteristics from the learning firm (Csaszar and Siggelkow, 2010; Greve, 1998). Such imitation does not mean that practices of others are blindly copied, but rather that they serve as a reference points, indicating which alternatives are more likely to yield higher performance outcomes if compared to randomly selecting and (unknown) choice.

When an organization simultaneously learns from multiple organizations in the network,¹ the potential benefits of social learning may stem from the combination of the following related mechanisms: First, firms learn more quickly in a given period by gaining insights from multiple reference sources (Zander and Kogut, 1995). Second, firms can avoid the costs of experimenting with less attractive alternatives by using the experience of others and directly focus on more promising alternatives (Haunschild and Miner, 1997). Thus, learning from both successful as well as unsuccessful organizations can be important to guide own search behavior. Third, interaction with other firms in their network may enable organizations to reach beyond their existing knowledge stemming from localized search and consider alternatives from more distant contexts that would have been ignored otherwise (Rosenkopf and Almeida, 2003).

Despite numerous research projects on how organizations search for optimal responses to address a problem with a finite number of possible answers, the interplay of different learning

¹ A firm network refers to all reference organizations that can be (i) observed by the respective organization and are then (ii) used as reference points to guide own behavior. A firm may look at a rather proximate network of highly similar firms that have highly similar characteristics (i.e. similar performance landscapes or a high level of homogeneity). However, a firm may also look beyond highly similar firms and (also) take rather distant, and thus rather heterogeneous organizations as a reference point to guide own behavior.

processes is still poorly understood (Bingham and Davis, 2012). The subsequently described simulation aims at addressing this gap.

Model

We use the canonical multi-armed bandit (Denrell and March, 2001; March, 1991) as a formal model to investigate how a reoccurring problem is addressed when an organization combines insights from direct search activities with the knowledge gained from observing other organizations that are dealing with a similar problem. In order to create performance landscapes with different degrees of similarity among organizations, we create for each simulation various several layers of bandits with 10 arms. Then, we randomly attribute to each organization a sub-set of the total layers and assign a certain weight to each layer which then determines the performance outcome of the respective arm.

As an example, we created 5 layers of bandits with 10 arms each, so a 5by10 matrix. Then, we randomly assigned 2 layers to each of the organizations, such that one organization receives their performance by weighting the randomly assigned layers with multipliers (such as taking the sum of 0.8-times the 2nd layer plus 0.64-times of the 4th layer of the respective arm and ignoring the other layers (i.e. ignoring layers 1,3 and 5).

Each period, each organization (or agent) chooses the option that is subjectively believed to yield the maximum performance outcome, or, with probability of 5%, randomly chooses an option (epsilon-greedy behavior, see Lave and March 1975). Subsequently, the organization updates their beliefs about the chosen alternative based on the received performance feedback, which is somewhat blurry (noise). To determine which option is believed to yield the highest outcome, the organization draws on two belief maps. The first one tracks direct performance feedbacks that were received through individual, experiential learning. The second belief map tracks performance feedbacks that are only indirectly observed from watching others. The speed learning and updating can be altered (alpha and beta). In the subsequent experiments, the probability of how often an organization relies on social learning (or alternatively individual learning) was altered and outcomes were compared (delta indicating the percentage to which social learning was preferred over individual learning).

Simulation and Results

Baseline model: High inter-organizational similarities. Our baseline model shows that firms learn to respond to reoccurring problems over time. Figure 1 shows the baseline model for learning from other organizations that are almost identical (left part (a)), or at least highly identical (right part (b)). Both graphs show that social learning leads to much quicker performance improvements and higher average performance over the first 200 periods. As expected, the dark line for individual learning stays the same, irrespective of inter-organizational differences, since such differences would not affect individual learning.

