

Tapping the Grapevine:

A Closer Look at Word-of-Mouth as a Recruitment Source

Greet Van Hoye and Filip Lievens

Ghent University, Belgium

Greet Van Hoye, Department of Personnel Management, Work and Organizational Psychology, Ghent University; Filip Lievens, Department of Personnel Management, Work and Organizational Psychology, Ghent University.

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Correspondence concerning this article should be addressed to Greet Van Hoye, Department of Personnel Management, Work and Organizational Psychology, Ghent University, Henri Dunantlaan 2, 9000 Ghent, Belgium. E-mail: greet.vanhoye@ugent.be

Abstract

To advance our knowledge of word-of-mouth as a company-independent recruitment source, this study draws on conceptualizations of word-of-mouth in the marketing literature. Our sample consisted of 612 potential applicants targeted by the Belgian Defense. Consistent with the recipient-source framework, time spent receiving positive word-of-mouth was determined by the traits of the recipient (extraversion and conscientiousness), by the characteristics of the source (perceived expertise), and by their mutual relationship (tie strength). Only conscientiousness and source expertise were determinants of receiving negative word-of-mouth. In line with the accessibility-diagnostics model, receiving positive employment information through word-of-mouth early in the recruitment process was positively associated with perceptual (organizational attractiveness) and behavioral outcomes (actual application decisions), beyond potential applicants' exposure to other recruitment sources.

KEYWORDS: Recruitment, organizational attraction, potential applicant, recruitment source, word-of-mouth.

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A Closer Look at Word-of-Mouth as a Recruitment Source

In today's business environment, people are one of the most valuable company assets and recruitment serves the important function of bringing the necessary talent into the organization (Rynes & Cable, 2003). Despite economic upturns and downturns, recruitment remains a crucial human resources function for at least three reasons. First, there will always be hard-to-fill vacancies for which organizations must compete fiercely to attract potential applicants, even in an otherwise loose labor market (Ployhart, 2006). Second, the most talented job seekers continue to have enough options to critically investigate and compare potential employers. Therefore, organizations that wish to attract these highly desired applicants have no choice but to participate in the "war for talent" (Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005). Third, demographic trends such as a smaller supply of younger workers and retirements among baby boomers indicate that recruitment will become even more important in the future (Saks, 2005).

Recently, the focus of recruitment research has shifted towards studying the impact of early recruitment activities on initial organizational attraction (Cable & Yu, 2006; Collins & Han, 2004; Collins & Stevens, 2002). This corresponds to what Barber (1998) referred to as the first phase of recruitment, in which organizations aim to identify potential applicants and to persuade them to apply through the use of a wide array of recruitment practices. It is crucial to understand how these early recruitment activities affect job seekers' application decisions, because if they do not apply at this first stage, they disappear from the recruitment process and cannot be reached by later recruitment or selection activities (Carlson, Connerley, & Mecham, 2002; Murphy, 1986).

The source through which potential applicants receive employment information is one of the key factors that might influence their initial attraction to the organization (Barber, 1998;

Rynes & Cable, 2003; Zottoli & Wanous, 2000). However, previous research has mainly focused on company-dependent recruitment sources such as advertising, which are directly controlled by the organization to communicate a positive message to job seekers (Breugh & Starke, 2000; Cable & Turban, 2001). With respect to company-independent sources such as word-of-mouth, which are not under the direct control of the organization and can provide positive as well as negative information, research is scarce (Van Hoye & Lievens, 2005). For example, prior research on word-of-mouth has typically relied on student samples and perceptual outcomes (Collins & Stevens, 2002; Van Hoye & Lievens, 2005, 2007). This gap in recruitment research contrasts sharply with the reality of job seeking where social actors (e.g., family, friends, acquaintances) are often consulted about potential jobs and organizations (Wanberg, Kanfer, & Banas, 2000). Cable and Turban (2001) summarized this state of the art in recruitment research as follows:

Any information source, ranging from company's brand advertisement to friends' word-of-mouth, has the potential to affect job seekers' employer knowledge.

Unfortunately, several sources of organizational information suggested by the marketing literature have been relatively ignored in past recruitment research. (p. 132)

