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Signaling Theory: An Approach to Organizational Behavior Research

Muntakim M. Choudhury*

Abstract

Signaling theory serves as an effective framework for dealing with situations in which two parties operate with asymmetric information during market interactions. Although this theory originated within the realm of information economics, its applications have broadened significantly, particularly in marketing, entrepreneurship, and management. In the context of organizational behavior, researchers have utilized signaling theory to explore a variety of phenomena, including recruitment practices, reputation management, promotion, status, individual performance, and the interplay between work and personal life. This paper offers a comprehensive review of existing research on the application of signaling theory in the field of organizational behavior in a focused and concise manner. Additionally, it suggests ways to integrate signaling theory with other important concepts such as attribution theory, sensemaking and sensegiving processes, impression management, and social identity theory. By doing so, the paper aims to enhance future research in organizational studies, encouraging a more nuanced understanding of these interconnected theoretical frameworks.

Keywords: signaling theory; information asymmetry; organizational research; attribution theory; sensemaking; sensegiving.

I. INTRODUCTION

Researchers in the field of management have drawn on signaling theory to explain information asymmetry's influence in different research contexts (Connelly et al., 2011). For instance, signaling theory had been used in entrepreneurship literature and is also important to human resource management research. The main strength of this theory lies in its role as the genesis of other theories not only in the business context, but in psychology and anthropology as well (Karasek & Bryant, 2012). The purpose of this paper is to attempt to answer the question regarding how signaling theory can be integrated with other theories of organization research. To that end, I review the use of signaling theory in the field of organizational behavior and provide suggestions regarding how signaling theory can be used in conjunction with attribution theory, sensemaking and sensegiving, and social identity theory to further research in organization studies.

The origins of signaling theory lie in information economics, and it deals with situations under which buyers and sellers possess asymmetric information while facing a market interaction (Spence, 1974). Asymmetric information happens when one party has more information than any other party because certain qualities cannot be directly perceived (Van de Calseyde et al., 2014). This can be illustrated by the following example: a seller may want to sell high-quality goods or services, but the buyer is unaware of the quality of such goods and services. In such a situation the buyer would be interested to know about the quality of the goods or services from the seller and one way that the

* Assistant professor of business administration. Management School of Business, Stockton University, New Jersey, USA. Phone: + 609 626 3178. E-mail: muntakim.Choudhury@stockton.edu. Web page: www.stockton.edu/business/faculty-adjuncts.html.

seller can decrease this information asymmetry is by sending signals of quality to the buyer.

In this kind of exchange relationship, the informed parties try to communicate or signal information to their exchange partners and hope that by reducing the exchange partner's uncertainty, they can make the partner behave in a manner that is beneficial for the party that sent the signal. However, this may lead to opportunistic behavior. Some sellers, who have low-quality goods or services, would like to take advantage of the information asymmetry by sending fake signals of high-quality to misinform buyers (Boulding & Kirmani, 1993). They would do this to capture undeserved returns in the marketplace. For this reason, the buyer must carefully assess the signals and try to distinguish between good and bad sellers. Thus, signaling theory focuses on information asymmetry and tries to explain whether and how parties attempt to communicate information to each other and how recipients of the signals interpret such signals (Belogolovsky & Bamberger, 2014).

II. THEORETICAL PERSPECTIVE

Signaling is present in many aspects of our everyday lives. Spence (1974) describes a signal as being a manipulable attribute or activity which conveys information. According to Karasek and Bryant (2012, p. 91), "people signal by the way they carry themselves, speak and interact. Organizations signal as well in their advertisements, recruiting, and annual reports". Spence (1974) focuses on market signals, in which a market are activities or attributes of individuals which, either deliberately or accidentally, alter the perceptions of or convey information to other individuals in the market.

In the recruitment context, potential employers face information asymmetry when they try to distinguish between high quality and low-quality candidates (Campion et al., 2019). Hiring by organizations is like making an investment in uncertainty. The employer may not know everything that he would like to know about the candidate at the time of making the hiring decision. However, there are numerous signals (such as personal history, education, employment record, etc.) from the job applicant that the employer can use to decide who to hire (Piopiunik et al., 2020). For instance, candidates with evidence of higher education in their resumes may be preferred more over others by employers. Presumably, high quality applicants prove that quality by withstanding the rigors of higher education, and this signal allows employers to select high-quality candidates consistently (Certo, 2003; Hora, 2020).

Nevertheless, signaling works in both directions. When the employer and the potential employees meet in the market, the employer may not know how effectively the employee will carry out the job if the person is hired. On the other hand, the potential employee may not know what the job would entail or whether the organization would be able to meet his needs after he had been hired. Potential employees would look at observable organizational signals such as organization reputation, pay, promotion ladders, training etc. before making the decision to accept the organization's offer (Schaarschmidt et al., 2021).

Differences in the characteristics of a signal to observers help explain why some signals are more influential and effective than others. Signals that are a better match for the task or are more salient may generate more stable reactions across different parties, and signals that are deemed to be relatively less observable, may be less inferential (Gomulya & Boeker, 2014). In fact, according to Belogolovsky and Bamberger (2014), "the effectiveness of signaling in resolving information asymmetry is contingent on the accuracy with which recipients interpret the signals received" (p. 1709). In fact, a recipient may not interpret a signal as desired by the sender. In their review paper, Connelly et al. (2011) note that weights may be applied to signals by the receivers because of their preconceived notions about how important those signals are. The recipients may also distort those signals cognitively in a way that the meaning of those signals differs significantly from the original meaning imparted by the signaler. Also, because of information asymmetry, negative information may be over weighted by receivers of signals, and this can happen when the environment is uncertain (Baumeister et al., 2001; Norbutas et al., 2020).