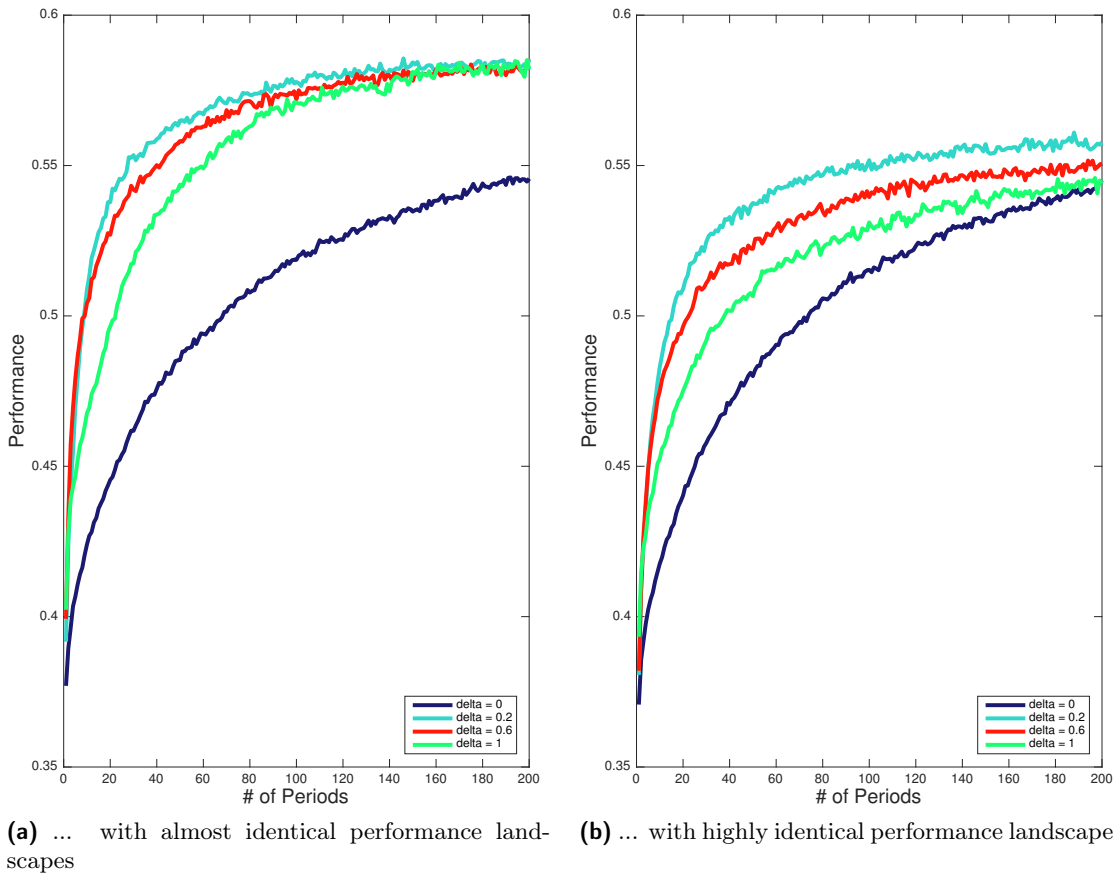


Figure 1: Different learning modes when learning from peers and the performance development over time (with δ indicating the probability of preferring social over individual learning)

Extension: Learning from organizations that are different. Figure 2 shows how different learning modes affect performance when learning from other organizations that differs substantially from the own organization. Social learning provides still benefits by improving performance in the short run. However, in the long run (>200 periods), social learning yields lower performance levels than individual learning. The benefits of imitating others by looking at their behavior erodes with increasingly different performance landscapes.

Discussion and Conclusion

Our results show that information about choices and performance levels which are achieved by other organizations supports the process of (re-)shaping an organization's beliefs and experimentation with choices. Thereby, it stimulates search and helps to overcome structural inertia (Hannan and Freeman, 1984). The results of the simulation have the potential to clarify some of the theoretical assumptions of organizational search and explain empirically observed performance differences between firms (Audia and Brion, 2007; Greve, 1998; Ketchen Jr. and Palmer, 1999; March, 1988; March, 1996; March and Simon, 1958; Selten, 1998; Singh, 1986; Wiseman and Bromiley, 1996). The comparison of different degrees of social learning shows that organizations may benefit from combining social search (at moderate levels) with individual search (Bingham and Davis, 2012).

