Creativity in Social Networks:

A Core-Periphery Perspective

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ABSTRACT

Building on socio-structural explanations, in this chapter we elaborate on the tension between individual actors' position along the core-periphery continuum of the social field and their ability to gain legitimacy for their creative work. Peripheral actors are less constrained by the field's normative pressures and free to experiment with un-conventional ideas and solutions, but they may struggle to mobilize attention and harness the symbolic and material resources needed to legitimate their work. By contrast, core players are more effective at leveraging networks to build consensus, but they often exhibit a propensity toward more incremental work due to their higher levels of assimilation into the conventions of the field. To resolve this tension we advance a strategy which we term *optimal network structuration strategy*. This strategy implies forming ties that link the two ends of the core-periphery spectrum, in the attempt to increase the likelihood of generating novelty while also enhancing the ability to make such novelty manifest and visible to the field. The theoretical and managerial implications are discussed.

Key Words: Creativity; Legitimacy; Core/Periphery; Network Structuration Strategy.

BACKGROUND

Creativity has received a considerable interest from academic researchers, but recently has become a hotly debated topic in the popular media and business press. Organizational benefits of individual creativity include new products, effective decision making, superior leadership, innovative solutions to organizational problems, and higher performance. Under these circumstances, even a single creative idea may be highly consequential (Elsbach & Kramer, 2003). Given the importance of innovation in today's knowledge-based economy, sparking, nourishing and maintaining creativity is a critical condition for any organization that seeks to achieve and sustain a competitive advantage (Kim & Lee, 2006). Creativity research has long been polarized between the 'romantic' view that major creative achievements are sparked by imaginative and uniquely gifted individuals at the margin of an intellectual field, and the competing view which emphasizes the influence of the social context in which individuals are embedded in determining the range of information and opportunities available to them during the creative process.

Without downplaying the crucial role played by individual dispositions and talents, a social perspective on creativity emphasizes how those dispositions and talents often are mobilized and directed within a context of intersecting relationships through which conventions are learned, ideas are recombined and capabilities are nurtured. Collins (1998), for example, shows that several prominent intellectuals in art and science were often embedded in strongly connected networks of other scientists, researchers, and artists who not only shared ideas, but also competed and collaborated; by contrast, those who were embedded in weakly connected networks languished despite their talent. In the wake of Collins' ideas, over the past 10 years much organizational work has been devoted to the understanding of the network bases of creativity. The key idea of this perspective is that: "A

successful social psychology of creativity demands that the creative individual be placed within a network of interpersonal relationships" (Simonton, 1984, p. 1273). As social networks provide the fabric through which individuals may tap novel information for creative problem solving, some authors have gone so far as to advance the argument that creativity "is all in your social network" (Brass, 1995: 94).

Several scholarly contributions have followed this tradition (Burt, 2004; Uzzi and Spiro, 2005; Perry-Smith, 2006; Ferriani and Cattani 2008) leading to a relatively new, yet vibrant, body of work that has enhanced our understanding of the network mechanisms that underlie the genesis of new ideas. However, this research has left almost untouched the process by which the new and unaccepted ideas become valid and attain legitimacy. We believe this is a significant shortcoming as artists, inventors or scientists are rarely recognized as creative until their social systems in general, and other creative people in their field in particular, recognize and endorse their work (Adarves-Yorno, Postmes & Haslam, 2007). Consider, as an example, the reputation of Raphael as a painter, which has waxed and waned several times since his heyday at the court of Pope Julius II (Csikszentmihalyi, 1996). Johann Sebastian Bach was eclipsed for more than one hundred years and rediscovered by Felix Mendelssohn during the nineteenth century. As a more recent illustration, also consider Barbara McClintock who won the Nobel Prize in Physiology 1983 for her pioneering research on mobile genetic elements. Her studies deviated from accepted standards and norms in biology and hence were initially rejected by top biology journals (Williams & Yang, 1999). It was only later, once the logic underlying genetic investigations became evident, that her research fell within the boundaries of acceptability, and was consequently re-evaluated as a highly innovative advance. These short vignettes underscore the importance of jointly accounting for the processes that underpin the generation of novelty and regulate its

legitimation within communities that may or may not embrace it. As Simonton noted (1999: 5), "unrecognized genius becomes an oxymoron."

Our goal in this chapter is to illustrate how the adoption of a social structural perspective on individual creativity my offer a bridge between the understanding of creativity in terms of novelty generation and its recognition within the larger social context in which creators and their audiences are embedded. We combine research on the network side of creativity with sociological research concerned with *how* and *why* individual actors' structural position in the social field shapes not only their ability generate creative work, but also whether this work conforms to or departs from a field's established norms and standards—thus affecting its reception by relevant social audiences.