III. RESEARCH METHODOLOGY

Since Spence's (1974) work on market signaling, over the years signaling theory had provided the theoretical foundation to many propositions, hypotheses, and theories. Scholars in management have used signaling theory to explore and explain a variety of research contexts and phenomenon. In particular, the theory continues to be used in the fields of marketing (Connelly et al., 2011; Boateng, 2019; and Kharouf et al., 2020) and strategic management (Krause et al., 2021; Momtaz, 2021; and Wiersema & Zhang, 2011). In this paper, I look at how signaling theory has been used in the field of organizational behavior, and review articles published in leading management journals such as Academy of Management Review, Academy of Management Journal, Organizational Behavior and Human Decision Processes, Journal of Applied Psychology, Journal of Management, Organization Science and Journal of Organizational Behavior.

Specifically, the relevant articles were identified by using the keywords 'signals', 'signaling theory', 'Spence', and 'information asymmetry'. The keyword 'Spence' was included because Spence's (1974) seminal work triggered research in a multitude of disciplines that had drawn upon signaling theory. The articles identified were carefully analyzed to evaluate whether signaling theory had a significant contribution to the research context. The following table provides a list of research contexts that had utilized signaling theory. In the section that follows, I discuss some of these research contexts in more detail.

Table 1
Select Review of Articles that Utilized Signaling Theory

Research Context	Article	Journal	Research Approach	Methodology
Board characteristics	Certo (2003)	Academy of Management Review	Conceptual	-
Bridge employment	Rau & Adams (2005)	Journal of Organizational Behavior	Empirical	Quantitative
Career paths	Sheridan et al. (1990)	Academy of Management Journal	Empirical	Quantitative
CEO actions	Gamache et al. (2019)	Academy of Management Journal	Empirical	Quantitative
CEO actions	Gamache & McNamara (2019)	Academy of Management Journal	Empirical	Quantitative
Commitment; Work-life	Leslie et al. (2012)	Academy of Management Journal	Empirical	Quantitative
Decision making	Van de Calseyde et al. (2014)	Organizational Behavior And Human Decision Processes	Empirical	Quantitative
Demographics	Sauer et al. (2010)	Organization Science	Empirical	Quantitative
Diffusion of practices	Etzion (2013)	Organization Science	Empirical	Simulation

To be continued Table 1.

Research Context	Article	Journal	Research Approach	Methodology
Employee face time	Cristea & Leonardi (2019)	Organization Science	Empirical	Quantitative
Firm status	Jensen & Wang (2018)	Academy of Management Journal	Empirical	Quantitative
Firm status and exchange relationship	Castellucci & Ertug (2010)	Academy of Management Journal	Empirical	Quantitative
Firm status and gender differences in pay levels	Blevins et al. (2019)	Organization Science	Empirical	Quantitative
Firm status and venture capital	Shafi et al. (2020)	Academy of Management Journal	Empirical	Quantitative
Gender	Campbell & Hahl (2022)	Organization Science	Empirical	Multimethod approach
Gender segregation	Martell et al. (2012)	Research in Organizational Behavior	Empirical	Simulation
Impression management	Sanders & Carpenter (2003)	Academy of Management Journal	Empirical	Quantitative
Incentive/Pay	Belogolovsky & Bamberger (2014)	Academy of Management Journal	Empirical	Quantitative
Individual performance	Groysberg & Lee (2008)	Journal of Management	Empirical	Quantitative
Information processing	Madhavan & Prescott (1995)	Academy of Management Journal	Empirical	Quantitative
Knowledge transfer	Ndofor & Levitas (2004)	Journal of Management	Conceptual	
Mobility & Promotion	Forbes (1987)	Academy of Management Journal	Empirical	Quantitative
Organizational fit	Chapman et al. (2005)	Journal of Applied Psychology	Empirical	Meta-Analysis
Promotion; Work-life	Konrad & Yang (2012)	Journal of Organizati-onal Behavior	Empirical	Quantitative
Recruitment	Dineen & Allen (2016)	Academy of Management Journal	Empirical	Quantitative
Recruitment	Han & Ling (2016)	Journal of Organizati-onal Behavior	Empirical	Quantitative
Recruitment	Kazmi et al. (2022)	Journal of Applied Psychology	Empirical	Quantitative
Recruitment	Harrison et al. (2018).	Academy of Management	Empirical	Quantitative
Recruitment	Pratt et al. (2022)	Journal of Organizati-onal Behavior	Empirical	Qualitative and Quantitative
Recruitment	Schüler et al. (2023)	Journal of Organizati-onal Behavior	Empirical	Quantitative

To be continued Table 1.

