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Abstract
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Keywords
Performance-Outcome Learning, Project-Venture Formation, Industry-Wide Broadcasting

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LEARNING FROM BROADCASTS OF PROJECT PARTICIPATION: THE SELECTION OF SECOND-TIER ACTORS DURING PROJECT VENTURE FORMATION IN THE MOVIE INDUSTRY, 1931-1940

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ABSTRACT

The disintegration of project ventures after task completion creates challenges for the retention and transfer of knowledge to future projects. Consequently, it is not clear to what degree and under what conditions learning across projects occurs in project-venture settings. This study argues that the industry-wide broadcasting of project participants' identities plays a key role in supporting performance-outcome learning during the formation of project-venture teams. In a stratified random sample of 233 U.S. movie projects between 1931-1940, performance-outcome learning affected the selection of second-tier participants. Such learning, however, was conditional on the industry-level availability of both project participant information and project performance for prior projects. Industry-wide broadcasting of participants' identities by individual projects in the form of on-screen credits was sufficient to enable this form of performance outcome learning in the movie industry. The emergence of the internet has created similar industry-wide broadcasting opportunities for other project venture systems.

Keywords: **Performance-Outcome Learning, Project-Venture Formation, Industry-Wide Broadcasting**

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Project ventures have recently received increasing research attention as industries seem to migrate toward more flexible, network-based forms of organization (Jones and Lichtenstein 2008; Sydow et al. 2004). A project venture is a temporary entity that combines several participants to accomplish a single predetermined short-term task (Schwab and Miner 2008). When that short-term task is completed, the project team disbands. The resulting continuous sequence of formation and disintegration is a key component of the adaptive flexibility often attributed to project systems (Piore and Sabel 1984; Storper 1989). Each venture formation provides opportunities to select the "best" participants (Jones et al. 1997; Lampel et al. 2000; Li and Rowley 2002; Perretti and Negro 2007b). Performance outcomes of prior projects offer potentially valuable information for identifying high-quality participants. Learning from projects, however, faces some substantial challenges (Bechky 2006; Jones et al. 1998; Schwab 2006; Taylor and Greve 2006). For example, the primary learning unit (the project team) tends to disband upon project task completion and thus cannot serve as a vehicle to transfer knowledge to future projects. Instead, any substantive learning from prior project experiences requires knowledge transfers that involve entities at other levels of analysis (Grabher 2004; Schwab and Miner 2008). In spite of the general recognition of the importance of venture formation decisions, systematic empirical investigations of related learning activities are sorely missing.

This study outlines a conditional model for when and how performance outcomes of prior projects influence whether a specific project participant is selected for a future project. Thus, it investigates performance-outcome learning, which occurs when an entity repeats an activity that has led to positive outcomes and avoids activities that did not (Argote 1999; Greve 2003). Traditional learning models assume that the same organizational entity observes performance outcomes and selectively repeats activities (Cyert and March 1963; March and Olsen 1976). If project participants disband after project task completion, however, the project team cannot transfer knowledge across time to future projects. Thus, performance-outcome learning in project-venture systems depends on activities that involve both lower levels of analysis (project participants) and higher levels of analysis (permanent project-governing organizations or industry-level communication processes) (Grabher 2004; Jones 1996; Mezias and

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Kuperman 2001; Schwab 2006). Schwab and Miner (2008) reported support for performance-outcome learning in their study of repeated collaboration in movie projects. They speculated that industry transparency and associated population-level communication processes represent important scope conditions for their findings, but data availability prevented them from capturing their impact. The current paper follows up on their speculation and investigates the learning implications of a specific population-level communication practice in the same empirical context: U.S. movie projects.

Researchers have long argued that industry-level information transfers can enable or inhibit organizational learning (Abrahamson and Fairchild 1999; Miner and Haunschild 1995). In early studies, the effects of broad industry-level communication activities and their learning implications received some attention in studies of innovation diffusion (Rogers 1983) and industry evolution (Nelson and Winter 1982). More recently, industry-level communication processes have received systematic research attention in the context of population-level learning (Miner and Anderson 1999; Miner et al. 2003; Miner and Haunschild 1995). Related empirical studies have focused on learning by permanent organizations, such as airlines (Haunschild and Sullivan 2002), railroads (Baum and Dahlin 2007), cement companies (Anderson 1999), universities (Kraatz 1998), and banks (Kim and Miner 2007), but these research streams have not investigated learning in project settings. In addition, the empirical research has focused primarily either on formally regulated, direct and interactive communication activities via board interlocks, alliance relationships, research consortia, and business associations (Baum et al. 2000; Haunschild and Beckman 1998; Haunschild and Sullivan 2002; Kraatz 1998), or on the simple observation of competitors (Greve 1996; Kim and Miner 2007). Thus, the present study extends prior research on performance-outcome learning by investigating a different type of population-level communication: decentralized 'broadcasting' of information. Broadcasting is defined here as non-targeted population-wide dissemination of information (Burns and Wholey 1993; Rogers 1983). Beyond contributions to our theoretical understanding of outcome learning, the findings of this study provide useful information for practitioners who must meet the challenges posed by learning in project-venture systems.

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Related hypotheses are tested for project ventures in the U.S. movie industry. During the 1930s, some movie projects started to use on-screen credits to broadcast the identities of lower-level actors. The existence of complete records for these decentralized broadcasts presents a unique opportunity for the empirical investigation of related learning effects. To foreshadow results, on-screen credits supported performance-outcome learning related to the selection of participants by future project ventures. The systematic, positive impact of such broadcasts represents an important finding, considering the general challenges of learning across project ventures, the limited attention often paid to lower-level project participants, and the availability of alternative information sources (e.g., decision-makers' personal social networks) that could have superseded or dominated any effects of identity broadcasts.

This study contributes to emergent research focused on organizational learning in project venture settings (Baum et al. 2005; Grabher 2004; Mezias and Kuperman 2001; Schwab and Miner 2008), especially during the crucial stage of venture formation. From a broader perspective, the study contributes to the current development of multilevel models of organizational learning that account for industry-level information transfer on organizational learning processes and outcomes (Crossan et al. 1999; Genus and Coles 2008; Miner and Anderson 1999; Schwab 2007). The reported findings also have important implications for management practice, both because of the increasing prevalence of project ventures in many industries (Sydow et al. 2004) as well as new opportunities for efficient, decentralized industry-wide broadcasting using internet technology (Harrington and Bielby 1995).

THEORETICAL BACKGROUND

Project Ventures

Project ventures are an increasingly important organizational form (Jones and Lichtenstein 2008; Sydow et al. 2004; Yli-Renko et al. 2001). A project venture involves the entrepreneurial identification of business opportunities and the creation of a temporary organizational entity to exploit them (Schwab 2006; Shane and Venkataraman 2000). This temporary organizational entity combines several individuals to complete a specific task within a short-term time frame and limited budget (DeFillippi 2002; Lundin and Soederholm 1995; Sydow et al. 2004). Construction projects, for example, combine architects,

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carpenters, plumbers, electricians, and other participants to erect a building based on a predetermined construction plan, budget, and time frame (Jones et al. 1998). Movie projects combine producers, actors, directors, cinematographers, and other participants to create a visual entertainment product within several months based on an agreed-upon script and budget (DeFillippi and Arthur 1998; Jones 1996; Perretti and Negro 2007a).

A key characteristic of project ventures is the short-term nature of the formal relationships that bind participants. In a single-project collaboration, the formal relationships end upon completion of the project. This implies the need to form a new project team to address future tasks. Venture formation creates opportunities to select different participants in order to address changes in the project task or in participants' capabilities (Schwab 2006; Storper 1989). Project-venture research has primarily investigated related flexibility advantages, such as studies of regional collaborative clusters (Lazerson 1995; Richardson 1996; Storper 1989) or R&D projects (Gann and Salter 2000; Keegan and Turner 2002), but recent research highlights substantial learning challenges for project ventures, especially regarding knowledge transfer across projects (Grabher 2004; Schwab and Miner 2008). Consequently, this study adopts a balanced perspective and accounts for both learning opportunities and challenges related to venture formation decisions.

Venture Formation

Venture formation has received systematic research attention in the entrepreneurship literature (Carter et al. 1996; Kamm et al. 1993; Sexton and Landstrom 2000). Micro-level research has focused on personality characteristics, psychological processes, and personal prior experiences that lead individuals to recognize opportunities and to create ventures to exploit them (Baron 1998; Shane 2000; Shaver and Scott 1991). Macro-level research has linked venture formation to large-scale sociological and economic phenomena, such as immigration (Aldrich and Waldinger 1990) and capital availability (Hart and Denison 1987). Both research streams have focused primarily on the antecedents of venture formation and treated decision processes during venture formation as a black box (Forbes et al. 2006).

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More detailed studies conceptualize venture formation as a multi-stage process (Kamm and Nurick 1993). Early stages involve the identification of business opportunities and a core group of project leaders who will govern later stages, including the selection and hiring of lower-level participants (Baker et al. 2003). The present study investigates whether and how performance-outcome learning affects these later hiring decisions. The learning units are emerging project ventures engaged in the process of hiring lower-level participants to complete their venture team. Based on evidence that quality of the venture team is considered a key success factor (Clarysse and Moray 2004; Ruef et al. 2003), a better understanding of venture team formation promises to enhance a venture's chances of success (Forbes et al. 2006). Related research also promises important contributions to the general organizational behavior literature, which has paid surprisingly limited attention to team formation processes (Hinds et al. 2000).