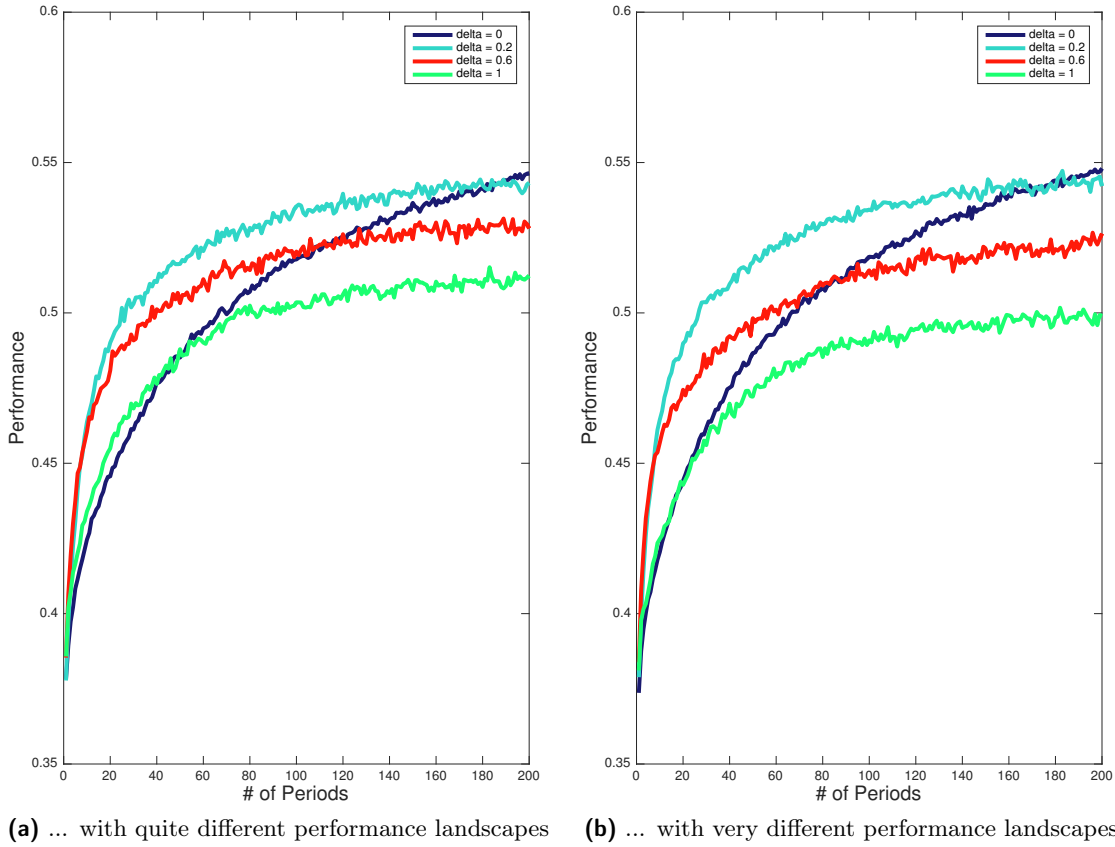


Figure 2: Different learning modes when learning from organizations with different characteristics and the performance development over time (with delta indicating the probability of preferring social over individual learning)

Practitioners need to bear in mind that with increasing heterogeneity within the industry and performance implications that are increasingly dissimilar between organizations, just looking at solutions that worked (on average) best at other companies may be detrimental to improving own firm performance: Under such conditions, the performance may serve as a benchmark to adjust own aspiration levels, however may not pinpoint the own organization to the respective solution.