Research Context	Article	Journal	Research Approach	Methodology
Recruitment	Saks et al. (1995)	Journal of Organizational Behavior	Empirical	Quantitative
Recruitment	Walker et al. (2013)	Academy of Management Journal	Empirical	Quantitative
Recruitment	Walker et al. (2007)	Journal of Organizational Behavior	Empirical	Quantitative
Recruitment; Organization fit	Ehrhart & Ziegert (2005)	Journal of Management	Conceptual	-
Reputation	DesJardine et al. (2021)	Academy of Management Journal	Empirical	Quantitative
Reputation	Fombrun & Shanley (1990)	Academy of Management Journal	Empirical	Quantitative
Reputation	Gomulya & Boeker (2014)	Academy of Management Journal	Empirical	Quantitative
Reputation	Turban & Cable (2003)	Journal of Organizational Behavior	Empirical	Quantitative
Reputation	Barlow et al. (2018)	Journal of Management	Empirical	Quantitative
Reputation	Rodell et al. (2020)	Academy of Management Journal	Empirical	Multimethod approach
Reputation	Washington & Zajac (2005)	Academy of Management Journal	Empirical	Quantitative
Reputation; CSP	Turban & Greening (1997)	Academy of Management Journal	Empirical	Quantitative
Reputation; CSR	Dwertmann et al. (2023)	Academy of Management Journal	Empirical	Multimethod approach
Reputation; CSR Activity	Orlitzky (2013)	Academy of Management Perspectives	Conceptual	-
Reputation; Organizational attractiveness; Recruitment	Jones et al. (2014)	Academy of Management Journal	Empirical	Quantitative
Status-ties	Halgin et al. (2020)	Journal of Organizational Behavior	Empirical	Quantitative
Trust and Culture	Branzei et al. (2007)	Organizational Behavior And Human Decision Processes	Empirical	Quantitative
Voice behavior	Liang & Gong (2013)	Journal of Organizational Behavior	Empirical	Quantitative
Work-life	Wayne et al. (2017)	Journal of Organizational Behavior	Empirical	Quantitative

IV. RESULTS AND DISCUSSIONS

4.1. Research Result

4.1.1. Recruitment

Signaling theory had been widely used in recruitment literature, since it is an important mechanism through which hiring firms evaluate and select qualified employees from the labor market. Since employers cannot initially discern the true productivity of the workers, they often have to rely on certain market signals of productivity, such as education, in order to determine worker's wages (Spence, 1974). Signals such as level of education is quite significant because not only does education make workers more productive, but it also signals the presence of certain underlying traits and abilities, such as cognitive capabilities, that employers find to be worthwhile (Arkes, 1999; Tomlinson & Anderson, 2021).

According to Karasek and Bryant (2012), "Spence (1973) describes the hiring process as an investment and likens it to playing the lottery" (p. 91). Like a lottery, until the final number is picked, an employer does not know whether they have made the correct investment or not (Karasek & Bryant, 2012). The new employee, instead of creating value for the firm as expected, may actually perform below expectation. Thus, a 'lemons' problem exists, but organizations strive to make the best possible decision by promoting/hiring individuals based on certain observable indicators or signals.

Similarly, potential jobseekers evaluate organizations based on publicly available information, such as job advertisements or the corporate website. Drawing on signaling theory, researchers have proposed that information regarding organizations and jobs provide prospective employees with cues regarding organizational values and job attributes (Walker et al., 2007; Han & Ling, 2016), which increase the attractiveness of organizations to individuals. In their paper, Han and Ling (2016) explored how different types of emotional appeals can be utilized in recruitment advertisements to attract applicants. They examined two types of emotional appeals – ego focused and other-focused - and found these appeals to be effective in attracting a diverse group of applicants. Walker et al. (2007) found that if affirmative action policy is present in an organization's recruitment materials, such statements will serve as a positive signal and thus increase the attractiveness of the organization in the eyes of the applicants. Likewise, Ehrhart and Ziegert's (2005) paper deals with why individuals are attracted to organizations and the authors examined theories that explain how environmental characteristics are interpreted and processed and how this interpretation leads to attraction. Schüler et al. (2023) found that job crafting opportunities can act as a positive signal in attracting talent and can also lead to self-selection. Their study demonstrates that job crafting opportunities can create both positive and negative expectations in applicants, depending on their level of proactive personality. They also examined how these expectations influence job seeker's willingness to accept the job offer.

Walker et al. (2013) examined applicant's' reactions to treatment received during recruitment stage and found that that the treatment received during maintenance phase provide jobseekers with cues regarding the kinds of relationships that exist in the hiring organization and can influence job seekers' perceptions regarding the organization. Other research focused on how third-party employment branding can signal an organization's characteristics as an employer. Dineen & Allen (2016) examined the effect of "Best Places to Work" (BPTW) certifications on applicant quality and employee turnover and found that increases in such certifications are associated with higher applicant quality in small sized organizations, and when there are lower number of job openings. Conversely, Pratt et al. (2022) argue that success in BPTW certifications may be interpreted as promotion constraints by employees, leading to higher turnover. In terms of gender equality and minority consideration in the recruitment process, a recent paper by Kazmi et al. (2022) found the number of women and underrepresented minority applicants increase when the search committee is headed by a woman or an underrepresented minority, and when the percentage of women and underrepresented minorities in search committees are greater.

Although certain information may send positive signals that increase organizational attractiveness, firms inadvertently often send signals that end up decreasing organizational attractiveness. For instance, Saks et al., (1995) argue that organizations may be perceived to be unfair in their hiring practices if they request information regarding jobseeker's memberships in protected groups. Based on this questionable signal, applicants may form a negative perception regarding the organization and may not pursue employment further. Likewise, Harrison et al. (2018) posits that negative signals about an organization's directors and employees are sent to potential job seekers when the organization is being criticized in the media.