Organizational Learning in Hybrid-Project Systems

Building on a long history of behavior learning studies (Skinner 1938; Thorndike 1911), management research has developed fine-grained performance-outcome learning models at the individual, group, and organizational levels (Argote 1999; Greve 2003). Learning across project ventures, however, implies some unique learning challenges not covered by these well-established learning models. As previously noted, for example, established models of performance-outcome learning assume that the same entity observes outcomes, interprets them, repeats activities that produced good outcomes, and avoids activities that generated negative outcomes (Cyert and March 1963; March and Olsen 1976). In project systems, however, the project team disbands after completing its task and the project venture ceases to exist as a formal entity. Thus, the project venture, by definition, cannot preserve any discovered knowledge or act upon it in the future. This creates challenges for performance-outcome learning, because the learning cycle has to be completed by entities at lower levels (project participants) as well as by entities at higher levels (the permanent organizations that govern projects). Consequently, a multilevel conceptualization is crucial for understanding learning processes in project-venture settings (Grabher 2004; Schwab and Miner 2008).

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Beyond the difficulty inherent in transferring knowledge to future projects, control over the formation of future project ventures can also hinder completion of the learning cycle in project settings. In such stand-alone systems as IPO syndicates (Li and Rowley 2002), collaborations among independent service contractors (Jones et al. 1998), and contemporary independent movie productions (Baker and Faulkner 1991; Jones 1996), participants decide whether or not to join a project venture. At the other extreme, such as internal R&D projects (Hansen 1999; Katz 1982; Van de Ven and Polley 1992) and internal short-term taskforces (Edmondson et al. 2001), projects can be fully embedded in a higher-level permanent organization that determines what projects are initiated and who joins them.

The present study focuses on the important middle ground where neither full independence nor total organizational control dominates the venture formation processes. In a *hybrid-project system* (Schwab and Miner 2008), formation of at least some projects is governed by superordinate permanent organizations with varying degrees of control over the selection of project participants. Hybrid systems can lean toward the stand-alone end of the continuum, such as open-source software projects, inter-university faculty research teams, or grass-roots political movements(Fleming and Sorenson 2004; Jones et al. 1998). Examples for more centrally controlled settings include software projects with a dominating partner (e.g., Microsoft) or political campaign teams that operate under strong party-level governance. Because most prior research has focused either on stand-alone projects or on fully-embedded projects, hybrid project systems represent an important emerging field of research.

In a related study, Schwab and Miner (2008) showed the relevance of performance-outcome learning across projects for repeating collaboration with the same project participants in hybrid-project systems. Because that research focused exclusively on core project participants (such as well-known movie stars, directors, and producers). it could not investigate the effects of broadcasting project participants' identity information on performance-outcome learning and project venture formation. These effects are the focus of the present study.

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Industry-Wide Broadcasting and Performance-Outcome Learning

The management literature has long argued that industry-level communication, such as broadcasting, provides key inputs for organizational learning processes (Miner and Haunschild 1995; Nelson and Winter 1982). Broadcasting represents a non-targeted communication activity that disseminates information to an entire population of recipients (Burns and Wholey 1993; Rogers 1983). Empirical studies have supported the important role of broadcasting, for example, for the diffusion of technologies or products (Mansfield 1961; Rogers 1983) or the building of reputation (Rao 1994). Studies of industry evolution have shown how population-level communication can support the adoption of innovations that produce positive effects at the organization and industry levels (Nelson and Winter 1982). Such communication, however, has also been associated with decreasing organizational heterogeneity in populations due to the promotion of bandwagon effects (Abrahamson 1991; Abrahamson and Rosenkopf 1993), the development of strong macro-cultures (Abrahamson and Fombrun 1994), and the support for general isomorphic tendencies (DiMaggio and Powell 1983). Reduced heterogeneity among industry members tends to constrain an industry's ability to respond to unanticipated environmental changes (Anderson 1999; Levinthal and March 1993; Miner and Haunschild 1995). The support for both positive and negative effects advocates careful attention be paid to population-level communication activities, such as broadcasting, as a potential contingency factor that affects how learning processes unfold in industries.

Project-venture research has primarily focused on and supported direct knowledge transfers between projects (Edmondson et al. 2001; Katz 1982; Prencipe and Tell 2001). A few industry case studies, however, have described the potentially important role of industry-level communication in project settings (Grabher 2004; Low and Abrahamson 1997; Mezias and Kuperman 2001). The frequent disintegration and formation of project ventures creates both the opportunity and the need to select participants for future collaborations. The broadcasting of participant information increases industry-level transparency, which facilitates identifying potential new partners and supports related vicarious learning (Jones et al. 1997; Schwab 2006). Collaborations with new partners and vicarious learning are

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considered important sources for innovation and adaptation in project-venture systems (Baum et al. 2005; Gann and Salter 2000; Storper 1989). The empirical studies of venture team formation, however, have focused only at core project participants, such as lead actors and directors in movie projects (Faulkner and Anderson 1987; Schwab and Miner 2008) or investment banks in underwriting syndicates (Baum et al. 2005; Li and Rowley 2002). Industry-wide broadcasting through public announcements of participants in underwriting syndicates in the banking industry or through on-screen credits in the movie industry can lead to high visibility of project participation. Because the prior project involvement of core participants was generally known in these settings, prior empirical studies were not able to investigate learning effects related to the industry-wide broadcasting of participant-identity information, which is the explicit focus of this study.

HYPOTHESES

Participant-Identity Broadcasting and Performance-Outcome Learning

The formation of new ventures creates an opportunity to use information from prior projects to inform the selection of participants for the new project. For example, project-governing entities may decide to collaborate again with participants whom they know from prior collaborations. Such familiarity-based selection processes suggest momentum effects (Amburgey and Miner 1992; Kelly and Amburgey 1991) that can lead to path-dependent repeated collaborations between the same project participants (Schwab and Miner 2008). Further, those in control of venture formation may seek future collaborations with participants from previously successful projects and avoid collaborations with participants from failed projects. More fine-grained models of performance-outcome learning have introduced attribution and salience-based cognitive processes to outline how performance information can affect organizational decision processes.

Attribution represents a cognitive sense-making process in which a learning entity links a performance outcome to a specific causal action (Bandura 1977). A producer, for example, may conclude that the success of a movie project was the result of the quality of the project's team leader (director) and try to hire him or her for a future project. Attribution processes are a key element in many models of

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organizational learning and have been broadly supported in the empirical learning literature (Argote 1999).

Salience (the probability of a project being observed and remembered) represents another way in which a prior project's success can affect venture formation decisions. From its beginnings, the organizational decision-making and learning research has shown convincingly how organizations and the individuals who govern them are strongly influenced by the limitations of their attention capabilities (Cyert and March 1963; Simon 1955). Exposed to more information than they can process, individuals, groups, and organizations are forced to be selective in their attention (Kahneman et al. 1982; Ocasio 1997). For example, in industries with a high number of projects, learning entities will not be able to observe all projects. A project's success, therefore, can enhance its salience. A successful software program, for example, has a broad user base and long product lifetime, both of which increase the probability that the project venture that created it will be recognized and remembered. In the motion picture industry, a successful movie is shown in more theaters and has a longer run per theater, which increases the probability that its project team members (.e.g., lead actors) will be recognized and remembered.

In contrast, less successful projects tend to draw less external attention because their outcomes do not succeed in the marketplace. Some unsuccessful projects do not produce any marketable outcomes, which often completely obscures them from external observation. Thus, project failures frequently receive only limited attention even if the failure experience deserves attention because it can offer important lessons (Denrell 2003; Kim and Miner 2007). If a project's success increases its salience, then it increases its potential to influence future decisions—including decisions on whom to hire for future projects. In contrast to attribution, salience effects are less dependent on conscious information processing by learners. Thus, salience effects can be very subtle and can occur without a decision-maker consciously recognizing their effect.

For performance-outcome learning to influence the selection of future project participants, information about a previous project's performance and its participants is required. In hybrid project

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systems, both participants and the governing organization can retain knowledge from prior projects. In addition, they can learn vicariously by observing the projects of others. In some settings, reliable project performance information is difficult to obtain, either because of general problems with measuring performance or because of efforts to hide such information from competitors (Liebeskind 1997). In other settings, project performance is widely known, as when movie and music industry publications broadcast the market success of project outcomes or when reporting requirements force projects to disclose performance information (e.g., IPOs).

In a related study of venture formation in the movie industry, Schwab and Miner (2008) reported support for performance-outcome learning when the same first-tier project participants collaborated in subsequent projects. First-tier project participants were known throughout the industry because of the on-screen credits they always received. In contrast, the present study focuses on second-tier participants in movie projects. Second-tier participants did not always receive on-screen credits. This created a setting where a project's performance was generally known but not all participants' identities were actively communicated. This constellation represents an opportunity to investigate empirically the role of participant-identity broadcasting on performance-outcome learning. As outlined above, learning theory suggests that decision-makers for a future project will select lower-level participants who were engaged in successful prior projects. The availability of information about the participants of prior projects facilitates such performance-outcome learning. Consequently, performance effects should be stronger when the identities of a project's participants have been broadcast. Considering the outlined learning challenges in project settings, however, we cannot assume that such performance-outcome learning occurs or, if it does, to what degree it is affected by identity broadcasting. Thus, the following hypothesis represents an important step toward a better understanding of performance-outcome learning during project venture formation.

H1: Project success has a stronger positive effect on the selection of lower-level participants whose previous participation has been broadcast compared to project participants whose previous participation has not been broadcast.

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H1 assumes a universal positive effect of participant-identity broadcasting for performance-outcome learning. The information broadcast, however, may not be equally valuable to all entities governing the participant selection process. For example, movie directors are likely to remember the identity of actors in their own prior projects or be able to obtain this information from project records or other project participants. Further, project insiders' access to direct information about participants should limit the relative impact of overall project performance information on their future selection decisions. In contrast, broadcasted identity information is much more likely to affect selection decisions of project outsiders who try to learn vicariously about potential participants by observing successful projects of others. Although a project outsider may also be able to obtain information about participants via other information sources, such as social relationships to project insiders, broadcasting of participants' identities creates a unique opportunity for an empirical test of the proposed positive effects of identity broadcasting on performance-outcome learning.