In the recruitment field, a number of recent studies have fruitfully applied marketing concepts to recruitment issues, demonstrating that a marketing metaphor can provide an innovative and theory-driven approach to understanding early organizational attraction (e.g., Cable & Turban, 2003; Collins & Han, 2004; Collins & Stevens, 2002; Lievens & Highhouse, 2003; Slaughter, Zickar, Highhouse, & Mohr, 2004). Accordingly, the present study draws on conceptualizations of word-of-mouth in the marketing literature to investigate determinants and outcomes of positive and negative word-of-mouth received by potential applicants. First, the recipient-source framework is applied to examine determinants of receiving word-of-mouth (Gilly, Graham, Wolfenbarger, & Yale, 1998). This framework postulates that word-of-

mouth is determined by the characteristics of both its source and recipient, as well as by their mutual relationship (Bansal & Voyer, 2000; Lau & Ng, 2001). On a practical level, insight into the determinants of word-of-mouth might provide organizations with valuable suggestions on how to indirectly influence this company-independent recruitment source. Second, we rely on the accessibility-diagnostics model (Feldman & Lynch, 1988) to investigate (a) perceptual (organizational attractiveness) and behavioral attraction outcomes (actual application decisions) of receiving positive and negative word-of-mouth in the first recruitment phase as well as (b) the incremental contribution of word-of-mouth to these outcomes beyond other commonly used recruitment sources. This theoretical model posits that word-of-mouth is likely to affect people's perceptions and behaviors because of its accessibility in memory and its diagnosticity (Herr, Kardes, & Kim, 1991).

Our study is situated in an Army context. This military context is relevant for studying recruitment issues because many armed forces (and other large organizations) are increasingly facing difficulties in attracting and enlisting the required numbers of new recruits (Knowles et al., 2002; Lievens, 2007). We start by reviewing the marketing literature on word-of-mouth and then apply these insights to the recruitment field.

Word-of-Mouth in Marketing

Word-of-Mouth as a Source of Product Information

Since the 1960s, a large body of marketing research has documented the pervasive impact of word-of-mouth on consumer attitudes and behavior (Bansal & Voyer, 2000; Bone, 1995; Buttle, 1998; Herr et al., 1991; Laczniak, DeCarlo, & Ramaswani, 2001; Smith & Vogt, 1995; Wirtz & Chew, 2002). As a key concept in the study of social influences, word-of-mouth is defined as an interpersonal communication, independent of the organization's marketing activities, about an organization or its products (Bone, 1995). This definition identifies the three key characteristics of word-of-mouth. First, word-of-mouth is clearly a

social phenomenon as it occurs between people, in an informal manner (Buttle, 1998).

Second, word-of-mouth represents a particular type of *information source* about an organization or its products (Cohen & Golden, 1972). Finally, word-of-mouth is a *company-independent* information source that is not under the direct control of the organization (Bone, 1992). Contrary to commercial sources such as advertising, word-of-mouth is generated by people who have no self-interest in promoting the product (Wirtz & Chew, 2002).

In addition to these defining characteristics, word-of-mouth can vary across at least four other dimensions that are likely to influence its effects. First, even though word-of-mouth is typically associated with face-to-face communication, it can be provided through all sorts of media such as the telephone or the internet (Dellarocas, 2003; Herr et al., 1991; Smith & Vogt, 1995). Second, as long as they are operating independently of the organization, all social actors can provide word-of-mouth information including friends, family, acquaintances, and even complete strangers (Brown & Reingen, 1987; Smith & Vogt, 1995). Third, word-of-mouth can be based on motives of the source (e.g., dissatisfaction) as well as the recipient (e.g., advice seeking), or can even occur coincidentally (Mangold, Miller, & Brockway, 1999). Finally, as word-of-mouth is a company-independent source that does not have the explicit purpose to promote the organization or product, it can contain both positive and negative information (Bone, 1995; Smith & Vogt, 1995). Therefore, it is important to take the valence of word-of-mouth into account when measuring its effects (Laczniak et al., 2001).

Understanding Determinants of Word-of-Mouth: The Recipient-Source Framework

Marketing research on the determinants of word-of-mouth has been guided by the recipient-source framework, which conceptualizes word-of-mouth as a dyadic communication between a source (i.e., sender) and a recipient (i.e., receiver) (Gilly et al., 1998). This implies that the occurrence of word-of-mouth is determined by the characteristics of the recipient, by the characteristics of the source, and by their mutual relationship (Bansal & Voyer, 2000; Lau

& Ng, 2001). All three of these determinants have received considerable empirical support (Bansal & Voyer, 2000; Bone, 1992; Brown & Reingen, 1987; Gilly et al., 1998; Lau & Ng, 2001; Mangold et al., 1999; Sundaram, Mitra, & Webster, 1998; Wirtz & Chew, 2002). First, with respect to recipient characteristics, research has found that consumers with particular personality traits rely more on word-of-mouth as a source of product-related information than others (Gilly et al., 1998; Lau & Ng, 2001). For instance, people with higher levels of extraversion and higher susceptibility to interpersonal influences are more likely to receive word-of-mouth information (Mooradian & Swan, 2006; Mowen, Park, & Zablah, 2007).

Regarding source characteristics, previous research has identified the perceived expertise of the source as a key determinant of word-of-mouth (Bansal & Voyer, 2000; Gilly et al., 1998; Lau & Ng, 2001; Sundaram et al., 1998). Source expertise is defined as the degree of knowledge and experience the source possesses with respect to the product or organization (Bone, 1995). On the one hand, people are more likely to request word-of-mouth information from knowledgeable sources because they are perceived as being capable of providing correct information (Bansal & Voyer, 2000). On the other hand, sources with higher degrees of expertise are more likely to generate word-of-mouth because they have higher levels of involvement with the product or organization (Gilly et al., 1998).