4.1.2. Organizational reputation

Signaling theory had also been used extensively by organizational reputation researchers. Washington and Zajac (2005) posited that when information asymmetry exists in terms of organization quality, organizations that display high quality and have built up reputations for better quality over time send more credible signals than firms who have not. Fombrun and Shanley (1990) used signaling theory to identify organizational attributes that influence judgments about organizational reputations. They found that, in the case of large organizations, reputations convey information about the firms' non-financial attributes, such as advertising expenditures, to outsiders. From a recruitment point-of-view, an organization's reputation sends signals that impacts the inferences made by job seekers about a potential employer (Turban & Cable, 2003). Their study found support for the fact that if firms have positive reputation, they will be perceived to be better employers, which in turn would increase the number of applicants to the firms. An organization's products can also signal the organization's reputation – for instance, Barlow et al. (2018) investigated how products affect the way audiences view an organization, especially when the organization produces a product that goes against the audience's expectations. They concluded that products in stigmatized categories receive less-favorable social evaluations than similar products in non-stigmatized product categories. The stigma of the product category transfers to the other products of the organization as the organization becomes more linked to the stigmatized category. Finally, the category stigma is amplified by the overall quality reputation of the organization.

Other studies have focused on how corporate social performance (CSP) and corporate social responsibility (CSR) send signals to outsiders about an organization's reputation. Rodell et al. (2020) explored how a social responsibility initiative involving customers influences the reputation of a local microbrewery. They discovered that customers who participate in such initiatives have positive views of the company and are more loyal to the brewery over time. Additionally, they showed that customers spread their enthusiasm to others, increasing the company's prospective customers and support. Jones et al. (2014) studied CSP of an organization and how strong corporate social performance signals to job seekers regarding the prestige of the organization. Likewise, Turban and Greening (1997) hypothesized a firm's reputation being related to their CSP, and CSP in turn influences the organization's attractiveness as employers to potential candidates. Since CSP is found to be related to firm reputation and attractiveness, it has the potential to be a source of competitive advantage in terms of attracting job seekers. Dwertmann et al. (2023) demonstrated that hiring disabled workers can enhance a company's reputation and social impact. This study focuses on an organization's CSR activities and addresses the unfounded concern of managers regarding negative customer reactions towards receiving service from individuals with disabilities.

However, Orlitzky (2013) argues that organizational signals about CSR may have a negative effect on equity markets. In his paper, the author claimed that market signals of CSR may increase noise in capital markets when information about CSR is misleading and difficult to understand. DesJardine et al. (2021) examined the signaling costs of CSR to unintended audiences-they found that increase in CSR activities increase the likelihood of being targeted by activist hedge funds. On the other hand, Gomulya and Boeker (2014) investigated the actions that firms take after a reputation damaging event. They examined whether naming a successor CEO with certain characteristics signals a firm's serious intent and commitment to activities at restoring its reputation. They found support for the notion that specific quality of successor CEO signals the commitment of the organization towards recovering from the reputation damaging event.

4.1.3. Other research contexts

Apart from recruitment and reputation, signaling theory had been used in a wide array of organizational research contexts such as pay secrecy, trust, status, employee mobility, career paths and career success, promotions, gender, demographic characteristics, bridge employment, knowledge transfer, category membership, etc. In this section, some of these research papers are discussed. For example, building on signaling theory, Belogolovsky and Bamberger (2014) tried to understand the interactive effects of pay-for-performance systems and pay secrecy. The authors argue that pay acts as an important signaling mechanism, and their study found information asymmetry existing in employee relations to be directly impacted by pay secrecy.

In another study, Branzei et al. (2007) developed a culture-contingent model of trust formation in emergent relationships. Their study found that depending on trustors' national culture, the effectiveness of dispositional and contextual signs varies systematically. Collectivists tend to rely more on situational signs than individualists and less on dispositional signs. A paper by Gamache et al. (2019) examined CEO acquisition actions and the authors explore impression offsetting as an early signal to shareholders of a CEO's low confidence in acquisitions. In a related paper, Gamache and McNamara (2019) theorize and demonstrate decline in future acquisition activity when an acquisition announcement receives negative media coverage. Following a signaling perspective, Certo (2003) suggests that IPO stock performance is improved, and liability of market newness is reduced by investor perceptions of board prestige, which signals the legitimacy of the organization. Van de Calseyde et al. (2014) showed that people gather information from the time taken by others to come to a decision.

4.1.4. Research on status

Signaling theory had also been used in research on status. Status is distinct from reputation and has been defined by Podolny (1993) as perceptions of the quality of a producer's products relative to another similar producer's product or the products of a competitor and is considered as a signal that reduces the uncertainty that exists regarding their quality. The same analogy has been extended to organizations in terms of their quality, Castellucci and Ertug (2010) looked at the motivations of high-status firms to enter into relationships with low-status ones. They argue that if exchange relationships in the market are perceived to be signals of status, firms with high-status may not find it feasible or desirable to partner with firms with low status, unless they risk lowering their own status as well. Shafi et al. (2020) explored how the loss of funding relationships signal negative information, which affects how other investors view the start-up and hurts its chances of raising more funds. Entrepreneurial ventures that undergo this situation find it difficult to secure funding from new venture capital firms, in particular, from those which are of high status. Halgin et al. (2020) argue that individuals signal their underlying quality and future potential by disclosing presence of social ties with high status parties. However, the effectiveness of this disclosure will depend on the acceptance of such claims as legitimate signals by the audience.

Focusing on organizational status, Jensen and Wang (2018) demonstrate that organizational status inconsistency leads to ambiguous evaluation by external constituents and may be particularly problematic for high-status multi-unit firms. In another study, Blevins et al. (2019) examined the influence of gender and organizational status on the pay of university presidents. The gender pay gap among university presidents was found to be a persistent phenomenon, but this effect diminished as the university's status improves. Also, the study showed that the gender pay gap is absent at high status universities.