These considerations suggest that the hypothesized moderating effect of identity broadcasting on performance-outcome learning should also hold if the analyses are restricted to future projects with different project-governing entities. This more restricted model also protects against potential direct positive effects of project success on the ability of decision-makers to reemploy second-tier participants from their own prior projects. The producer of a successful movie project, for example, is likely to make another movie and to influence the selection of other participants for the new project. Related endogeneity issues can complicate the interpretation of results but are not an issue when restricting analyses to future projects with different project-governing entities. These arguments suggest testing the following formal hypothesis:

H 2: For future projects with different project-governing entities, project success has a stronger positive effect on the selection of lower-level participants whose previous participation has been broadcast compared to project participants whose previous participation has not been broadcast.

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EMPIRICAL SETTING

Movie Production

The U.S. movie industry during the 1930s represented a hybrid- project system. Each movie project was an act of entrepreneurial opportunity identification and exploitation to create a novel audio-visual entertainment product. Project ventures combined a set of specialized participants with clearly defined task domains, and "relationships between worker and producer, director and actor, and actor and producer usually only last[ed] for the duration of the picture." (Powdermaker 1950, p. 30) If repeated collaboration across projects occurred, it typically reunited only some of the participants and tended to be interrupted by intermittent projects with other partners (Schwab and Miner 2008; Zuckerman 2004). Thus, the U.S. movie industry represented a highly dynamic project system even during the studio era of the 1930s, which is generally considered more stable compared to earlier and later periods (Schatz 1988).

The U.S. movie industry offers unusually rich and detailed historical records based on studio archives, oral histories, and detailed reports in several competing trade journals. In addition, a wealth of scholarly research is available that outlines industry features, including production processes (Perretti and Negro 2007a; Powdermaker 1950; Shamsie et al. 2004) and employment patterns (Baker and Faulkner 1991; Bielby and Bielby 1996; Bielby and Bielby 1999; Faulkner and Anderson 1987; Jones 1996; Zuckerman et al. 2003). Studies have also documented the industry's evolution over time (Mezias and Mezias 2000; Miller and Shamsie 1996; Robins 1993; Storper 1989) and highlighted the need to base data interpretation on an understanding of the industry context during the specific period studied.

Compared to today, for example, studios during the 1930s played a far more important role in the formation and execution of movie projects. Studios required producers and directors to execute a movie based on a detailed script within a predetermined budget and time frame (Powdermaker 1950; Schatz 1988). MGM, Warner Brothers, and other major studios paid close attention to their star actors, who played lead roles (star system) (Powdermaker, 1950; Rosten1941). These studios preferred to employ star actors whose long-term option contracts allowed their studio to assign them to specific movie projects (Powdermaker 1950, pp. 113, 191, 214, 210; Schatz 1988; Weinstein 1998). Studio executives were

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deeply involved in the assignment of core participants to specific movie projects and carefully managed the audience appeal of their star actors (Schatz 1988).

In contrast, selection of second-tier actors, who are the focus of this investigation, was the responsibility of producers and directors, who were assisted by casting directors (Friedman 1937). Second-tier actors represented a labor pool distinctly separate from first-tier actors and stars. Movement between these two labor markets was rare; upward mobility was especially limited, even though it received a lot of attention when it did occur (Powdermaker 1950). Second-tier actors under studio contract were at no time sufficient to execute a studio's multiple simultaneous movie productions. Thus, all studios employed numerous additional actors on a project-by-project basis, drawing on the external labor market and on loans from other studios (Friedman 1937).

As previously noted, Schwab and Miner (2008) reported support for the general relevance of performance-outcome learning for the selection of participants for U.S. movie projects during the 1930s. Consistent with their hypotheses, they found that project success led to more frequent repeated collaborations between the same contributors (performance-outcome learning), but this effect was contingent on project task similarity, prior joint collaborations, and control over project participants. With its focus only on repeated collaboration, that study did not investigate broader performance-outcome learning related to an individual participant's general chances of selection for a future project. More important, their exclusive focus on widely known first-tier participants prevented an investigation of the potential moderating effects of industry-level communication processes, such as the broadcasting of project participants' identities. Examination of this potential contingency factor is the focus of this study.

On-Screen Credit Practices

Artist credits have been used in cultural industries for centuries (Lang and Lang 1988). Surprisingly, names of project participants were not advertised in the early movie industry; on-screen credits were an exception (Bowser 1990). Policy at the initially dominating Biograph studio (1895-1928), for example, forbade supplying names of actors or other staff to outsiders (Canby 1971; Rosten 1941, p. 282) so as not to weaken the studio's control over successful project participants. A similar rationale

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governed the music industry where Motown and other studios withheld the names of studio musicians (Justman 2002). Likewise, identities of R&D engineers are often kept secret from competitors in the pharmaceutical industry (Liebeskind 1997). Around 1910, however, movie studios yielded to external demands and discovered the advertising value of providing exhibitors with photos and information about lead actors: "The veil of anonymity has been gradually turned aside and the public is getting to know these moving picture players." (*Moving Picture World* 1910, November 12, p. 1099)

By the 1920s, all movie projects granted on-screen credits to their first-tier or core participants; on-screen credits communicated names and functions of project participants to anyone who saw the movie. Consequently, lead actors, directors, producers, head cinematographers, art directors, head editors, and lead writers always received on-screen credits (Balio 1993; King-Hanson and Gevinson 1993). Credit details "determining the order in which stars were billed in credits and advertising, as well as the size of their names in print" (Davis 1993, p. 140) were typically part of the contract negotiations with the project participant or his agent by the 1930s (Warner Brothers' Legal Files 1933). In the case of talent loans between studios, credit agreements were part of the loan contract (Schatz 1994, 1998):

> 26 October 1935: Edmund Gwenn is borrowed from MGM for Bonnyfeather [...]. The main problem, according to Arnow, is billing, since MGM wants 'very big billing in view of the fact that he was starred in a picture by them'. [...] Billing problems are ironed out by a compromise. Gwenn gets joint second male billing (third overall) with Rains on printed publicity, but is billed fifth, below Donald Woods and Anita Louise, but above Rains, on the actual print." (Anthony Adverse, WB 1936 in Roddick, 1983, p. 41)

Because on-screen credit agreements were typically part of the contract negotiations, they preceded movie production. Actual on-screen credits had to be added to the movie before its release. This inherent temporal sequence prevented any effects of project performance (box-office revenue) on credit decisions. Preserved movies and studio documents provide a comprehensive record of on-screen credits that captures these decentralized broadcasting activities for each project in this industry.

During the 1930s, some movie projects started to grant more on-screen credits to lower-level participants, such as camera assistants, make-up personnel, and second-tier actors. The second-tier cast members are the focus of this study because of the reliable documentation of their project participation

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based on studio cast lists and their on-screen appearance. In contrast to the Screen Writers guild, the Screen Actors Guild once it was recognized by the major studios in 1937 did not engage in regulating on-screen credits (Prindle 1988). Anecdotal information reveals that second-tier participants considered on-screen credits desirable (Bordwell et al. 1985, pp. 312-313; Clarke 1932; Lawrence 1929), as illustrated in this example from contemporary industry anthropology: "She feels successful, since she has succeeded in getting one credit, and she is optimistically waiting for the chance to get more." (Powdermaker 1950, p. 138)

Beyond the satisfaction associated with the personal recognition an on-screen credit provided, credits may also have offered benefits for future employment. Roddick (1983, p. 40), in his meticulous documentation of the production of *Anthony Adverse* at Warner Brothers during 1935, describes the following incident related to the selection of a participant during late stages of venture formation:

> "27 August 1935: Wallis [producer] tells Arnow [casting director] to find out who played the little boy in Dark Angel, but not to make the inquiry directly through Goldwyn."

It is obvious how an on-screen credit for the “little boy” would facilitate signing him up for *Anthony Adverse*. This exemplar also highlights how on-screen credits allowed circumventing competitors, in this case another studio, by directly dealing with potential project participants.

The causal arguments in this paper do not assume that on-screen credits were the *only* or even the *primary* information source influencing cast selection. Descriptions of the movie industry illustrate that casting decisions were influenced by information from several sources, including the social networks of the decision makers. Given alternative information sources and considering the general challenges associated with performance-outcome learning in project settings, it is unclear to what degree identity broadcasting affected performance-outcome learning (assuming such learning occurred at all). Therefore, the introduced hypotheses propose only that on-screen credits increased the likelihood that a successful prior project affected participant selection decisions. The introduced anecdotal information illustrates the general feasibility of the hypothesized learning processes, but does not speak to any systematic effects of prior project performance on the selection of project participants. The U.S. movie projects during the

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1930s, however, represent a well-suited setting for the quantitative empirical investigation of systematic effects of identity broadcasting on performance-outcome learning during later stages of project-venture formation.

METHODOLOGY

Sample

U.S. movie projects (n=233) were randomly selected from weekly movie production announcements in the *Hollywood Reporter* (1930-present) and stratified by year (1931 to 1940). Earlier projects were excluded because of disruptive effects related to the introduction of sound. Projects after 1940 were excluded because of the disruptive effects of the United States' entry into World War II. This study focuses on high-budget projects (A-movies) because their archival documentation offers comprehensive and reliable measures. In spite of some overlap, low-budget movie production (B-movies) was so distinctly different that it is generally considered a separate production system (Izod 1988; Taves 1993). A-movie projects were identified based on a production time of more than three weeks, employment of major acting stars, inclusion of at least ten cast members, and a standard production team configuration.

Variables of Interest

Future projects. The number of future projects during the two years following the release of a movie was determined for one randomly selected second-tier cast member who received an on-screen credit (mean=10.43; S.D.=8.68) and one randomly selected second-tier cast member who did not receive an on-screen credit (mean=14.77; S.D.=14.21). Movies had to have a cast member of each type to be included in the sample. All cast members who did not receive star credit in the movie's advertisement were considered second-tier cast members. Queries of the Internet Movie Database (www.imdb.com), studio records, trade journal publications, and such reliable secondary sources as the American Film Institute (King-Hanson and Gevinson 1993) provided cast lists for the sampled movie projects. The cast lists also indicated which actors had received on-screen credits. Prior research of employment patterns in the movie industry for the 1930s has supported three-year time windows for future employment effects

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for core participants, such as lead actors (Zuckerman 2004). The lower salience of second-tier actors and their larger number of projects per year suggested consideration of a shorter, two-year time window. Additional analyses revealed that reported results are even robust for a one-year time window, which indicates the direct and short-term nature of performance outcome learning in this highly dynamic industry.