Building on Cattani and Ferriani (2008)'s stylized characterization of individuals' social network position along a core-periphery continuum, we suggest that actors positioned at the fringes of the social system are more likely to generate divergent ideas than core players, as they are less constrained by the field's normative criteria. However, we also contend that, due to their peripheral position, the same actors have only limited ability to mobilize constituencies and solicit recognition for the novelty of their efforts. Conversely, as individual actors progress towards the core and therefore become more embedded within the field's social structure, deviant ideas are foreclosed and adherence to the field's institutionalized norms and standards is increasingly stimulated and even rewarded. As Jones and colleagues (1997: 929) pointed out: "The more structurally embedded (e.g., the more connected and frequently interacting) the industry participants, the more deeply they share their values, assumptions and role understandings." Strong structural embeddedness makes deviance from existing norms and standards harder to hide and, therefore, more likely to be punished (Granovetter, 1985); by contrast, proximity to the core also implies greater ability

to enter the attention space of relevant audiences. This characterization thus highlights the existence of a trade-off between producing more conventional (incremental) work, for which it is easier to gain legitimacy; and producing less conventional (divergent) work, for which receiving legitimacy might prove problematic.

Drawing from McLaughlin (1998, 2000, 2001)'s notion of optimal marginality, we delineate possible strategies to resolve this tension. We catalogue these strategies under the label *optimal network structuration strategy* to indicate a distinctive social position that combines the level of embeddedness in the institutions that shape a given field (Collins, 1998) with some distance from intellectual entrenchment. By pursuing an optimal network structuration strategy actors can carve out a social space removed from the field's normative pressures, while also maintaining exposure to fresh stimuli—so increasing the likelihood of generating novelty but without undermining their ability to make it manifest and visible to the field. We outline the key features of this strategy while leaving its further development as an opportunity for future research. We conclude the chapter with a brief discussion of the implications of our proposal for organizational design and literature on creativity and the social structure of markets.

NETWORKS, CREATIVITY AND LEGITIMACY

In the last few years, sociologists and organizational scholars interested in the social side of creativity have paid increasing attention to the conditions that facilitate the generation of creative work. Building on seminal ideas from Coleman (1988) and Granovetter (1973), a growing body of research – both theoretical (Perry-Smith & Shalley, 2003; Schilling, 2005) and empirical (Burt, 2004; Uzzi & Spiro, 2005; Perry-Smith, 2006; Cattani & Ferriani, 2008) – has begun to focus on structural and relational explanations of creativity in an effort to

explore which configuration of actors' social networks is likely to foster the emergence of novel outcomes. On the premise that generative creativity requires a recombinant effort (i.e., recombining ideas, information, knowledge or perspectives) and most exposure occurs through social interaction with other creative people, the extent to which individuals are at risk of generating creative outcomes is inferred by examining the pattern and properties of their networks. Accordingly, recent work has looked at the relationship between creativity and network features such as centrality (Perry-Smith, 2006), brokerage (Burt, 2004), cohesion (Obstfeld, 2005), strength of ties (Perry-Smith & Shalley, 2003; Baer, 2011) or degree of 'small worldness' (Uzzi & Spiro, 2005).

While the role of networks in shaping novel recombination and exposure to non-redundant information and is now well established, accepted definitions of creativity suggest that creativity is not just about intrinsic properties of novelty and usefulness. To appreciate this point it is worth recalling one of the earliest and still most widely used definitions of creativity, the one offered by Stein (1953: 131) according to which creativity describes "a process which results in a novel work that is accepted as tenable, useful or satisfying by a group at some point in time." Implicit in this definition is the idea that creativity embodies two crucial dimensions: (1) the production of novelty – what we refer to as the *generative dimension*; and (2) the recognition (or acceptance) of this novelty – what we refer to as the *legitimation dimension*.

Distinguishing between these two dimensions allows for a more precise theoretical characterization of creativity as a social process and avoids the ex-ante selection bias of focusing only on successful ideas and how they are generated (Fleming, Santiago & Chen, 2007). Contrary to popular wisdom, whether someone is recognized as creative is less contingent on their actual achievements than on social consensus about their unique

contribution (Kasof, 1995). An illustration of this duality can be found in Martindale's (1990) research on stylistic change in arts, and especially in poetic literature. Martindale argued that in the field of poetry it is fellow writers and a few select critics who constitute the most important audience and play the critical role in evaluating whether an author's poetry qualifies as creative. His view is that this evaluation is based on two considerations. First, the poetry must be novel, rather than merely rehashing what has already been said in the past. Second, it must conform to the stylistic standards that define what is acceptable form and content for that particular domain of creativity at that particular time. A systematic study of creativity, therefore, should consider the conditions favoring the generation of novelty *and* the processes through which audiences recognize this novelty and come to value it.

THE SOCIAL STRUCTURE OF CREATIVITY

One of the most influential advocates for considering the interaction between producers of novelty and their audiences is the social-psychologist Csikszentmihalyi. Building on the notion of creativity as a subjective assessment of the product of individual action, Csikszentmihalyi (1988, 1990, 1996, 1999) developed a systems view of creativity in which the genesis of a creative act can be fully understood only by looking at the interrelationship between three subsystems: the *individual* – i.e., the person who serves as the source of variation to the field; the *field* – i.e., the audience members who are entitled to make decisions as to what should or should not be included in the domain (e.g., peers, critics or users); and the *domain* – i.e., the norms and rules of a recognized area of action (e.g., physics, biology, economics, sociology, painting, etc.). While the individual is critical in triggering change, the gatekeepers who populate the field and personify the audience select creative acts that subsequently elaborate the domain (Ford, 1996: 1114). Indeed, "[...] what we call

creativity is a phenomenon that is constructed through an interaction between the producer and *audience*… creativity is not the product of single individuals but of social systems making judgments about individuals' products" (Csikszentmihalyi 1998: 41; emphasis added). The thrust of the theory is that creativity stems from the interplay between the individual act and the enabling social context that decides whether or not the creative act should be endorsed and legitimated. Thus, a social conceptualization of creativity presupposes the existence of social judgments to which attributions of creativity must refer (Csikszentmihalyi, 1994).