4.1.5. Research on promotions, work-life balance and individual performance

A study by Forbes (1987) examined patterns of upward mobility and the author used signaling theory to explain how historical data may affect decisions about promotions. They found that an employee's past position, different jobs held, and functional background serves as signals to those parties who are making decisions regarding promotions, and such signals have strong influence on career attainment. Sheridan et al. (1990) proposed that when a new employee is selected for the company's trainee program, it sends relevant signals regarding the employee's value and anticipated career path. They found rates of promotion, salary progression and transfer being influenced by how managers start their careers and the power of the department in which they had worked in.

Human capital theory asserts that an organization infers about the future productivity of a potential candidate based on education or other credentials that signal value. However, such signals lose potency over time as actual performance data is accumulated. In their paper, Groysberg and Lee (2008) assert that the quality of colleagues in the organization has a significant impact on top performers' ability to maintain performance. To improve the quality of their own work and to deliver it effectively to clients, top performers in professional business services rely on high-quality colleagues. Leslie et al. (2012) theorized the effect of flexible work practices (FWPs) on employees' career success. They drew on signaling theory and attribution theory to propose that depending on the type of attributions that managers make for employee's FWP use, such usage is interpreted by managers as signals of organizational commitment, which in turn shapes employees' career success.

Konrad and Yang (2012) studied how promotions were affected by employee usage of organizational work–life interface benefits. Previous studies have assumed that employees who work from home or have reduced and/or flexible working hours could be perceived to have low commitment and also be perceived to be a disrupting influence on others. As such, using such work-life interface benefits could send negative signals that may have a detrimental impact on the likelihood of future promotions. Wayne et al. (2017) examined the spillover effect of emotional exhaustion and found that for those employees facing work and family conflicts, performance is impacted negatively due to lower cognitive resources available to use at work. This also results in lower work engagement. Cristea and Leonardi (2019) looked at how being observed by others leads to attaining better projects and career progression opportunities, as it signals the employees' devotion to their job, their co-workers, and the organization. However, geographically dispersed employees who are unable to being observed by managers, tend to compensate by engaging in other activities that signal commitment.

4.1.6. Gender, demography and other research topics

In terms of organizational research on gender, signaling theory had been used to examine gender segregation. According to Martell et al. (2012), "gender segregation in organizations is an emergent phenomenon that arises from the collective behavior of individuals who express only a modest gender-based preference, in concert with the signals governing promotion and organizational mobility" (p. 138). Campbell and Hahl (2022) used signaling theory to explore gender inequality in terms of how overqualification disparately impacts hiring outcomes of male and female job seekers. They found that men who are overqualified for the job are less likely to be hired as their overqualification is perceived to be a lack of commitment to the organization. On the other hand, overqualified women are perceived to be more committed to their careers, and female candidates need to exhibit their commitment to both the organization and their careers during the hiring process.

In terms of demographic research, Sauer et al (2010) conducted two experimental studies that test how outsiders' assessments of an organization's top managers are affected by demographic characteristics. They suggest that team leaders who possess racial characteristics that is considered to be of low status, can put the team at a disadvantage because outsiders may set their expectations of competence and ability based on the low status racial characteristics. They also argue that characteristics of team members shape external evaluator's expectations and evaluation of team performance and influence resource allocation.

Examples of other research include bridge employment, defined by Kim and Feldman (2000) as "employment that takes place after a person's retirement from a full-time position but before the person's permanent withdrawal from the workforce" (p. 1195). In their paper, Rau and Adams (2005) examine how organizational policies impacted applicant attraction of older workers. The authors posit that Equal employment opportunity (EEO) language directed at older workers may be used by organizations to signal to potential bridge employees that they will be valued by the organization and treated respectfully.

Ndorfor & Levitas (2004) examined the aspects of well-intended signaling that are beneficial to certain external stakeholders and firms with superior knowledge endowments. They defined signals as "conduct and observable attributes that alter the beliefs of, or convey information to, other individuals in the market about unobservable attributes and intentions" (p. 688). Their framework examines how firms signal value of their knowledge endowments and how they avoid problems related to knowledge transfer.

4.2. Discussion

Although signaling theory had been used to develop a wide range of theories and have been applied in different contexts, the field is still ripe for exploring issues related to organizational behavior that can be explained by using signaling theory. With that in mind, in this section, I discuss attribution theory, sensegiving and sensemaking, impression management theory and social identity theory, and provide propositions for future research that could utilize signaling theory in conjunction with the aforementioned theories popularly used in organizational research.

4.2.1. Attribution theory

Attribution has been defined as a rational process in which people behave as naïve experts when drawing conclusions about others (Weiner, 1972; Jones, 1979). Attributions are the causal explanations that individuals use to interpret the world around them and adapt to the environment, especially when reacting to events that are new and unexpected (Martinko et al., 2007). Eberly et al. (2011) state that "through the use of attribution, people attempt to (re)establish control over their lives and improve their ability to predict future events" (p. 731). Attribution theory is thus concerned with how individuals strive to answer questions beginning with 'why' (Kelley, 1973).

Attribution theory deals with stimulus-based judgments (Feldman, 1981). In the social psychology literature, this theory was developed to deal with a question of perception: if a person acts aggressively, is it because he is disposed to act in such a way or are there external situational factors that are making him behave in such a manner. People do not know about all sources of stimuli, and they also do not know how to distinguish relevant stimuli from irrelevant ones (Starbuck & Milliken, 1988). People learn to attend to certain stimulus features without monitoring this process and attention is required only when an interaction becomes problematic or effortful (Langer, 1978).