For the sampled movie projects, the aggregated number of future projects for credited cast members differs significantly from the aggregated number of future projects for non-credited cast members (Δ mean=4.33; $p<.001$; two-tailed). Additional measures were created to capture only future projects with a different studio, a different director, and a different producer. These measures are the dependent variables for more focused investigation of future venture formations by project outsiders. Table 1A lists all independent variables.

Box-office revenue. Movie projects were for-profit business venture with box-office revenue as their primary performance objective (Glancy 1995). During the 1930s, of course, additional revenue opportunities related to merchandising, TV, video, or DVD release were not available (Stuart 1982). For project participants, therefore, "winning in the Hollywood gamble mean[t] being connected with a movie, which is a box-office hit (Powdermaker 1950, p. 289)." Box-office revenue information was collected from contemporary trade journals that surveyed operators of major first-run movie theaters throughout the U.S. (*Boxoffice* 1932-1977; *Boxoffice Barometer* 1937-1951). Respondents reported box-office revenues in percent of the expected revenues of an average movie. First-run theaters comprised only about 25 percent of total movie-theater seating capacity, but they accounted for 50-75 percent of domestic box-office revenues (Balio 1987; Huettig 1985). In addition, first-run box-office success created demand from second-run and third-run movie theaters (Huettig 1985). The mean performance of movies in the sample is 104.64 percent (S.D.=18.79), which indicates a slight positive response bias. For a subset of 81 movies, revenue information from preserved studio accounting ledgers is available (Glancy 1992, 1995). The accounting data correlates strongly with the box-office proxy used ($r=.76$; $p<.001$). Table 1B lists all independent variables.

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Control Variables

Second-tier cast. Several variables capture characteristics of the randomly selected cast members, such as their age, gender, country of birth, and number of films in which they participated during the four years preceding the sampled movie project. These variables account for key differences between individual cast members that may have affected their chances of being selected for a future movie project.

First-tier project participants. An additional set of control variables accounts for differences in the experience, recognition, and social capital of sampled project's core participants. The corresponding two variables capture the aggregated number of prior movies (mean=288.65; S.D.=163.51) and the number of prior Academy Award nominations (mean=3.87; S.D.=3.79) associated with the project's first-tier contributors (producer, director, two leading actors, cinematographer, art director, and editor). In related research, Schwab and Miner (2008) reported that repeated prior collaborations between first-tier participants can affect project salience and success attributions. Thus, the repeated collaboration measure from that study was included in the present study as a third control variable to capture the aggregated number of prior dyadic collaborations between core contributors during the prior four years (mean=16.57; S.D.=14.56).

Project characteristics. Larger and longer projects may in general be more salient and perceived as more prestigious. Thus, all models control for differences in the number of production days (mean=46.27; S.D.=22.73), cast size (mean=35.53; S.D.=22.38), and number of star cast members (mean=0.98; S.D.=0.94).

Fixed effects. Dummy variables control for potential fixed effects based on year of production, source of box-office estimates, movie genre (drama, musical, and comedy), serial movies, and color technology. Table 1C provides a detailed description of all control variables.

Insert Tables 1A-C About Here

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Analyses

The dependent variables in this study are count variables with means different from zero (mean range: 7.48 to 25.20) that are right skewed, but not zero-inflated. Consequently, hypotheses were tested using negative binomial regression.

The learning entities in this study are future projects in the later stages of venture formation, when second-tier participants are selected. This study investigates whether performance-outcome learning from prior projects is affected by the broadcasting of participants' identities. The research design enables observation of how a large pool of future projects learned from the projects sampled in this study. Given the dichotomous nature of on-screen credits, the study uses a split-group design to compare effect for second-tier cast with and without on-screen credits from the same sampled project. These split-group results facilitate the intuitive interpretation of findings. Two-tailed significance tests are reported for all regression coefficients in the tables. One-tailed tests are calculated for regression coefficient differences in the text consistent with the specific directional nature of the hypotheses. Discrete changes in the predicted number of future projects are estimated based one standard deviation changes around the mean of independent variables. Confidence intervals for these changes are calculated based on the delta method (Long and Freese 2006).

RESULTS

Table 2 reports the means, standard deviations, and correlation coefficients for all variables. Among the independent and control variables, only one correlation between two control variables is above .40. This indicates only limited multicollinearity concerns. All models report robust standard errors that account for potential heteroscedasticity.

Insert Table 2 About Here

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Participant-Identity Broadcasting and Performance-Outcome Learning (H1)

H1 proposed that a project participant's on-screen credits moderate performance-outcome learning by future projects. Model 1 in Table 3 probes for a general future employment effect of project performance (box-office revenue) for all studied second-tier cast members combined. Results show that project performance had no significant overall effect on the hiring decision by future projects (b=0.0027; p=.190; two-tailed). Model 2 in Table 3 focuses only on future employment effects for second-tier cast *with* on-screen credits and reports a significant positive effect of project performance (b=0.0065; p=.942; two-tailed). Model 3 performs the same analysis for second-tier cast *without* on-screen credits and shows no significant effect of project performance on future employment (b= 0.0003; p=.943; two-tailed). Wald tests for the significance of the regression coefficient difference were performed based on population estimates from each of the two sub-models (Judge et al. 1985). These tests indicate that the difference between the two regression coefficients is in the predicted direction (Δb=.0062) and significant (Model 2: Chi^2=6.29; p=.006; Model 3: Chi^2=3.20; p=.037; both one-tailed). Model 4 in Table 3 performs the same analysis of future employment effects for second-tier cast with on-screen credits as Model 2, but without controls for individual characteristics of second-tier cast members without on-screen credit. Model 5 performs the same analysis as Model 3, but without controls for individual characteristics of second-tier cast with on-screen credits. Again project performance had a significantly stronger positive effect for the cast members with on-screen credits (Δb=.0063; Model 4: Chi^2=6.69; p=.005; Model 5: Chi^2=3.69; p=.027; both one-tailed). This pattern of results supports H1. Project performance has a stronger positive effect on the hiring decision by future projects of project participants whose project participation was previously broadcast; in fact, project performance exerted *only* a positive effect for second-tier cast with on-screen credits. For average cast members with on-screen credits, a one standard deviation change around the mean of box-office revenue increased the number of future projects during the following two years by about one -- holding all other variables at their respective mean (Model 4: $\Delta E(y|x)/\Delta x = 1.081$;

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95% CI = 0.261 to 1.900). This discrete change represents a 10 percent increase in the number of future projects.

Insert Table 3 About Here

Future Project Ventures Governed by Project Outsiders (H2)

H2 predicted that the positive effect of participant-identity broadcasting on performance-based participant selection also applies to future projects that are governed by project outsiders (i.e., studios, producers, or directors different from those who governed the sampled movie project). As outlined earlier, project insiders can rely to a great extent upon their personal knowledge when deciding whether to employ the same participants for a future venture. By definition, project outsiders lack such direct information. Prior research has identified movie production during the 1930s as a hybrid-project system where both permanent organizations (studios) and specific project participants (i.e., producers and directors) can significantly influence the selection of participants during venture formation (Schwab and Miner 2008). These considerations suggest that the hypothesized moderating effects of identity broadcasting on performance-based selection should hold even when analyses are restricted to learning by future ventures controlled by different project-governing entities.

Different producing studio. Models 1 and 2 in Table 4 replicate the models that differentiated between performance effects for cast participants with and without on-screen credits in Table 3 (Models 4 and 5). However this time, analyses are restricted to future projects governed by a different studio. Model 1 and Model 2 show that Box-Office Revenue has no significant effect for cast with on-screen credits (b=.0042; p=.236; two-tailed) or cast without on-screen credits (b= -.0016; p=.664; two-tailed). For cast with on-screen credits, a one standard deviation change around the mean of box-office revenue increased the number of future projects with a different director only by 0.5 and the 95% confidence interval includes negative values (Model 1: $\Delta E(y|x)/\Delta x = 0.481$; 95% CI = -0.317 to 1.280; all other variable at mean). The difference between the two regression coefficients, however, is in the predicted direction ($\Delta b=.0058$) and significant in Model 1 ($Chi^2=2.69$; $p<.05$; one-tailed), as well as marginally significant in

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Model 2 (Chi^2=2.44; p=.059; one-tailed). Results moderately support H2; identity broadcasting has a positive moderating effect on the performance-outcome learning of future projects governed by a different studio.

Different director. Models 3 and 4 in Table 4 report results for future ventures governed by a different director. For cast with on-screen credits, Box-Office Revenue had a significant positive effect (Model 3: b=.0060; p=.017; two-tailed) and no significant effect for cast without on-screen credits (Model 4: b= -.0003; p=.918; two-tailed). The difference between the two regression coefficients (Δb=.0057) is significant and in the predicted direction (Model 3: Chi^2=6.39; p=.006; Model 4: Chi^2=3.71; p=.027; both one-tailed). Only for cast with on-screen credits, a one standard deviation change around the mean of box-office revenue increased the number of future projects with a different director by about one (Model 3: $\Delta E(y|x)/\Delta x = 1.001$; 95% CI = 0.180 to 1.822; all other variable at mean). This discrete change represents a 10 percent increase in the number of future projects with a different director for these cast members. Again, these results are consistent with the hypothesized positive moderating effect of identity broadcasting (H2).