This view of creativity echoes current formulations of sociologists who consider legitimation as a collective process that implies the presence of both social objects (e.g., creative work) and social audiences that evaluate them (e.g., Hirsch, 1972; Crane, 1976; Becker, 1982; Zuckerman, 1999; Zelditch, 2001). As explained by Johnson and colleagues (2006: 57), legitimacy depends on "the implied presence of a social audience, those assumed to accept the encompassing framework of beliefs, norms, and values, and, therefore, the construal of the object as legitimate." The process by which new social objects become widely accepted in any intellectual field has been a longstanding theme in sociology. Not only is legitimacy "one of the oldest problems in social thought" (Zelditch, 2001: 4), but research on legitimacy has developed in various directions across social scientific disciplines. As a collective construction of social reality, legitimacy has both a cognitive dimension that constitutes the object as valid in light of existing standards of evaluation within the field, and a normative or prescriptive dimension that represents the social object as right (Johnson et al., 2006). This prescriptive dimension bears important implications for the acceptance of work that challenges accepted beliefs, norms, and values. Any attempt at departing from them is likely to be framed as "wrong" and hence trigger some punishment in the form of legitimacy discount or denial.

The relationship between creativity and standards of evaluation, therefore, is not straightforward. On the one hand, in order to be more readily appreciated creative work needs to remain within normative boundaries. For instance, Renaissance artists' creativity was largely a function of their resolution to live up to ancient Roman norms of aesthetics. On the other hand, the search for novelty often involves striving for contrast rather than the safety of the 'sameness' – which typically fosters assimilation. For example, Newton's classical ideas on mechanics proved groundbreaking because they marked a significant departure from contemporary scientific assumptions (Adarves-Yorno et al., 2007). These observations suggest that focusing on the 'degree of novelty' as a critical component of creativity may only capture one side of a continuum. Generative efforts in fact can range from radically divergent to obediently incremental: not all creative ideas need to depart significantly from an existing standard (Houtz et al., 2003).[1] As Audia and Goncalo (2007: 1) noted: "An idea may be both novel, useful, and therefore creative, even if it reflects continuity with existing solutions." This view is consistent with the idea that creativity is a continuous concept, whereby "observers can say with an acceptable level of agreement that some products are more creative or less creative than others" (Amabile, 1996: 34).

The question of when and how actors' creations will be incremental or deviate from prevailing norms is strongly influenced by actors' embeddedness in the social structure of the field. The importance of social structure in shaping actors' adherence to or departure from the field's norms and standards is one of the oldest themes in social psychology (see classic work by Festinger, Schachter & Back, 1948, Homans, 1958; see also Merton, 1959)

[1] Sternberg (2006), for instance, classifies eight types of creative contributions in three major categories along the incremental – divergent continuum. These are: type of creativity that accept current paradigms and attempt to extend them; types of creativity that synthesize current paradigms; types of creativity that reject current paradigms and attempt to replace them. Similarly, Unsworth (2001) identifies four types of creativity: responsive, expected, contributory, proactive.

and rests on the realization that greater embeddedness makes ideas about proper behavior more likely to be discussed repeatedly and thus become institutionalized (Granovetter, 1985). We refer in particular to the degree of socio-structural embeddedness because individuals who are deeply embedded in their social system are more likely to conform to the norms and standards that characterize their area of expertise, and thus reproduce ideas or styles currently deemed acceptable.

In line with this perspective, Moody and White (2003)'s analysis of political behavior showed that individuals behave more similarly despite having the freedom to be different as a cluster's cohesion increases. Indeed, greater levels of connectivity tend to homogenize the pool of knowledge and promote common information exchanges, decreasing individuals' incentive and desire to go beyond conventional ideas (Lazer & Friedman, 2007). Strong structural embeddedness also makes deviance from existing norms and standards harder to hide and, therefore, more likely to be sanctioned (Granovetter, 1985). In contrast, actors who are less deeply embedded and not subject to such strong assimilative pressures are freer to pursue divergent ideas (White, 1993).