The use of interpreting signals can be thought of dealing with stimulus-based judgments. While this theory has been extensively used by scholars to explain how parties send, receive and interpret signals in an uncertain environment, the burden of distinguishing an important stimulus from noise lies on the receiver of the signal. People classify stimuli by comparing them to other stimuli which may be immediately available or to standards that can arise from their own experiences and expectations (Starbuck & Milliken, 1988). Unless people can distinguish a valuable stimulus from noise, opportunistic parties may try to take advantage of information asymmetry and attempt to acquire unfair advantages in the market.

The literature review suggests that a limited number of studies have been conducted that attempt to integrate signaling theory with attribution theory. Two such papers were identified in this review. In one, Kang (2008) examined the spillover of reputational penalties between firms. In the other paper, Leslie et al. (2012) builds theory regarding how an employee's career success can be affected by use of flexible work practices (FWPs). Future research should explore wider avenues in organizational behavior to draw upon both theories of attribution and signaling.

Signaling theory implies that there is a learning curve associated with interpreting a signal. Initially, it may be harder to correlate a signal with a desired outcome, but over time, if the desired outcome is attained, the strength of the signal increases in the perceptions of the receiver. On the other hand, if the signal fails to elicit the expected outcomes, the strength of such signals may diminish over time. For example, suppose an employer hired from the market a recruit with an MBA degree. In line with signaling theory, such high level of education signals underlying valuable characteristics of the employee and based on this signal, the employer provides employment to the recruit, hoping that the new hire would be able to adequately meet organizational expectations, and create future value for the employer.

However, after hiring, unless the recruit has proven his worth to the employer through his performance, the employer would find it difficult to correlate education with performance, and if other hires with high level of education perform poorly, the strength of the education signal would likely diminish over time. Thus, when a signal originates from a signaler, the receiver may interpret the signal according to his preconceived notions regarding the signal or based on his previous experience with such signals.

While the receiver of a signal may engage in a rational process to interpret the signal, attribution theory is able to explain why it is important for signalers to be careful about the signals they send. Because of fundamental attribution error, if we make a mistake, we tend to blame it on external and situational factors and not ourselves. Yet, if we see someone else committing the same mistake, we are more disposed towards blaming that person for the error and not the situational factors. This is known as fundamental attribution error in social psychology and highlights the importance of impression management. Consider the case of an aggressive person; in a supervisor-employee relationship, an employee may behave aggressively because of certain situational factors. However, the supervisor may draw conclusions from the employee's behavior that the employee is in fact an aggressive person without considering external factors. The signals that the employee sent to the supervisor through his aggressive behavior may prove to be detrimental when the time for performance evaluation arrives, as employee evaluation decisions may be biased by attribution and stereotyping processes (Feldman, 1981). This line of reasoning leads to the following proposition:

Proposition 1. In a supervisor-employee relationship, employees sending negative signals may end up with lower performance rating because of fundamental attribution error.

Recent research has brought to light the importance of relational attributions. According to Eberly et al. (2011), "relational attributions are those explanations made by a focal individual that locate the cause of an event within the relationship the individual has with another person" (p.732). In their paper, the authors focus on negative events as these can lead to extensive attributional process. This happens because negative events pose as threats to goal accomplishment and thus motivate people to identify underlying causes so that similar future events can be avoided (Weiner, 1990). The authors assert that when activated, the relational-self prompts people to focus on themselves in relation to their interpersonal content and influences the information that people attend to during interaction. The focus would shift from the individual to the relationship. This leads to the following proposition:

Proposition 2. The effectiveness of relational attributions would depend on reliable signals sent by both parties in the relationship to establish mutual trust and cooperation.

Eberly et al. (2011) claim that relational attributions may be able to explain why some individuals try to improve relationships that may be less than ideal. A specific type of uncertainty exists in relationships, which the authors term as relational uncertainty. This could be drawn parallel to information asymmetry in signaling theory, where one partner is uncertain about another and is unable to predict the partner's attitudes, values, and behaviors. However, it is clear that to make the relation work, cooperation and trust should not be unidirectional. In making relational attributions, attributers will pay attention to the features of the relationship that could be enhanced (Markus & Kitayama, 1991; Brewer & Gardner, 1996).

Proposition 3. In a dyadic relationship, the quality of the relationship would depend on the quality of the signals that the parties send to each other.

Future research should attempt to integrate attribution theory, relational attribution and signaling theory to further explore such dyadic relationships.

4.2.2. Sensemaking and sensegiving

Sensemaking is perceived to be a thinking process that makes use of retrospective accounts in order to explain unexpected or surprising events (Louis, 1980). According to Weick (1995), sensemaking involves someone noticing a discrepant set of cues in an ongoing flow of events while looking retrospectively over past experiences. Individuals then try to come up with possible speculations to explain the cues. Thus, to talk about sensemaking is to talk about reality as an ongoing process that takes form when people make retrospective sense of the situations in which they discover themselves to be in (Weick, 1995). Managers make sense of a new strategic orientation through schemas of thought surrounding the change. These schemas are consciously known in the organization and are used rationally (Gioia & Chittipeddi, 1991).