Different producer. Models 5 and 6 in Table 4 report results for future ventures with a different producer. Box-Office Revenue had a significant positive effect for cast with on-screen credits (Model 5: b=.0055; p=.036; two-tailed) and no significant effect for cast without on-screen credits (Model 6: b= -.0004; p=.893; two-tailed). The difference between the two regression coefficients (Δb=.0063) is significant and in the hypothesized direction (Model 5: Chi^2=5.14; p=.012; Model 6: Chi^2=3.16; p=.038; both one-tailed). Only for cast with on-screen credits, a one standard deviation change around the mean of box-office revenue increased the number of future projects with a different producer by about 0.9 (Model 5: $\Delta E(y|x)/\Delta x = 0.874$; 95% CI = 0.055 to 1.694; all other variable at mean). This discrete change represents a nine percent increase in the number of future projects with a different producer. These results again support the moderating effect proposed in H2.

Insert Table 4 About Here

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Robustness Tests

Analyses were also performed using different time windows for future venture formation effects and for additional studio fixed-effect controls. These analyses supported the robustness of reported findings. Additional analyses also showed that simple performance effects of a prior project are not sufficient to explain the more elaborate and complex selection of first-tier actors.[1]

DISCUSSION

Project-Venture Formation and Moderated Performance-Outcome Learning

The importance of venture formation has been generally recognized, especially in the entrepreneurship literature. However, the processes driving the formation of ventures, such as the selection of venture participants, remain poorly understood. This study has investigated venture formation in a context where it is especially important because it occurs so frequently: project-venture systems.

The patterns of participant selection by project ventures reported in this paper support the notion of performance-outcome learning for hybrid-project systems. Performance-based learning about the value of lower-level participants occurred, but the challenges associated with disintegration of the primary learning entity (the project venture) caused learning from earlier projects to be contingent on the industry-wide availability of both project performance and participant identity information. The hypotheses only proposed that identity broadcasting would strengthen the positive effects of project performance. In this empirical setting, however, results indicate that project performance affected only participants whose identities had been broadcast.

Learning theory suggests that the availability of participant identity information supports vicarious performance-outcome learning (Schwab and Miner 2008; Schwab 2006). Actually, the prevalence of future collaborations with a different studio (3.2 to 1), different director (59 to 1), and different producer (21 to 1) in this empirical setting suggests that vicarious learning *dominated* the

[1] Results of additional analyses available upon request.

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observed performance-outcome learning effects. Thus, additional analyses focused only on learning by future ventures managed by different project-governing entities. Results were consistent with the argument that participant-identity information supports performance-outcome learning by project outsiders (H2). Findings also indicated that vicarious performance-outcome learning occurred only for participants whose identities had been broadcast.

This study extends emergent research that has investigated the important role of performance-outcome learning in project-venture settings (Li and Rowley 2002; Parker 2006; Schwab and Miner 2008). Schwab and Miner (2008) have also shown that, in addition to the relevance of performance-outcome learning for future project formation, such learning in project settings is contingent on control over project participants, project task similarities, and repeated prior collaborations. That study, however, did not investigate the contingency effects of participant-identity broadcasting, focusing instead exclusively on core participants whose project participation was known industry-wide. The present study exploits the same project setting for its empirical tests, but focuses on second-tier project participants whose identities were not always known industry-wide. Consequently, the present study's finding of strong support for the moderating effects of identity broadcasting represents an important addition to the literature and identifies a key boundary condition: the industry-level availability of both project participant and project performance information for prior projects. These results also contribute to project-based learning by revealing that decentralized identity broadcasting by individual projects can create sufficient levels of transparency to enable performance-outcome learning in settings where project performance is already known throughout the industry.

Participant-Identity Broadcasting: The Power to Block Vicarious Learning

Vicarious learning models tend to focus on the learning-enabling effects of increased industry transparency, such as corporate interlocks (Davis 1991; Haunschild and Beckman 1998) or government mandated accident reporting that supports the development and diffusion of management practices (Baum and Dahlin 2007; Haunschild and Sullivan 2002). How opportunities to reduce industry transparency can be used to constrain learning activities has in contrast received only limited conceptual

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and empirical attention (Porter Liebeskind 1996). In the movie-project setting, the decision not to broadcast the identities of second-tier participants may have been an effective way to prevent performance-outcome learning by project outsiders. Not broadcasting participant identities creates information asymmetries that facilitate learning from direct project performance and direct project participant information for future venture formation. These arguments highlight the important—but often ignored—role of power in learning processes.

Direct knowledge about valuable participants from own prior projects leads to future collaborations with the same participants only if the project-governing entities possess the necessary power to initiate them. Such power can include direct control over project participants (e.g., long-term employment contracts), the ability to attract participants (e.g., superior compensation), or a participant's lack of alternative employment opportunities. The latter is likely influenced by the broadcasting of participant identities, the lack of which hides unnamed participants from the larger pool of future projects run by other project-governing entities. Thus, abstaining from such communication activities offers an information advantage for the project-governing entities of a focal project because it facilitates attempts of current employers to secure the services of participants from a successful project for their own future projects.

The outlined speculations are consistent with organizational learning research that has long recognized information asymmetries as an important source of power (Grant 1996; Porter Liebeskind 1996), and with arguments by early organizational learning scholars who explicitly acknowledged the potentially strong impact of power on learning processes (Cyert and March 1963). Subsequent empirical research, however, has typically not included power as an explanatory variable. Considering the well-documented prevalence of power differences and their behavioral impact in organizational settings (Salancik and Pfeffer 1974), failure to include this factor seriously limits the organizational learning literature—a limitation that researchers have started to recognize and to address. Schwab and Miner (2008), for example, showed how institutional control over core project participants in the form of long-term employment contracts can block vicarious outcome learning by other project-governing

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organizations (studios). Conceptual arguments in the present study highlight information asymmetries as a different source of power that might be equally effective in blocking vicarious learning related to lower-level participants and less transparent industry settings. These speculations should motivate future research to capture more directly the power effects of information asymmetries and their impact on learning processes.

Broadcast Participant-Identity: Pros and Cons

The positive effect of identity broadcasting on vicarious learning begs the follow-up question: why would projects devote substantial efforts to broadcast information that is potentially valuable to competitors? If broadcasting the identities of project participants helps project outsiders to identify valuable talent, it diminishes the information advantages of project insiders. In addition, the expenses associated with credit negotiations and credit communication directly reduced a project's profits. The observed active broadcasting behavior also contrasts with reports from other industries (Grant 1996; Justman 2002; Porter Liebeskind 1996) and from earlier periods in the same industry (Bowser 1990; Canby 1971) that describe how organizations intentionally guard project-participant information that they consider potentially valuable to competitors.

The available anecdotal information from the movie industry in the 1930s documents intense competition for talent between project-governing entities (e.g., studios; Powdermaker 1950). Thus, altruistic motivations to facilitate participant-selection processes for everyone in the industry would appear to be an unlikely explanation in this setting. Perhaps institutional norms guided broadcasting behavior. Strong formal industry norms, for example, regulated on-screen credits for writers (Davis 1993; Schwartz 1982), and strong informal industry norms supported on-screen credits for core participants (Roddick 1983). Anecdotal information, however, does not indicate similar formal or informal norms for lower-level cast. Even when the actors finally reached a collective bargaining agreement with the major studios in 1937, the focus was on establishing norms to improve general work conditions (e.g., minimum pay, work hours per day) — not on regulating credit practices (Prindle 1988;

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Ross 1947). The movie industry today is clearly different, with on-screen credits rolling for every cast and non-cast participant.

Beyond institutional explanations, future investigations should consider explanations based on direct positive performance effects for the broadcasted project. If identity broadcasting generates positive future employment effects for a project participant, and if these effects are contingent on overall project performance (as supported in this study), then the knowledge that one is to receive an on-screen credit should provide additional extrinsic motivation to contribute to the project's success (assuming calculative behavior; Jones et al. 1997; Williamson 1993). As a consequence, projects that broadcast participant identities to motivate project participants.

In addition, on-screen credits may have the potential for positive intrinsic motivational effects. Recent empirical research reports that intrinsic motivation often plays an important role in the context of creative tasks (Amabile 1997) and personal identification with a venture (Ashforth and Mael 1989; Dutton et al. 1994; Smidts et al. 2001; Wasserman 2006). These arguments would appear to be borne out for lower-level participants in movie projects, as noted in the following contemporary observations:

> "There is the excitement--particularly for little people--of being associated with something big, different and glamorous, something 'new every day.'" (Powdermaker 1950, p. 38)
>
> "They [lower-level participants] may boast of their proximity to the gods, bask in reflected glory, or cherish their identification with the fabled world of the screen." (Rosten 1941, p. 33)

If identity broadcasting is personally desirable to project participants for extrinsic or intrinsic reasons, this creates opportunities for a project-governing entity to offer an on-screen credit instead of other forms of compensation. Lower payroll costs, of course, reflect positively on a project's bottom line. These direct gains may sufficiently motivate a studio to favor the potential advantage associated with an on-screen credit for a current project over the less certain potential advantage of not broadcasting participants' identities for future projects.

Currently, we still know very little about what motivates the broadcasting of participant identities in project settings. Beyond institutional explanations, the outlined potential extrinsic and intrinsic motivational effects represent promising candidates for enlightenment. Considering the outlined

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implications of identity broadcasting for organizational learning, understanding the underlying processes that support or constrain such behavior represents an important field for future research.

Adaptability of Hybrid-Project Systems

This study's support for the moderating effects of broadcasting activities and performance-outcome learning across projects has important implications for long-term industry adaptability. Early studies of project-based production have argued for their general adaptability advantages (Christopherson and Storper 1989; Storper and Christopherson 1987), but more recent empirical research has started to systematically investigate learning difficulties posed by project systems (Grabher 2004; Schwab and Miner 2008; Shamsie et al. 2004). Specifically, disbanding of the primary learning unit (project venture) after task completion creates challenges for the transfer of knowledge to future ventures (Schwab 2006; Schwab and Miner 2008). Consequently, even such fundamental learning processes as on-going cycles of performance-outcome learning may not occur in the straightforward and uniform fashion assumed in the general learning literature. Instead, emerging research evidence suggests that learning in project systems is contingent on a variety of factors, including similarity of project tasks, embedded relationships between first-tier participants, and control over project participants (Schwab and Miner 2008; Shamsie et al. 2004).