CREATIVITY IN A CORE-PERIPHERY SOCIAL STRUCTURE

Cattani and Ferriani (2008) articulated this trade-off in terms of an actor's position along the core-periphery continuum of the field's social structure. A core-periphery social structure is characterized by a cohesive subgroup of core actors and a set of peripheral actors loosely connected to the core (Borgatti & Everett, 1999). This characterization of a social field structure is intuitive and has been shown to be salient in a variety of areas ranging from the structure of society (Shils, 1975), to cults (Lofland & Stark, 1965), to trade among nations (Smith & White, 1992), to collaborations in Hollywood filmmaking (Cattani & Ferriani,

2008). Core actors are typically deeply embedded in the social system and hence tend to share ideas and habits more closely. They are usually key members of the community and have developed dense connections among themselves, with many of them acting as network coordinators. By contrast, peripheral players reside closer to the boundaries of the network, and hence are not as visible or socially engaged as those in the core. The upshot of this position is an increased level of exposure to fresh ideas and original sources of inspiration or stimuli that may facilitate divergent thinking—a tendency that has been noted in different fields of human activity. As Collins (1998: 532) noted "[…] some of the greatest philosophers are connected to multiple circles but are members of none. We see in such network positions Spinoza, Leibniz, Locke, Bayle, along with the great free lancing scientists Newton and Heygens."[2]

Standing at the fringe of their social field, peripheral actors can elude the homogenizing influences typical of an established institutional framework, and consider unconventional ideas without the anxiety of clashing with the field's accepted norms. In contrast, individuals who stand at the core of their social field may find it difficult to recharge the freshness of their ideas and escape the pressures to conform to these norms. Entrenched in the prevailing conventions, they can become increasingly reluctant to abandon existing ideas and knowledge to explore new areas (Schilling, 2005), and are likely to experience a decline in intrinsic motivation due to their continued adherence to a 'winning style' (Faulkner & Anderson, 1987). As core actors become increasingly immersed in the field's network structure, it becomes "unmanageable or extremely difficult to break free of the web of ties and to see beyond them to new ideas" (Perry-Smith & Shalley, 2003: 100).

[2] Similarly, Schilling pointed out (2005: 133) that "[...] it has often being argued that marginal intellectuals (those who may participate in multiple intellectual domains but are central to none) are more likely to introduce creative breakthroughs than well-established experts in a domain."

Several vivid examples of this trade-off can be found in art and science. For instance, Michael Polanyi's (1963: 1013) description of the genesis of one of his contributions to physics is indicative of this tension: "I would never have conceived my theory, let alone have made a great effort to verify it, if I had been more familiar with the major developments in physics that were taking place. Moreover, my initial ignorance of the powerful, false objections that were raised against my ideas protected those ideas from being nipped in the bud." Polanyi's words echo those of the famous abstract Italian painter Giorgio Morandi: "When most Italian artists of my generation were afraid to be too 'modern' or 'international' and not 'national' or 'imperial' enough, I was left in peace, perhaps because I demanded so little recognition. In the eyes of the Grand Inquisitors of Italian art, I remained but a provincial professor of etching at the Fine Arts Academy of Bologna."[3]

Unlike core actors, however, peripheral actors typically have limited ability to gather attention and support for their generative efforts. It is easier to mobilize people and secure support within the more cohesive structure of the network core (Knoke, Pappi, Broadbent, & Tsujinala, 1996) than at its fringes. Core actors are favored in this respect, and their work is likely to gain faster acceptance in a dense and clustered network where it can be readily recognized and legitimated, whereas peripheral players lack the kind of visibility and endorsement necessary to boost their work's legitimation. In this sense, a peripheral position "condemns one to coming too late into the sophisticated center of the action" (Collins, 2004: 436). Therefore, while peripheral players are more likely to depart from traditional ways of thinking, explore untapped areas and so pursue more divergent outcomes and ideas, they also have limited ability to generate attention and foster consensus around their creative efforts. Core players, on the contrary, may be constrained in their ability to break with

[3] Reported in the article "Art View; Giorgio Morandi: A Quality of Private Mediation" by Hilton Kramer, The New York Times, December 6, 1981.

conventional ideas or styles that worked in the past – and can even develop a vested interest in resisting the introduction of divergent ideas that may threaten their status as core members – but enjoy easier access to the symbolic and material resources they need to continue their work (Crane, 1976).[4]

As long as the social field rewards those actors conforming to the dominant logic and penalizes those deviating from it, core actors have clearly little incentive to pursue work that diverges from existing norms and standards, and therefore challenges their current position in terms both of status and control over symbolic and material resources. But permanence in the core is unlikely to pay off in the long run as the institutional logic may change, leading to a revision of the criteria by which actors' creativity is judged. Such changes can stem from organized efforts by actors within the social field to exploit the existing logic's internal contradictions or its incompatibility with logic in cognate fields (Clemens & Cook, 1999). A case in point is the appearance of nouvelle cuisine in France, which moved from the fringe to the mainstream of French gastronomy in the early seventies after an initiator movement highlighted the mutability of classical cuisine's conventions "and surfaced tensions between the logic of classical cuisine and the new logics that were being established in cognate fields such as literature, drama, and film" (Rao, Monin & Durand, 2003: 9). By questioning classical cuisine's conventions and exhorting chefs to engage in culinary inventions, the proponents of nouvelle cuisine redefined the norms and standards of gastronomic creativity. Change in institutional logics may also result from external shocks that create opportunities for activists to critique the existing orthodoxy and proffer new

[4] Similar patterns can be observed in various fields. For instance, even a "casual survey of the history of art reveals periods when the established view of art has been challenged by relatively marginal artists whose ideas in turn sometimes came to dominate. One thinks of the French Impressionists who rejected the tenets of nineteenth-century representational painting in France, the abstract expressionists who challenged the modern art 'establishment' of the 1950s, and the 'pop art' movement more recently" (Crane, 1972: 134).

standards. Collins (1987: 49), for example, illustrates how the political events that led to the French revolution were crucial in creating the intellectual opportunities necessary to foster the creativity that spawned German Idealist philosophy: "[…] these political and military upheavals, by threatening … authoritarian government in northern Germany, cracked the imposed religious orthodoxy, and allowed a variety of new philosophical statements on religious topics.".