Surprisingly, the literature review seems to indicate that signaling theory had been largely ignored by researchers studying sensemaking and sensegiving processes. Sensemaking and sensegiving draw their foundations from attribution theory and as argued previously, signaling theory could be used in conjunction with attribution theory. As noted above, sensemaking is a process where people place stimuli in a framework that assists individuals to explain, understand and make prediction. I propose that it is of vital importance to assess signaling as an antecedent to sensemaking. The interesting point of departure is that all individuals do not have the same frame of reference or schema. The stimuli/signal that one individual receives from the environment may be ignored completely by another. Also, different frameworks may be used by individuals to interpret the same stimuli or signal differently. Signaling theory had mostly looked at those signals that provide the desired outcomes. Yet, there may be negative signals arising from the environment, which can act as the discrepant cues that interrupt an ongoing flow of events. As posited by Weick (1995), this is the first step in the sensemaking process. Thus, I lay out the following proposition:

Proposition 4. Since individuals have different schemas and use different frameworks to process and interpret signals differently, signaling could arguably be an important antecedent to the sensemaking process.

Studies have shown that from the environment, different cues/stimuli are noticed by an individual, and depending on the schema, some of these cues are filtered out as noise. Therefore, it would be interesting to look at the mechanisms behind how some signals are filtered out while others are analyzed. Since individuals do not have the same frame of reference, future research could explore how the strength of a signal is interpreted differently by different individuals, and perhaps other factors (psychological, cognitive etc.) could be identified that moderate or mediate the relationship between signal transmission and individual schema, which would provide us with a deeper understanding of the sensemaking process.

Gioia and Thomas (1996) define sensemaking and sensegiving as being two complementary and reciprocal processes when discussed in the context of organizational change. When there is an organizational change, sensemaking deals with the way managers understand, interpret, and create sense for themselves based on the information surrounding the change. On the other hand, sensegiving is concerned with their attempts to communicate their thoughts about the change to others, and to gain others' support (Balogun & Johnson, 2004). Sensegiving consists of the organization's discourses that guide and shape individuals' understandings and actions in ways that are beneficent for the organization (Gioia & Chittipeddi, 1991).

Studies on organization change have examined top management sensegiving and sensemaking and the information asymmetry that exist between the top management teams and the rest of the organization. In organizational change literature, heavy burden is placed on the shoulder of the CEO and top management team to first figure out and then attribute meaning to (sensemaking) the organizational change and then subsequently translate and disseminate the meaning to shareholders and other constituents (sensegiving). For instance, Balogun and Johnson (2004) in a qualitative study examined "sensemaking" during a forced shift from hierarchical to s decentralized organizational structure. As organizations change, senior managers develop new structures, and the authors wanted to identify how middle managers resolve the cognitive disorder that arises because of such organizational restructuring. The situation was complicated by the fact that top management shifted a lot of responsibility of translating and communicating such changes to middle management. Furthermore, several layers of information asymmetry were present. Information asymmetry existed between the top and middle management, and between middle management and the other constituencies of the organization.

I propose that signaling theory can be drawn upon to provide explanations regarding how management can successfully communicate the change to others and also gain their support. As an illustration borrowing the example provided by Balogun and Johnson (2004), if middle managers are perceived to be trustworthy and reliable by the other constituencies of the organization, I argue that management would have a much easier time to communicate this change to others and would also be able to obtain their support readily. This leads to the following proposition:

Proposition 5. For middle management to successfully communicate and implement change, they have to signal (through their actions or activities) that they can be trusted and that constituencies under them can rely on them to do the right thing.

One of the major concerns of employees during organizational change is job security. If management can assure employees that their jobs are secure, and if this assurance is bolstered by certain signals that embody the sincerity of managements' claims, organizational change may be well received by the employees. Future research would thus benefit from integrating signaling theory when examining sensegiving and/or organizational change.

4.2.3. Impression management

Impression Management has been defined as behavior that alters or maintains a person's image in another's eyes, and this is done in order to attain some valuable goal (Villanova & Bernardin, 1989). Through impression management, an individual strives to look good to someone else. Organizational researchers have studied the role of impression management in attitude measurement, performance evaluation, employee selection, organizational decision making and superior-subordinate relations (Becker & Scott, 1995). Although extensive work in organization studies has been carried out on impression management, the literature review indicates that there is room for integrating signaling theory with impression management. One of the papers that attempted to do so was Sanders and Carpenter (2003), which used signaling and impression management theories to develop a framework that suggest that executives are likely to develop shareholder appeasing strategies while managing conflicting shareholder pressures.

The majority of impression management literature had either focused on looking good to others or avoiding looking bad; yet this literature has failed to appreciate the explanatory capability of signaling theory. I argue that impression management need arises when there is information asymmetry between two dyadic parties. Since the party to be impressed or convinced does not possess complete information regarding the other party's value or intentions, they must rely on certain observable signals which would allow them to view the other party favorably. Thus, when people are motivated to manage impressions to obtain a valuable outcome, such as obtaining a job offer, they may be motivated to send certain signals to potential employers that set them apart from other candidates. Employers, in turn, will use such signals to create an impression or perception about the signalers.

Other research had focused on how impression management affects job performance evaluation and, career success. Research had shown that impression management tactics focused on supervisor liking and perceived similarity (Wayne & Linden, 1995). For example, suppose a supervisor oversees a group of subordinates and is slated to evaluate their performance at some future point in time. In order to make oneself stand out from the cohort of subordinates, an employee may engage in impression management tactics that send favorable signals to the supervisor, improving the subordinate's image in the supervisor's eyes. When the time for performance appraisal arrives, the supervisor may reduce the information asymmetry existing in his mind regarding the capabilities of his subordinates by taking a cognitive shortcut, which essentially involves giving that employee who had successfully managed his impression, a better performance rating. As a result, that same employee is more likely to be considered for promotion in the future. This leads to the following:

Proposition 6. Impression Management may reduce supervisor's information asymmetry and thus increase the likelihood of an employee getting better performance evaluation, which may lead to future promotion opportunities.