The current study introduces another key contingency factor: participant-identity broadcasting. Academic research of population-level learning has supported the important role of vicarious learning for industry adaptability (Baum and Ingram 1998; Miner and Anderson 1999; Miner and Haunschild 1995). So far, related empirical research has focused nearly exclusively on learning by permanent organizations that learn, in turn, from the experiences of other permanent organizations. The present study expands that research to temporary organizations and a stronger focus on the characteristics of the organizations from which others learn. Still, the multiple contingencies of performance-outcome learning suggest the emergence of slower and more inconsistent industry-level adaptation distinctly different from the image of highly adaptable project systems portrayed by the early literature.

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Considerations for Future Research

External validity. The increasing prevalence of project ventures, both in traditional settings (e.g., R&D projects) and emerging settings (e.g., innovative regional clusters, global outsourcing) presents a wide variety of settings for which the reported findings promise to be relevant. Any generalization of these findings, however, will require careful attention to the characteristics of the context under study. For example, the U.S. studio era's combination of high levels of industry transparency, few powerful project-governing organizations, and long history of project-based production may represent boundary conditions that enabled the moderated performance-outcome learning observed in this setting. Consequently, project ventures in construction (Jones et al. 1998), software development (Grabher 2004; Saxenian 1994), and military task forces represent promising future empirical settings because they meet several—but not all—of the outlined potential boundary conditions.

Internal validity. The research design of the current study offers strong protection against effects based on differences between projects that provided the learning input in the form of participants' identities and project performance information. First, the statistical models compare effects for a project participant with and a project participant without on-screen credit for each of the randomly selected projects. Second, the study statistically controls for other relevant differences between the sampled projects, such as project size, quality of first-tier participants, and project visibility. Finally, the study controls for demographic differences between the randomly sampled second-tier cast members (age, gender, country of birth). A logical next step would be studies that randomly sample a set of second-tier actors and compare future employment offers for the same actors across different projects in which they received or did not receive on-screen credit. Such a research design would offer weaker protection against project differences but would provide superior protection for differences in participants' characteristics. Consistent results across both research designs would further strengthen our confidence in the reported effects. By tracking the project participation of a set of actors over time, such investigations would further contribute to our multilevel understanding of project-venture systems as well as link

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findings to related career development and mobility research in project-dominated settings (Broschak 2004; Jones 1996; Phillips 2002).

Learning entities. Finally, future research is encouraged to focus more directly on ventures in the formation stage. In spite of the obvious challenges associated with studying emerging organizations, this remains a most promising future research direction. For example, the present study introduced both salience and attribution as underlying causal processes for the observed learning effects. The findings in this study should motivate and guide future research that captures attribution and salience processes during venture formation more directly. Such studies promise not only support for the theory-based arguments outlined in the present study, but also allow evaluation of the relative impact of either process. Both the salience and the attribution-based arguments outlined in this paper represent mechanisms through which prior project success improves one's chances to be selected for a future project without any assumption that such a selection improves the performance of any future project. Recent learning research has convincingly shown that a tendency toward superstitious learning can lead to a behavior orientation on performance feedback, when such an orientation actually does not improve future performance (Greve 2003; Schwab 2007). Consequently, future research focus on projects engaged in participant selection to investigate whether related performance-outcome learning enhances project performance.

CONCLUSIONS

In the project-venture literature, researchers have repeatedly argued for the importance of learning from prior project experiences for the long-term evolution and success of entrepreneurial communities (Grabher 2004; Low and Abrahamson 1997; Mezias and Kuperman 2001). This study contributes to that research stream by highlighting how broadcasting participant-identity information supports the performance-based selection of participants by future projects—an important finding, considering the learning challenges associated with project ventures and considering the availability of multiple other sources of information that could have substituted or dominated any broadcasting effects.

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This study contributes to the current development of more comprehensive contingency models of learning in the project-venture literature (Grabher 2004; Schwab and Miner 2008) and the general organizational learning literature. At the same time, the study has direct implications for management practice. It suggests to policymakers and entrepreneurs dealing with project-based ventures to explore whether and how broadcasting behavior can be utilized to support learning across projects, especially when contemplating new opportunities for industry-wide broadcasting based on internet technology. The study also highlights potential learning trade-offs that project systems must balance to reap the advantages that broadcasting provides: increased industry-level vicarious learning by project outsiders versus potential limited motivation and ability of project insiders to benefit from prior project experiences when selecting participants for their own future projects. Thus, broadcasting behavior may create information asymmetries with implications for organizational power and control that deserve future research attention.

Future investigations can utilize the information provided from these study results to justify and guide their development of more comprehensive multilevel learning models for project-venture systems and the empirical investigation of their long-term adaptability implications. Such research will move the organizational learning literature further toward the empirically more challenging study of learning in highly dynamic settings that involve emerging and temporary rather than established permanent organizational entities. Considering the increasing prevalence of flexible organizational forms, such as project ventures, this shift in research focus is overdue.

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Table 1
Description of Variables

Variable	Description	Data Source
A. Dependent Variables		
1 Future Projects Second-Tier Cast	Number of future projects for a credited second-tier cast member and a not-credited second-tier cast member during the two years after project completion	IMDb
2 Future Projects Credited Second-Tier Cast	Number of future projects for a credited second-tier cast member during the two years after project completion	IMDb
3 Future Projects Credited Second-Tier Cast Different Studio	Number of future projects with a different project-governing studio for a credited second-tier cast member during the two years after project completion	IMDb
4 Future Projects Credited Second-Tier Cast Different Director	Number of future projects with a different project-governing director for a credited second-tier cast member during the two years after project completion	IMDb
5 Future Projects Credited Second-Tier Cast Different Producer	Number of future projects with a different project-governing producer for a credited second-tier cast member during the two years after project completion	IMDb
6 Future Projects Non-Credited Second-Tier Cast	Number of future projects for a non-credited second-tier cast member during the two years after project completion	IMDb
7 Future Projects Non-Credited Second-Tier Cast Different Studio	Number of future projects with a different project-governing studio for a non-credited second-tier cast member during the two years after project completion	IMDb
8 Future Projects Non-Credited Second-Tier Cast Different Director	Number of future projects with a different project-governing director for a non-credited second-tier cast member during the two years after project completion	IMDb
9 Future Projects Non-Credited Second-Tier Cast Different Producer	Number of future projects with a different project-governing producer for a non-credited second-tier cast member during the two years after project completion	IMDb
B. Independent Variables		
10 Box-Office Revenue	Movie box-office rating by theater operators	*Boxoffice*, *Boxoffice Barometer*, *Motion Picture Herald*
C. Control Variables		
11 Credited Second-Tier Cast Age	Age of credited second-tier cast member	IMDb
12 Credited Second-Tier Cast Gender	Gender of credited second-tier cast member (male = 1)	IMDb
13 Credited Second-Tier Cast Foreign-UK	Credited second-tier cast member with United Kingdom as place of birth (UK-born = 1)	IMDb
14 Credited Second-Tier Cast Foreign-Non-UK	Credited second-tier cast member with foreign country other than United Kingdom as place of birth (dummy code = 1)	IMDb
15 Credited Second-Tier Cast Prior Films	Number of prior films of a credited second-tier cast member during the four prior years	IMDb
16 Non-Credited Second-Tier Cast Age	Age of non-credited second-tier cast member	IMDb
17 Non-Credited Second-Tier Cast Gender	Gender of non-credited second-tier cast member (male = 1)	IMDb
18 Non-Credited Second-Tier Cast Foreign-UK	Non-credited second-tier cast member with United Kingdom as place of birth (UK-born = 1)	IMDb
19 Non-Credited Second-Tier Cast Foreign-Non-UK	Non-credited second-tier cast member with foreign country other than United Kingdom as place of birth (dummy code = 1)	IMDb
20 Non-Credited Second-Tier Cast Prior Films	Number of prior films of a non-credited second-tier cast member during the four prior years	IMDb
21 Project Duration (#Days)	Number of days between the beginning and the end of filming scenes	AFI, *Hollywood Reporter*
22 Cast Size	Number of cast members	AFI
23 Star Cast Members	Number cast members whose name were used to promote the movie in printed advertisements	AFI
24 Core Contributors' Prior Nominations	Number of prior Academy of Motion Picture nominations of core contributors (producer, director, leading actor, leading actress, camera person, art director, editor)	IMDb
25 Core Contributors' Prior Films	Number of prior movies of core contributors (producer, director, leading actor, leading actress, camera person, art director, editor)	IMDb
26 Core Contributors' Repeated Collaborations	Number of prior dyadic collaborations between core project participants (producer, director, leading actor, leading actress, camera person, art director, editor) during the same and four preceding years	IMDb
27 Color (Dummy)	Movie using color technology	IMDb
28 Serial (Dummy)	Movie continues characters and story developed in a prior movie	IMDb
29 Genre Comedy (Dummy)	Movie project classified as comedy	IMDb
30 Genre Musical (Dummy)	Movie project classified as musical	IMDb
31 Box-Office Source 1 (Dummy)	Boxoffice Barometer (1937-1951) as source of box-office ratings by theater operators	IMDb
32 Box-Office Source 2 (Dummy)	Boxoffice (1932-1935) as source of box-office ratings by theater operators	IMDb

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TABLE 2

Means, Standard Deviations, and Correlations for Dependent and Independent Variables