Another reason why persistence in the field core may become counterproductive is that core actors risk becoming so embedded within the field is that they can experience a creative drought (Perry-Smith & Shalley, 2003). Lower exposure to new and diverse ideas and perspectives, coupled with the constraint of becoming too embedded within the dominant logic, is likely to result in more incremental, rather than divergent, work over time. As Collins (1998: 380) noted, "when external conditions enforce a single orthodoxy […] creativity dries up." This idea also echoes well-established findings in the organizational embeddedness literature illustrating the performance and innovation threats associated to overembeddedness (e.g., Uzzi, 1996).

NAVIGATING THE CORE-PERIPHERY CREATIVITY TRADE- OFF

We have so far delineated the conceptual components of a sociologically grounded understanding of creativity by recognizing that the generation of novelty and its legitimation are two sides of the same coin. Specifically, we have described the tension between the production and the legitimation of divergent creative work as journey along the core-periphery continuum of a field's social network structure. In this section, we suggest that individuals can navigate this trade-off by forming ties that allow them to span both extremes (the core and the periphery) but without becoming embedded in either of them. Such a

strategy, which we term *optimal network structuration*, is intended to ensure exposure to fresh stimuli and insights, which typically spill over from the periphery, while at the same time preserving the legitimacy indispensable for sustaining and leveraging novel solutions. This conceptualization builds on earlier work by social scientists as well as anecdotal evidence. Although neither the illustrations we use nor the specific theoretical points we make are entirely original, they have not been used to address the challenge of navigating the tradeoff under examination. Applying such a conceptualization to the area of organizational design generates several important managerial insights which, along with more general theoretical implications, we probe in greater depth in the conclusions.

The Optimal Network Structuration Strategy

In its basic form, the optimal structuration network strategy embodies the sociological notion of optimal marginality developed by McLaughlin (1998, 2000, 2001). Optimal marginality describes a distinctive social position that fosters creativity by combining embeddedness within an intellectual field "with a sociologically created distance from intellectual orthodoxies" (McLaughlin, 2001: 272). We offer two examples to illustrate this point, one in science the other in the arts. The first example is Eric Fromm. McLaughlin (2001) explains how Eric Fromm reached an optimally marginal social space through an in-depth analysis of the sociological origins of his revolutionary contributions to psychoanalysis. At the beginning of his career, Fromm was a 'core' actor of the Frankfurt School of critical theory and, during his exile in the United States in the early 1930s he became central also within the American revisionist psychoanalysis movement—where he enjoyed the institutional and theoretical life of the White Institute. After playing an important role in this institute, Fromm decided to move to Mexico in 1950. In Mexico, he

found space and resources – both material and cultural – to develop his ideas, while also keeping some periodical academic and clinical appointments in the United States. Fromm's major contribution to the modern revision of psychoanalysis consisted in the critique of Freud's 'libido theory' which represented the orthodoxy within the psychoanalytic field. He challenged central aspects of the mainstream because, as McLaughlin suggests, his decision to move to Mexico allowed him to "gain some distance from the hostility from the American psychoanalytic establishment" (McLaughlin, 2001: 276), while still maintaining ties to several powerful institutes.

By simultaneously staying on the margins of the field of psychoanalysis and remaining connected to its core, Fromm was able to introduce ideas and innovations to the field that would otherwise have been quickly dismissed by the Freudian Orthodoxy. This optimally marginal social position "allowed him to bring new ideas into the Freudian fold […] while keeping him relatively isolated from the institutional pressures of mainstream Freudian institutes" (McLaughlin, 2000: 246) at a time when only "optimally marginal thinkers like Fromm would try to bring these ideas into psychoanalysis, since to do so was practically reputational suicide inside the Freudian networks" (McLaughlin, 2000: 245).

Our second illustration of this strategy is iconic film director Stanley Kubrick's decision to reject the production logics of the Hollywood system (which he referred to as "film by fiat, film by frenzy") and move to England in 1962, despite the success of his latest Hollywood productions *Spartacus* (1960) and *Lolita* (1962). Although the movie *Spartacus* proved a major commercial success, it represented an exception in Kubrick's working style as he had to conform to the conventions inherent in the commercial logic that pervaded Hollywood. He indeed felt he worked on *Spartacus* as just a 'hired hand' (Phillips, 2001: 81), all final decisions being made by Executive Producer Kirk Douglas,

subject to the veto of Universal Studios. Frustrated by the lack of creative freedom in Hollywood, Kubrick established his own independent production company in the UK, but retained a critical linkage with Warner Bros. Pictures, the powerful Hollywood Major that continued to distribute his movies. As Ciment (2003: 36) noted: "[…] it was Kubrick himself who produced his subsequent films, *Dr Strangelove* (1964), *2001: A Space Odyssey* (1968), *A Clockwork Orange* (1972), *Barry Lyndon* (1975) and *The Shining* (1980), five unique works, all of them bearing the stamp of a single man who had mapped out a private, artificial space for himself in which to pursue his preoccupations. In the sixties and seventies, Kubrick enjoyed absolute security, the product of a hard-won independence." Film historians and critics (e.g., Ciment, 2003; Phillips, 2001) now concur that Kubrick's cinematic creativity benefited from his decision, yet the maintenance of a distribution agreement with Hollywood's Warner Bros meant that his vision could reach out to worldwide audiences.