Organizations also carry out impression management through a variety of means such as annual reports, media publicity etc. (Elsbach et al., 1998). There exists an information gap between internal and external stakeholders and the organization. It could be argued that this gap is wider in case of the external stakeholders. Organizations thus engage in impression management to maintain the support of external stakeholders and signaling theory is well suited to explain the mechanisms driving such impression management efforts.

Proposition 7. To gain support and legitimacy, organizations have to engage in impression management, i.e., send positive signals to external audiences.

Future research would benefit from considering signaling theory in conjunction with organizational impression management. Thus, while impression management had been a popular focus of organizational researchers, such research could be enriched by using signaling theory to explain the mechanism behind impression management and will lead to better theory formulation, construct definition and conceptual clarity.

4.2.4. Social identity theory

According to Hogg and Abrams (1998), a social identity refers to a person's knowledge regarding his membership in a social category or group. A social group consists of a collection of individuals who have a common social identification or view of themselves as being members of some similar social category (Stets & Burke, 2000). Human beings are social animals, and they crave attention from others and want to belong to one group or the other. Social identity theory deals with how people view themselves and their group in comparison to other reference groups.

According to this theory, when we identify with a group, we feel good about ourselves because of the perceived and actual qualities of the group. As human beings, we have a fundamental need to belong, and we derive pleasure from group membership. Studies have shown that there are physical and mental health repercussions of failing to form interpersonal attachments (Lambert et al., 2013). When the social relationships of a person are impaired, they find less meaning in life. Researchers have found that people who are rejected socially enter a state of cognitive destruction and dejection, which leads to a decrease in meaningful thought and cognitive processes (Lambert et al., 2013). On the other hand, people who enter social relationships fulfill their need to belong and experience a heightened sense of meaningfulness.

Signaling theory had been used in conjunction with social identity theory to further research regarding an organization's reputation and corporate social performance. Turban and Cable (2003) attempted to explain why job seekers would be attracted to apply to those firms with positive reputations. They posited that firms with better reputations would be perceived as better employers and thus would be able to attract more applicants. They state, "both social identity theory and signaling theory offer rationales for why applicants should be interested in organizational reputation and be more attracted to firms with positive (versus negative) reputations" (p. 735). Turban and Greening (1997) drew on propositions from social identity theory and signaling theory to hypothesize that firms' corporate social performance is related positively to their reputations and to their attractiveness as employers. On a related theme, Jones et al. (2014) attempted to understand the underlying mechanisms through which an organization's corporate social performance affects its attractiveness as an employer to applicants.

Although signaling theory had been integrated with social identity theory to explore the communication of positive information regarding corporate social performance to outsiders, future research should focus exclusively on stigmatized social identity that may signal negative information to outsiders. Organizations with stigmatized identity may deter potential employees from becoming organizational members. For example, an organization that had developed a reputation of not being socially conscious may send negative signals to potential employees, who probably would not want to be associated with the stigmatized identity and probably would seek employment elsewhere. As stated before, according to social identity, people look for meaning in life, and tend to derive pleasure and pride from the group they belong to. Thus, it is apparent that a stigmatized identity would likely have a negative effect on organizational reputation. Such stigmatized identity can become a psychological burden, and eventually deter organizations from hiring qualified applicants. This leads to the following proposition:

Proposition 8. If the organization sends the wrong signals, one possible consequence is that high quality jobseekers will be discouraged from applying, and the organization may end up hiring lower quality recruits.

Social identity threat perspective explains why a stigmatized social identity can become a psychological burden. Certain cues from the environment can signal to an individual that one or more of his/her social identity is undervalued in that environment (Murphy et al., 2007). Studies in psychology have shown that people who come from a lower socioeconomic status backgrounds possess a stigmatized identity when attending an elite university, and experience concerns regarding whether they are academically fit to study at the elite university. They also experience ego depletion because of managing such concerns (Johnson et al., 2011). Ego depletion can be thought of as instances where our cognitive resources deplete during certain types of social interactions. Managing such concerns may prove to be a significant psychological burden as social stigma drains a person's self-regulatory resources. When we extend this argument to the organizational context, the following proposition can be derived:

Proposition 9. If an employee is a member of an organization that had developed a stigmatized identity over time, it is likely that managing such negative identity may impose a significant psychological burden on the employee.

V. CONCLUSION

Signaling theory provides us with a framework of understanding how in an environment of information asymmetry, signals can act as valuable mechanisms of conveying information in order to decrease the exchange partner's uncertainty. This theory can help explain how managers, employees, customers, and other stakeholders perceive and interpret signals from each other, and as such, organizational behavior researchers had used signaling theory to broaden organizational theories, and researchers in management have also drawn on signaling theory to explain the impact of information asymmetry in various contexts (Connelley et al., 2011). Signaling theory thus is important for understanding various phenomena of interest such as employee recruitment, organizational reputation, status, and corporate social responsibility, to name a few. This paper reviews some of these research in organizational behavior and provides recommendation regarding other venues where signaling theory could be implemented. In sum, by recognizing the importance of signaling theory and applying it in appropriate contexts, organizational behavior researchers can gain valuable insights into how organizations can strategically manage different signals to achieve desired outcomes, and the propositions presented in this paper aims to guide researchers to explore novel avenues of exploration.

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