Variable	Mean	S D	Min	Max	1	2	3	4	5	6	7	8	9
1. Future Projects Second-Tier Cast	25.20	17.35	0	83	1.000								
2. Future Projects Credited Second-Tier Cast	10.43	8.68	0	54	0.579 ***	1.000							
3. Future Projects Credited Second-Tier Cast Different Studio	7.48	7.65	0	43	0.530 ***	0.894 ***	1.000						
4. Future Projects Credited Second-Tier Cast Different Director	10.24	8.56	0	53	0.580 ***	0.999 ***	0.901 ***	1.000					
5. Future Projects Credited Second-Tier Cast Different Producer	9.84	8.38	0	53	0.577 ***	0.988 ***	0.917 ***	0.989 ***	1.000				
6. Future Projects Non-Credited Second-Tier Cast	14.77	14.21	0	62	0.867 ***	0.095	0.101	0.098	0.100	1.000			
7. Future Projects Non-Credited Second-Tier Cast Different Studio	11.71	12.78	0	60	0.835 ***	0.120 +	0.128 +	0.123 +	0.131 *	0.945 ***	1.000		
8. Future Projects Non-Credited Second-Tier Cast Different Director	14.54	14.11	0	61	0.866 ***	0.094	0.100	0.097	0.100	0.999 ***	0.949 ***	1.000	
9. Future Projects Non-Credited Second-Tier Cast Different Producer	14.20	13.93	0	62	0.854 ***	0.088	0.091	0.091	0.096	0.989 ***	0.964 ***	0.989 ***	1.000
10. Box-Office Revenue	104.64	18.79	45	180	-0.109 +	0.004	-0.022	-0.002	-0.008	-0.135 *	-0.145 *	-0.135 *	-0.128 +
11. Credited Second-Tier Cast Age	39.76	13.60	2	75	0.130 *	0.243 ***	0.299 ***	0.245 ***	0.252 ***	0.010	0.043	0.008	0.011
12. Credited Second-Tier Cast Gender	0.69	0.46	0	1	0.134 *	0.257 ***	0.219 ***	0.254 ***	0.250 ***	0.007	0.024	0.004	-0.006
13. Credited Second-Tier Cast Foreign-UK	0.14	0.35	0	1	-0.006	0.022	0.042	0.021	0.015	-0.020	-0.072	-0.023	-0.047
14. Credited Second-Tier Cast Foreign-Non-UK	0.15	0.36	0	1	-0.151 *	-0.146 *	-0.156 *	-0.148 *	-0.144 *	-0.095	-0.108	-0.095	-0.093
15. Credited Second-Tier Cast Prior Films	21.29	17.21	0	103	0.307 ***	0.451 ***	0.425 ***	0.454 ***	0.451 ***	0.100	0.134 *	0.098	0.102
16. Non-Credited Second-Tier Cast Age	43.28	13.50	3	76	0.042	-0.038	-0.033	-0.040	-0.037	0.074	0.148 *	0.078	0.098
17. Non-Credited Second-Tier Cast Gender	0.75	0.43	0	1	0.197 **	-0.010	-0.032	-0.008	-0.015	0.246 ***	0.223 ***	0.250 ***	0.239 ***
18. Non-Credited Second-Tier Cast Foreign-UK	0.08	0.24	0	1	-0.011	0.028	0.072	0.031	0.026	-0.030	-0.005	-0.030	-0.024
19. Non-Credited Second-Tier Cast Foreign-Non-UK	0.16	0.34	0	1	-0.098	-0.006	0.010	-0.006	-0.008	-0.115 +	-0.102	-0.116 +	-0.103
20. Non-Credited Second-Tier Cast Prior Films	26.14	28.17	0	132	0.527 ***	-0.049	-0.068	-0.051	-0.047	0.672 ***	0.650 ***	0.672 ***	0.675 ***
21. Project Duration (#Days)	46.27	22.73	21	212	-0.114 +	-0.119 +	-0.102	-0.120 +	-0.117 +	-0.066	-0.080	-0.065	-0.066
22. Cast Size	35.53	22.38	10	130	-0.073	-0.011	-0.004	-0.012	-0.005	-0.082	-0.066	-0.078	-0.074
23. Star Cast Members	0.98	0.94	0	3	-0.088	-0.035	-0.010	-0.030	-0.027	-0.086	-0.096	-0.086	-0.075
24. Core Contributors' Prior Nominations	3.87	3.79	0	17	-0.134 *	-0.122 +	-0.149 *	-0.120 +	-0.111 +	-0.089	-0.095	-0.087	-0.081
25. Core Contributors' Prior Films	288.65	163.51	0	789	-0.098	0.008	-0.048	0.008	0.010	-0.124 +	-0.148 *	-0.123 +	-0.130 *
26. Core Contributors' Repeated Collaborations	16.57	14.56	0	87	0.003	0.063	0.064	0.055	0.035	-0.035	-0.035	-0.039	-0.063
27. Color (Dummy)	0.02	0.15	0	1	-0.050	-0.090	-0.056	-0.094	-0.089	-0.006	-0.085	-0.018	-0.051
28. Serial (Dummy)	0.04	0.19	0	1	0.041	0.080	0.002	0.075	0.054	0.002	0.019	0.005	0.005
29. Genre Comedy (Dummy)	0.24	0.43	0	1	-0.006	0.035	-0.005	0.035	0.026	-0.029	-0.024	-0.030	-0.030
30. Genre Musical (Dummy)	0.20	0.40	0	1	-0.112 +	-0.171 **	-0.167 *	-0.171 **	-0.163 *	-0.033	-0.005	-0.034	-0.024
31. Box-Office Source 1 (Dummy)	0.06	0.25	0	1	0.020	0.056	0.082	0.058	0.064	-0.009	0.006	-0.009	-0.004
32. Box-Office Source 2 (Dummy)	0.39	0.49	0	1	0.168 *	0.142 *	0.155 *	0.144 *	0.139 *	0.118 +	0.146 *	0.120 +	0.133 *

Two-tailed tests: † p < .10; * p < .05; ** p < .01; *** p < .001; n = 233

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TABLE 2 (cont.)

Means, Standard Deviations, and Correlations for Dependent and Independent Variables

Variable	10	11	12	13	14	15	16	17	18	19	20
10. Box-Office Revenue	1.000										
11. Credited Second-Tier Cast Age	0.173 **	1.000									
12. Credited Second-Tier Cast Gender	-0.005	0.181 **	1.000								
13. Credited Second-Tier Cast Foreign-UK	0.082	0.164 *	-0.074	1.000							
14. Credited Second-Tier Cast Foreign-Non-UK	0.143 *	-0.009	0.022	-0.174 **	1.000						
15. Credited Second-Tier Cast Prior Films	-0.074	0.274 ***	0.274 ***	-0.041	-0.116 +	1.000					
16. Non-Credited Second-Tier Cast Age	0.014	-0.055	-0.014	0.115 +	-0.037	-0.022	1.000				
17. Non-Credited Second-Tier Cast Gender	0.003	0.055	-0.004	-0.059	-0.044	0.098	0.227 ***	1.000			
18. Non-Credited Second-Tier Cast Foreign-UK	0.022	0.054	-0.007	0.192 **	-0.018	0.034	0.213 **	-0.013	1.000		
19. Non-Credited Second-Tier Cast Foreign-Non-UK	0.033	0.090	0.008	0.016	0.075	0.026	0.110 +	0.026	-0.125 +	1.000	
20. Non-Credited Second-Tier Cast Prior Films	-0.087	-0.015	-0.033	0.008	-0.055	0.084	0.218 ***	0.204 **	-0.020	-0.016	1.000
21. Project Duration (#Days)	0.325 ***	0.079	-0.038	0.020	0.239 ***	-0.090	-0.006	-0.023	0.071	0.020	0.010
22. Cast Size	0.251 ***	0.066	0.086	0.079	0.041	0.068	0.071	-0.073	0.017	-0.072	-0.020
23. Star Cast Members	0.212 **	0.166 *	-0.035	0.036	0.087	0.098	-0.018	-0.024	0.082	0.092	-0.037
24. Core Contributors' Prior Nominations	0.331 ***	0.048	0.057	-0.102	0.257 ***	-0.020	0.075	0.019	-0.023	0.029	0.007
25. Core Contributors' Prior Films	0.198 **	0.036	-0.013	-0.001	0.142 *	0.013	-0.038	-0.056	0.066	-0.022	-0.021
26. Core Contributors' Repeated Collaborations	0.013	-0.036	-0.069	0.033	-0.022	0.012	0.024	0.025	-0.018	-0.019	0.038
27. Color (Dummy)	0.099	-0.013	0.036	0.036	0.198 **	-0.044	0.034	-0.189 **	-0.046	-0.070	-0.044
28. Serial (Dummy)	0.032	-0.034	-0.057	-0.019	0.039	0.147 *	-0.046	0.064	-0.055	-0.019	-0.007
29. Genre Comedy (Dummy)	0.025	0.049	-0.132 *	-0.059	0.040	0.003	-0.039	-0.042	-0.113 +	0.087	-0.065
30. Genre Musical (Dummy)	0.081	-0.034	-0.053	-0.138 *	0.004	-0.074	0.016	-0.082	-0.136 *	-0.050	0.085
31. Box-Office Source 1 (Dummy)	-0.182 **	-0.066	-0.200 **	-0.058	-0.063	-0.073	0.021	-0.051	-0.065	-0.048	-0.026
32. Box-Office Source 2 (Dummy)	-0.069	0.0428	0.072	0.145 *	-0.002	-0.081	-0.029	-0.002	0.063	-0.061	-0.116 +

Variable	21	22	23	24	25	26	27	28	29	20	31
21. Project Duration (#Days)	1.000										
22. Cast Size	0.166 *	1.000									
23. Star Cast Members	0.102	0.095	1.000								
24. Core Contributors' Prior Nominations	0.264 ***	0.232 ***	0.176 **	1.000							
25. Core Contributors' Prior Films	0.230 ***	0.252 ***	0.327 ***	0.591 ***	1.000						
26. Core Contributors' Repeated Collaborations	0.140 *	0.085	0.018	0.133 *	0.270 ***	1.000					
27. Color (Dummy)	0.104	0.085	-0.091	0.131 *	0.009	0.037	1.000				
28. Serial (Dummy)	-0.122 +	-0.037	-0.019	-0.128 +	-0.047	0.011	-0.030	1.000			
29. Genre Comedy (Dummy)	-0.045	0.055	0.162 *	0.010	0.021	-0.093	-0.084	0.041	1.000		
30. Genre Musical (Dummy)	0.218 ***	-0.019	0.023	0.105	0.077	0.079	0.073	-0.101	-0.286 ***	1.000	
31. Box-Office Source 1 (Dummy)	-0.083	-0.168 *	-0.162 *	-0.088	-0.033	-0.017	-0.039	0.038	0.054	-0.088	1.000
32. Box-Office Source 2 (Dummy)	-0.008	-0.102	-0.038	-0.313 ***	-0.247 ***	-0.115 +	-0.120 +	-0.116 +	-0.092	0.010	-0.212 **