In essence, the optimal network structuration strategy builds on the power of ties that cut across the boundaries of both social worlds allowing core actors to reach out to the fringe and so benefit from a peripheral partner's fresh perspective; and allowing peripheral actors, who lacks the legitimacy and status necessary to gather attention around his/her own work, to build on the core partner's social clout to gain legitimacy. Thus, there are mutually reinforcing incentives on both sides to work together: core actors can reignite their ability to pursue divergent creative outcomes; peripheral actors can benefit from the relational endorsement involved. The rationale behind this strategy is that actors who occupy extreme positions along the core-periphery continuum can complement each others' structural features by providing a context where the two extremes (core and periphery) meet each other by coming together.

DISCUSSION

Contribution to the literature

In recent years, sociological and socio-psychological research has contributed greatly to the development of more socially-oriented perspectives on creativity (Kasof, 1995; Simonton, 1999), paving the way for a significant stream of organizational work interested in the contextual drivers of creativity (Amabile, 1982, 1996; Woodman, Sawyer & Griffin, 1993; Perry-Smith & Shalley, 2003; Perry-Smith, 2006). Our conceptualization frames the pursuit of novelty and legitimacy as an ongoing tension between the core and the periphery of the social system. Actors positioned at the fringes of the social system are free to experiment with unusual ideas and solutions since they are less constrained by normative pressures from the field. However, they have only limited (or no) ability to mobilize attention and harness the symbolic and material resources needed to legitimate their work. In contrast, core players are more effective at leveraging networks to build consensus around their work, but they exhibit greater propensity towards more incremental generative efforts due to their higher levels of assimilation into the conventions of the field. In order to address this tension, we outlined the basic features of a network strategy that allowscore members to nurture their creativity and counter the pressures towards conformity that invariably follow attainment of status and legitimacy.

The perspective described in this paper sheds new light on the polarized debate between Romantic notions of the marginal creative individual, mainly rooted in psychological research on creativity (Barron & Harrington, 1981; Martindale, 1989), and competing sociological and organizational accounts stressing the benefits of social networks in the production of knowledge (Collins, 1987, 1998). We offer the notion of an optimal network structuration strategy as an attempt to solve this debate. An optimal network

structuration strategy combines embeddedness in the networks that impart influence and visibility with insulation from the field core, "where intellectual stagnation can ossify rather than produce creativity" (McLaughlin, 2001: 272). Relational patterns are an important means of positioning an individual for optimal structuration, and stand out in stark contrast to more dichotomous isolation/centrality mechanisms. The role of the third parties that attribute social rewards is critical, underscoring the importance of strategic social positioning for an individual seeking external legitimation. Remaining in touch with the core, but without disengaging from the periphery, provides a way to acquire new knowledge while avoiding the ties that typically bind such knowledge to particular worlds (Hargadon, 2005).

The optimal network structuration strategy, and its inherent tension (i.e., novelty vs. legitimacy), is reminiscent of Obstfeld's action problem (2005). Obstfeld emphasizes the existence of a trade-off between a network rich in structural holes, which creates the opportunity for generating new ideas but that poses an action problem, and a denser network, which is suitable for a coordinated action to implement innovation but creates obstacles to the generation of new ideas. Whereas Obstfeld addresses this tension by introducing the role of a third party who acts as a broker (i.e., tertius iungens strategic orientation), our approach suggests the possibility of navigating the trade-off by creating selective ties that span the two ends of the core-periphery continuum. The core-periphery perspective, which underlies the optimal network structuration strategy, also shares in Burt's (2004) brokerage strategy. In particular it encapsulates Burt's key intuition that creativity is more likely to emerge at the interstice of social worlds. Yet it also adds to Burt' view by underscoring the role of the social structure in shaping legitimacy beside and beyond providing idea-conducive conditions. As explained by Cattani and Ferriani (2008: 839) a core-periphery "approach is better suited to capture the duality of this process as compared

to an approach that is focused exclusively on egocentric properties like in the case of structural holes."