References

- Abrahamson, Eric and Lori Rosenkopf (1993). "Institutional and Competitive Bandwagons: Using Mathematical Modeling as a Tool to Explore Innovation Diffusion". In: *Academy of Management Review* 18.3, pp. 487–517.
- Argote, Linda (2012). "Organizational Learning Curves: An Overview". In: *Organizational Learning: Creating, Retaining and Transferring Knowledge*. Ed. by Linda Argote. Kluwer Academic Publishers.
- Argote, Linda and Gergana Todorova (2007). "Organizational Learning". In: *International Review of Industrial and Organizational Psychology* 22, pp. 193–234.
- Audia, Pino G. and Sebastien Brion (2007). "Reluctant to change: Self-enhancing responses to diverging performance measures." In: *Organizational Behavior & Human Decision Processes* 102.2, pp. 255–269.
- Baum, Joel A. C., Stan Xiao Li, and John M. Usher (2000). "Making the Next Move: How Experiential and Vicarious Learning Shape the Locations of Chains' Acquisitions". In: *Administrative Science Quarterly* 45.4, pp. 766–801.
- Beckman, Christine M. and Pamela R. Haunschild (2002). "Network Learning: The Effects of Partners' Heterogeneity of Experience on Corporate Acquisitions". In: *Administrative Science Quarterly* 47.1, pp. 92–124.
- Bingham, Christopher B. and Jason P. Davis (2012). "Learning Sequences: Their Existence, Effect, and Evolution". In: *Academy of Management Journal* 55.3, pp. 611–641.
- Borgatti, Stephen P. and Rob Cross (2003). "A Relational View of Information Seeking and Learning in Social Networks". In: *Management Science* 49.4, pp. 432–445.
- Csaszar, Felipe A and Nicolaj Siggelkow (2010). "How Much to Copy? Determinants of Effective Imitation Breadth". In: *Organization Science* 21.3, pp. 661–676.
- Denrell, Jerker and James G. March (2001). "Adaptation as Information Restriction: The Hot Stove Effect". In: *Organization Science* 12.5, pp. 523–538.
- Greve, Henrich R. (1998). "Performance, Aspirations and Risky Organizational Change". In: *Administrative Science Quarterly* 43.1, pp. 58–86.
- (2003). *Organizational Learning From Performance Feedback. A Behavioral Perspective on Innovation and Change*. Cambridge: Cambridge University Press.
- Gulati, Ranjay (1999). "Network location and learning: the influence of network resources and firm capabilities on alliance formation". In: *Strategic Management Journal* 20.5, pp. 397–420.
- Hannan, Michael T. and John Freeman (1984). "Structural Inertia and Organizational Change". In: *American Sociological Review* 49.2, pp. 149–164.
- Haunschild, Pamela R. (1993). "Interorganizational Imitation: The Impact of Interlocks on Corporate Acquisition Activity". In: *Administrative Science Quarterly* 38.4, pp. 564–592.
- Haunschild, Pamela R. and Anne S. Miner (1997). "Modes of Interorganizational Imitation: The Effects of Outcome Salience and Uncertainty." In: *Administrative Science Quarterly* 42.3, pp. 472–500.
- Heimeriks, Koen H. and Geert Duysters (2007). "Alliance Capability as a Mediator Between Experience and Alliance Performance: An Empirical Investigation into the Alliance Capability Development Process*." In: *Journal of Management Studies* 44.1, pp. 25–49.
- Inkpen, Andrew C. (1998). "Learning and knowledge acquisition through international strategic alliances". In: *Academy of Management Executive* 12.4, pp. 69–80.
- Ketchen Jr., David J. and Timothy B. Palmer (1999). "Strategic Responses to Poor Organizational Performance: A Test of Competing Perspectives". In: *Journal of Management* 25.5, pp. 683–706.
- Lane, Peter J. and Michael Lubatkin (1998). "Relative absorptive capacity and interorganizational learning". In: *Strategic Management Journal* 19.5, pp. 461–477.
- Lave, Charles A. and James G. March (1975). *An Introduction to Models in the Social Sciences*. San Francisco: Harper & Row.
- March, James G. (1988). "Variable risk preferences and adaptive aspirations". In: *Journal of Economic Behavior & Organization* 9.1, pp. 5–24.
- (1991). "Exploration and Exploitation in Organizational Learning". In: *Organization Science* 2.1, pp. 71–87.
- (1996). "Learning to be Risk Averse". In: *Psychological Review* 103.2, pp. 309–319.
- March, James G. and Herbert A. Simon (1958). *Organizations*. New York: Wiley.
- March, James G., Lee S. Sproull, and Michal Tamuz (1991). "Learning From Samples of One or Fewer". In: *Organization Science* 2.1, pp. 1–13.
- Miner, Anne S. and Pamela R. Haunschild (1995). "Population-level learning". In: *Research in Organizational Behavior*. Stamford: JAI Press, pp. 115–166.
- Muthusamy, Senthil K. and Margaret A. White (2005). "Learning and Knowledge Transfer in Strategic Alliances: A Social Exchange View". In: *Organization Studies* 26.3, pp. 415–441.
- Posen, Hart E. and John S. Chen (2013). "An Advantage of Newness: Vicarious Learning Despite Limited Absorptive Capacity". In: *Organization Science* Articles in Advance, pp. 1–16.
- Reed, Richard and Robert J. DeFillippi (1990). "Causal Ambiguity, Barriers to Imitation, and Sustainable Competitive Advantage". In: *Academy of Management Review* 15.1, pp. 88–102.

-
- Rivkin, Jan W. (2001). "Reproducing Knowledge: Replication Without Imitation at Moderate Complexity." In: *Organization Science* 12.3, pp. 274–293.
- Rosenkopf, Lori and Paul Almeida (2003). "Overcoming Local Search Through Alliances and Mobility". In: *Management Science* 49.6, pp. 751–766.
- Schwab, Andreas (2007). "Incremental Organizational Learning from Multilevel Information Sources: Evidence for Cross-Level Interactions". In: *Organization Science* 18.2, pp. 233–251.
- Selten, Reinhard (1998). "Aspiration Adaptation Theory". In: *Journal of Mathematical Psychology* 42.2–3, pp. 191–214.
- Singh, Jitendra V. (1986). "Performance, Slack, and Risk Taking in Organizational Decision Making". In: *Academy of Management Journal* 29.3, pp. 562–585.
- Srinivasan, Raji, Pamela Haunschild, and Rajdeep Grewal (2007). "Vicarious Learning in New Product Introductions in the Early Years of a Converging Market". English. In: *Management Science* 53.1, pp. 16–28.
- Terlaak, Ann and Yan Gong (2008). "Vicarious Learning and Inferential Accuracy in Adoption Processes". In: *Academy of Management Review* 33.4, pp. 846–868.
- Vermeulen, Freek and Harry Barkema (2001). "Learning through Acquisitions". In: *The Academy of Management Journal* 44.3, pp. 457–476.
- Wiseman, Robert M. and Philip Bromiley (1996). "Toward a Model of Risk in Declining Organizations: An Empirical Examination of Risk, Performance and Decline". In: *Organization Science* 7.5, pp. 524–543.
- Zander, Udo and Bruce Kogut (1995). "Knowledge and the Speed of the Transfer and Imitation of Organizational Capabilities: An Empirical Test". In: *Organization Science* 6.1, pp. 76–92.