Two-tailed tests: † p < .10; * p < .05; ** p < .01; *** p < .001; n = 233

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TABLE 3
Negative Binomial Regression of Number of Future Projects (Periods 1 & 2)
for All Second-Tier Cast, Second-Tier Cast With On-Screen Credits
and Second-Tier Cast Without On-Screen Credits

	All Second-Tier Cast		Second-Tier Cast With OSC		Second-Tier Cast Without OSC		Second-Tier Cast With OSC		Second-Tier Cast Without OSC	
Variables	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
Project Duration (#Days)	-0.001	(0.002)	-0.003	(0.002)	0.000	(0.002)	-0.003	(0.002)	-0.002	(0.002)
Cast Size	-0.002	(0.002)	-0.002	(0.002)	-0.005 +	(0.003)	-0.001	(0.002)	-0.004	(0.003)
Star Cast Members	-0.037	(0.043)	-0.104 *	(0.050)	-0.006	(0.068)	-0.104 *	(0.051)	-0.015	(0.069)
Core Contributors' Prior Nominations	0.006	(0.015)	-0.007	(0.017)	0.031	(0.023)	-0.008	(0.017)	0.021	(0.023)
Core Contributors' Prior Number of Films	0.000	(0.000)	0.001 *	(0.000)	0.000	(0.001)	0.001 *	(0.000)	0.000	(0.001)
Core Contributors' Repeated Collaborations	0.004 +	(0.002)	0.008 *	(0.003)	0.005	(0.003)	0.008 *	(0.003)	0.004	(0.003)
Color (Dummy)	0.347 +	(0.202)	-0.354	(0.395)	0.846 **	(0.301)	-0.299	(0.377)	0.672 *	(0.333)
Serial (Dummy)	0.151	(0.148)	0.098	(0.242)	0.093	(0.288)	0.087	(0.238)	0.079	(0.310)
Genre Comedy (Dummy)	0.038	(0.083)	0.085	(0.103)	-0.017	(0.131)	0.088	(0.102)	0.012	(0.126)
Genre Musical (Dummy)	-0.244 *	(0.113)	-0.303 *	(0.127)	-0.368 *	(0.165)	-0.286 *	(0.122)	-0.297 +	(0.156)
Box-Office Source 1 (Dummy)	-0.039	(0.176)	-0.215	(0.231)	-0.175	(0.272)	-0.203	(0.211)	-0.078	(0.211)
Box-Office Source 2 (Dummy)	-0.065	(0.223)	-0.414	(0.295)	-0.049	(0.340)	-0.410	(0.274)	-0.004	(0.325)
Time Dummies (9)	Yes		Yes		Yes		Yes		Yes	
Credited Second-Tier Cast Age	0.004	(0.003)	0.007 +	(0.004)	0.003	(0.005)	0.007 +	(0.003)		
Credited Second-Tier Cast Gender	0.103	(0.080)	0.316 **	(0.102)	-0.078	(0.126)	0.322 **	(0.101)		
Credited Second-Tier Cast Foreign-UK	-0.148	(0.107)	-0.011	(0.132)	-0.158	(0.158)	0.002	(0.129)		
Credited Second-Tier Cast Foreign-Non-UK	-0.275 *	(0.111)	-0.237 +	(0.126)	-0.397 *	(0.187)	-0.235 +	(0.123)		
Credited Second-Tier Cast Prior Films	0.011 ***	(0.003)	0.019 ***	(0.003)	0.003	(0.004)	0.019 ***	(0.003)		
Non-Credited Second-Tier Cast Age	-0.004	(0.003)	0.000	(0.004)	-0.005	(0.004)			-0.005	(0.004)
Non-Credited Second-Tier Cast Gender	0.132	(0.085)	-0.117	(0.093)	0.404 **	(0.126)			0.431 ***	(0.126)
Non-Credited Second-Tier Cast Foreign-UK	0.074	(0.140)	0.032	(0.162)	0.103	(0.213)			0.077	(0.199)
Non-Credited Second-Tier Cast Foreign-Non-UK	-0.112	(0.092)	-0.053	(0.118)	-0.232 +	(0.136)			-0.251 +	(0.135)
Non-Credited Second-Tier Cast Prior Films	0.015 ***	(0.001)	0.001	(0.002)	0.026 ***	(0.002)			0.025 ***	(0.002)
Box-Office Revenue	0.0027	(0.0021)	0.0065 **	(0.0025)	0.0003	(0.0035)	0.0063 **	(0.0025)	0.0000	(0.0033)
Log Likelihood	-882.3		-716.3		-795.7		-717.0		-798.9	
α	0.213		0.282		0.583		0.285		0.602	
n	233		233		233		233		233	

None: Robust standard errors in parantheses; significance tests: † p < .10; * p < .05; ** p < .01; *** p < .001

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TABLE 4
Negative Binomial Regression of Number of Future Projects Governed by a Different Project Studio, Director, or Producer for Secondary Cast With and Without On-Screen Credits

	Different Studio				Different Director				Different Producer			
	Second-Tier Cast With On-Screen Credits		Second-Tier Cast Without On-Screen Credits		Second-Tier Cast With On-Screen Credits		Second-Tier Cast Without On-Screen Credits		Second-Tier Cast With On-Screen Credits		Second-Tier Cast Without On-Screen Credits	
Variables	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
Project Duration (#Days)	-0.002	(0.003)	-0.004	(0.003)	-0.003	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)
Cast Size	0.000	(0.003)	-0.002	(0.003)	-0.001	(0.002)	-0.004	(0.003)	-0.001	(0.002)	-0.003	(0.003)
Star Cast Members	-0.057	(0.069)	-0.100	(0.079)	-0.098 +	(0.051)	-0.018	(0.069)	-0.100 +	(0.052)	-0.004	(0.069)
Core Contributors' Prior Nominations	-0.018	(0.025)	0.027	(0.027)	-0.007	(0.017)	0.021	(0.023)	-0.007	(0.017)	0.025	(0.023)
Core Contributors' Prior Numb. Films	0.000	(0.001)	0.000	(0.001)	0.001 *	(0.000)	0.000	(0.001)	0.001 *	(0.000)	0.000	(0.001)
Core Contributors' Repeated Collaborations	0.009 *	(0.004)	0.003	(0.005)	0.007 *	(0.003)	0.004	(0.003)	0.005 +	(0.003)	0.001	(0.003)
Serial (Dummy)	-0.153	(0.403)	0.398	(0.330)	0.084	(0.243)	0.104	(0.309)	0.025	(0.261)	0.161	(0.309)
Genre Comedy (Dummy)	0.000	(0.142)	0.062	(0.145)	0.092	(0.102)	-0.001	(0.127)	0.065	(0.102)	-0.014	(0.125)
Genre Musical (Dummy)	-0.466 **	(0.163)	-0.069	(0.192)	-0.277 *	(0.123)	-0.305 +	(0.157)	-0.269 *	(0.125)	-0.250	(0.156)
Box-Office Source 1 (Dummy)	0.091	(0.294)	-0.126	(0.298)	-0.188	(0.213)	-0.094	(0.219)	-0.167	(0.213)	-0.164	(0.217)
Box-Office Source 2 (Dummy)	-0.143	(0.398)	-0.117	(0.416)	-0.397	(0.278)	-0.009	(0.327)	-0.421	(0.283)	-0.119	(0.327)
Time Dummies (9)	Yes		Yes		Yes		Yes		Yes		Yes	
Credited Second-Tier Cast Age	0.017 ***	(0.005)			0.007 +	(0.003)			0.008 *	(0.003)		
Credited Second-Tier Cast Gender	0.2649 +	(0.137)			0.318 **	(0.102)			0.308 **	(0.102)		
Credited Second-Tier Cast Foreign-UK	-0.0291	(0.168)			0.003	(0.131)			-0.008	(0.129)		
Credited Second-Tier Cast Foreign-Non-UK	-0.328 +	(0.182)			-0.244 +	(0.125)			-0.229 +	(0.128)		
Credited Second-Tier Cast Prior Films	0.0206 ***	(0.004)			0.019 ***	(0.003)			0.019 ***	(0.003)		
Non-Credited Second-Tier Cast Age			0.006	(0.005)			-0.005	(0.004)			-0.003	(0.004)
Non-Credited Second-Tier Cast Gender			0.315 *	(0.150)			0.437 ***	(0.125)			0.401 **	(0.124)
Non-Credited Second-Tier Cast Foreign-UK			0.198	(0.215)			0.062	(0.199)			0.092	(0.197)
Non-Credited Second-Tier Cast Foreign-Non-UK			-0.236	(0.144)			-0.270 *	(0.137)			-0.227 +	(0.132)
Non-Credited Second-Tier Cast Prior Films			0.028 ***	(0.003)			0.025 ***	(0.002)			0.026 ***	(0.002)
Box-Office Revenue	0.0042	(0.0035)	-0.0016	(0.0037)	0.0060 *	(0.0025)	-0.0003	(0.0033)	0.0055 *	(0.0026)	-0.0004	(0.0033)
Log Likelihood	-664.63		-740.50		-713.68		-795.28		-704.50		-787.91	
α	0.534		0.828		0.289		0.615		0.289		0.594	
n	233		233		233		233		233		233	

None: Robust standard errors in parantheses; significance tests: † p < .10; * p < .05; ** p < .01; *** p < .001

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BIO STATEMENT

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