In a similar vein, Rogers (1983) introduces the concept of "optimal degree of heterophily" to highlight the importance of having complementarities at cultural, structural and personal levels in order to facilitate knowledge transmissions and innovation diffusion among individuals. Likewise, collaborative relationships between core and peripheral actors constitute a fertile arena for stimulating productive thought and for how individual outcomes are perceived externally and hence supported and diffused. Indeed, sociologists and network theorists have long asserted that relationships implicitly transfer legitimacy between the parties involved in an association (Faulkner, 1983), so making perceptions of merit dependent on patterns of affiliations (Blau, 1964; Merton, 1973). Latour (1987), for instance, noted that professional assessments of scientific work are influenced by the prominence of the scientist's affiliates, particularly in uncertain research areas where there is disagreement over what constitutes a significant contribution. At the organizational level, Powell (1996, 1998)'s extensive studies of the biotech industry illustrate how this kind of network structuration strategy can often lead large innovative pharmaceutical companies strongly embedded in the field to provide support and resources to small peripheral companies in return for access to the latest scientific developments. Similarly, on the premise that individual status spills over from partner status, Podolny (1993) has described status-enhancing affiliation strategies where lower-status actors gain legitimacy by collaborating with higher-status actors. The logic underlying the optimal structuration strategy, however, is distinctive because focal actors are not low-status, so struggling to gain visibility and legitimacy through their connections to legitimate players. Instead, they are core actors who

seek to preserve or reignite their ability to produce creative work by reducing their exposure to the conformity pressures stemming from being embedded in a particular field.

The joint consideration of social structural influences on the generation and legitimation of creative work also allows for a deeper appreciation of the role that established norms and standards play in providing direction to individuals' creative efforts – thereby contributing to the small but growing literature on incremental versus divergent creativity (Kirton, 1976; Audia & Goncalo, 2007). Unlike received views of creativity that overemphasize the role of an individual's unique personality traits or mental processes in shaping continuity or change in creative work (Houtz et al., 2003), our framework suggests that the distinction between divergent and incremental creativity may be more situationally and socially determined (Kirton, 1987). As norms and standards are learned and gain strength in networks of personal contacts (Becker, 1982), actors' embeddedness in the field affects the extent to which such norms and standards imbue their creative work – thus making it more or less divergent.

A social structural approach sheds light on the conditions under which significant changes, particularly in an existing field, are more or less likely to occur. Actors who are routinely peripheral to the field, and therefore not deeply (if at all) assimilated into existing conventions, struggle to achieve support and recognition for their creative efforts. In the art world, for instance, this is the case with *mavericks*. Unlike core individuals who typically follow more conventional perspectives in their work, mavericks are not as tied to the conventions of their field and hence retain some loose connection with it but without participating in its activities; in particular, they tend to "propose innovations the art world refuses to accept as within the limits of what it ordinarily produces" (Becker, 1982: 233). In order for them to succeed, especially when they attempt to introduce a major change (e.g., a

new style or school of thought is advanced), they must obtain consensus from the very same field they intend to transform or find a way to "force" the field to recognize their achievements.[5] Adopting an optimal structuration strategy will allow core actors to maintain close connections with the field core and participate in its activities, and avoid the fate of mavericks, who risk being marginalized and being unable to further develop their ideas.

Implications for Organizational Design

At a broad level, the notion that creativity is determined as much by the receptiveness of the field as by the intrinsic novelty and usefulness of individual outputs should make organizations more sensitive to the selection systems responsible for recognizing and evaluating individuals' work. For example, many companies involved in innovation invest considerable resources in scouting for talented engineers or training them in order to empower their "out-of-the-box" thinking ability. But this remains only a partial strategy unless the gatekeepers (in this case the management) are prepared and able to recognize when new ideas are good and deserve endorsement. In this respect, our model suggests important insights to aid those involved in organizational design.

First, the managerial implications of our study are reasonably clear for creative professionals wishing to nurture their creativity without losing the ability to make it manifest and visible. The optimal network structuration strategy illustrates the benefits of aiming for an intermediate position which offers links with both the core and the periphery of an intellectual field's social structure—which permits professionals interested in navigating their

[5] Referring to change in the art world, Becker (1982: 309) noted: "Innovations begin as, and continue to incorporate, changes in an artistic vision or idea. But their success depends on the degree to which their proponents can mobilize the support of others. Ideas and visions are important, but their success and permanence rest on organization, not on their intrinsic worth." This insight, of course, is not restricted to the art world but extends to intellectual fields in general.

organizational environment to maintain exposure to original ideas but without losing touch with the sources of legitimation indispensable for making their efforts recognizable and hence actionable.

Second, and related the previous, managers should design organizations that facilitate and encourage integration of peripheral players into the core of the action. The fringe is where divergent ideas thrive, yet it also is the place where they risk remaining invisible, and their exploration unexploited, because, no matter how original the insight, the label of 'creative' depends on gatekeepers who can support and legitimate it (Hargadon, 2005). And since organizations often regard divergent ideas as inherently threatening to the status quo, identifying the right gatekeepers is especially important when companies need to promote experimentation and variety in order to respond to rapid change (Kanter, 1988). In such cases, organizations would be better off designing diverse committees that are more open to experimentation and less likely to have vested interests to protect. This idea is consistent with research on accountability that has shown that individuals held accountable to external evaluators, whose views are unknown, are more likely to explore a problem from different perspectives in seeking a high quality solution (Tetlock, 1992; Lerner & Tetlock, 1999).

Directions for future research

Our core-periphery perspective on creativity provides a first glimpse into the ongoing tension between the need for assimilation into the field and the need to depart from what already exists. Future research is needed that articulate the boundary conditions for this tension to play out. For instance, different versions of the optimal network structuration strategy can be envisioned depending on how far from the field's core the actor is willing to migrate. A 'radical' version of this strategy might see a core actor deciding to break away

from the field's normative constraints by moving out into the periphery and retaining only a few selected ties with the core. A more 'conservative' version of the optimal structuration strategy, on the contrary, could be to maintain a position close to the core while working to establish and nurture select collaborations with peripheral players. Although both strategies aim to achieve the same goal, they are quite different in the kinds of social penalties they may engender. When core actors opt for a radical structuration strategy they risk suffering a stronger legitimacy discount than in the conservative case. Exploring this type of distinction will likely reveal additional factors that shape the extent to which patterns of affiliation effectively structure the manifestation of creativity

While relying on the core-periphery metaphor, our framework does not consider the possibility that the same actor might be embedded in multiple networks and that that the same actor might be peripheral to a social world and core to another. Such an actor could in fact benefit from symbolic and material resources coming from one world to support his/her creative efforts in the other. This is clearly outlined in the case of Fromm's contribution to change within Freudian thought, as he "was a threat to orthodox psychoanalysis because he was not a marginalized intellectual but had access to sufficient alternative sources of resources to sustain himself and his ideas" (McLaughlin, 2001: 281). When Fromm moved to Mexico he became a central player in the Latin American intellectual elite gaining access to new material and symbolic resources which help him introduce innovations in the North American field of psychoanalysis, where he was no longer a central actor. These kinds of situations suggest the value of future research.

Another interesting avenue for future theorization would imply a more dynamic rethinking of the institutional context in which creators and their ideas strive for legitimacy. One might realistically consider the context as evolving over its lifecycle, so that in the early

stages of its evolution it might be possible to expect more variance in creative outcomes as norms and standards are not fully shared nor precisely defined yet. Over time, as norms and standards become established, rewards will accrue to core members whose work is more likely to conform to such norms and standards. But, as conformant (usually incremental) creative work is increasingly legitimated, core members face the risk of experiencing a creative draught. In the end, one might expect the very boundaries between the core and the periphery to vary with the evolutionary stage at which a given institutional context is. Another potential way to add more dynamism to the framework would be to consider variations at the level of audience members. For example, creators and their ideas might be exposed to different audiences and hence to a multifaceted legitimation process. An interesting avenue for future research would then be to delve into the mechanisms through which multiple audiences recognize, validate and legitimate ideas and the extent to which these evaluations are shaped by the social structure in which candidates are embedded (Cattani, Ferriani & Lanza, 2010). This would contribute to research on the determinants of social stratification, which typically focuses on actors vying for recognition rather than the constituents responsible for conferring it (Zuckerman, 1999).

This more "political" aspect of the creative process also calls for a deeper investigation of the influence of power and status. Scholars have long recognized that creativity derives its content and meaning from the surrounding social field. Although the production of creative work involves the recombination of existing ideas, materials, and practices in new ways, in the end it is the social field that decides which work should be judged as creative. These judgments are far from being objective: on the one hand, they reflect the extent to which relevant audiences within the social field converge around individuals' creative efforts; on the other, the position of these individuals in the field might

affect these evaluations. For instance, high-status individuals (e.g., individuals who occupy a very central position in the field's social network or have achieved great prominence in it due to their past accomplishments) can leverage their influence to shape the evaluations of relevant field gatekeepers and gain support (both material and symbolic) for their work. Indeed, individuals' status can bias audiences' evaluations of their work as higher status affiliations help to increase returns to a given quality of output (Allison & Long, 1990; Merton, 1968). While status does not guarantee acceptance, it does increase the probability that an individual's work will be heard and taken seriously from the outset. The conditions that attend the generation of creative work, therefore, may interact in complex ways with those that influence its recognition. What is the role of individuals' social structures in eliciting audiences' appeal for their work? How does individuals' status affect audience evaluations? Are high-status individuals more likely to get their work recognized as creative? Under which conditions do low-status individuals obtain the same result? We believe that these and related questions are worth exploring in greater depth.

Concluding remarks

Creativity does not occur in a vacuum, nor does it spring into the minds of individuals ex nihilo. Any moment in the production of creative work involves the reassembling and rearranging of pre-existing materials, practices, and influences. However, in the end it is society that decides whether a piece of work should be regarded as creative. Understanding creativity requires more than studying those individuals typically associated with a novel product, new movement, or groundbreaking idea. While, for instance, Picasso and Einstein stand out among their fellow peers, their unique contributions were made in concert with the intellectual and social networks that stimulated their thinking, as well as the social

mechanisms that first recognized and then helped spread their work. As Csikszentmihalyi (1996: 7) pointed out: "To say that the theory of relativity was created by Einstein is like saying that it is the spark that is responsible for the fire. The spark is necessary, but without air and tinder there would be no flame." Even in those cases in which the creative process seems to originate from the workings of lone individuals, at a closer inspection creative efforts very often occur in a network of relationships and social support (Collins, 1998).

In line with these ideas, in this chapter we propose a theoretical framework where the tension between conformity to legitimating norms and deviation from them is recast under a different light. Our key claim is that a core-periphery perspective on creativity adds considerable value to the literature because it explicitly models the generation of novelty and its legitimation as embedded in social structures of interaction that shape both the creators and their acceptance. We believe that this perspective might enrich the theoretical foundations of creativity research and open up original opportunities for scholars interested in the intersection between creativity, legitimacy, and social structures.

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