As a third component of the recipient-source framework, tie strength is defined as the closeness of the social relationship between the recipient and the source of word-of-mouth information (Brown & Konrad, 2001). Close friends are an example of strong ties, whereas seldom-contacted acquaintances represent weak ties (Brown & Reingen, 1987). Stronger ties are typically more readily available and result in more frequent interaction through which word-of-mouth information can be requested or provided (Gilly et al., 1998). Several studies have found that consumers engage more in word-of-mouth with strong ties than with weak ties (Bansal & Voyer, 2000; Bone, 1992; Wirtz & Chew, 2002).

Predicting Outcomes of Word-of-Mouth: The Accessibility-Diagnosticity Model

The accessibility-diagnosticsity model has been applied as a theoretical framework for explaining the effects of receiving word-of-mouth (Feldman & Lynch, 1988; Herr et al., 1991). This theory posits that the likelihood that information is used to form an evaluation is determined by the accessibility or availability of that information in memory and by its diagnosticity (Feldman & Lynch, 1988). Accessibility is high when the information is easily retrieved from memory (Herr et al., 1991). Diagnosticity is high when the information helps to discriminate between alternative hypotheses, interpretations, or categorizations (e.g., whether a product has low or high quality) (Feldman & Lynch, 1988). Information provided through word-of-mouth is easily accessible in memory because of its personal and vivid nature (Bone, 1995; Herr et al., 1991). Moreover, word-of-mouth information is also seen as diagnostic because consumers perceive that the information comes from a credible and trustworthy source that has no commercial interest in promoting the product (Pornpitakpan, 2004; Smith & Vogt, 1995; Wirtz & Chew, 2002).

In line with the accessibility-diagnosticsity model, research has consistently demonstrated that word-of-mouth exerts a powerful influence on consumer attitudes such as brand evaluations as well as on consumer behavior such as purchase decisions (Bansal & Voyer, 2000; Buttle, 1998; Bone, 1995; Herr et al., 1991; Smith & Vogt, 1995; Wirtz & Chew, 2002). Whereas receiving negative word-of-mouth negatively affects consumer attitudes and behavior, exposure to positive word-of-mouth has a positive impact (Buttle, 1998; Bone, 1995; Laczniak et al., 2001). In addition, word-of-mouth information is typically more influential than information received through commercial sources such as advertising (Bone, 1995; Buttle, 1998; Herr et al., 1991; Laczniak et al., 2001; Smith & Vogt, 1995).

Implications for Word-of-Mouth in Recruitment

Word-of-Mouth as a Source of Employment Information

Consistent with its definition in marketing (see above), word-of-mouth as a recruitment source is defined as an interpersonal communication, independent of the organization's recruitment activities, about an organization as an employer or about specific jobs (Bone, 1995; Van Hove & Lievens, 2007). In line with its key characteristics, word-of-mouth is always a company-independent social source of employment-related information (Bone, 1992; Cable & Turban, 2001; Cohen & Golden, 1972). Similar to product-related word-of-mouth, job-related word-of-mouth can vary with respect to its medium (e.g., face-to-face versus internet), source (e.g., friend versus acquaintance), motives (e.g., uncertainty reduction of the recipient versus vengeance of the source) and valence (e.g., positive versus negative) (Brown & Reingen, 1987; Cable & Turban, 2001; Herr et al., 1991; Mangold et al., 1999; Smith & Vogt, 1995).

These characteristics clarify how word-of-mouth as a recruitment source relates to two other concepts that have been used in previous recruitment research. In fact, employee referrals and networking represent particular subtypes of the broader concept word-of-mouth. First, whereas all social actors can be sources of word-of-mouth, *employee referrals* are restricted to information provided by an employee of the recruiting organization (Zottoli & Wanous, 2000). Moreover, with respect to valence, employee referrals typically contain mostly positive information as the organization is recommended to others. Previous research has demonstrated that employee referrals have a positive effect on pre-hire recruitment outcomes such as the quantity and quality of the applicant pool and on post-hire outcomes such as job satisfaction, job performance, and (inversely related) turnover (Breugh & Starke, 2000; Collins & Han, 2004; Saks, 2005; Zottoli & Wanous, 2000). Similarly, *networking* refers to one specific kind of word-of-mouth. While word-of-mouth can be initiated by the

source as well as by the recipient or can even happen coincidentally, networking consists of word-of-mouth initiated by job seekers with the explicit motive to gather information about potential jobs (Wanberg et al., 2000). Previous research has attested to the beneficial effects of networking on job seekers' reemployment (Wanberg et al., 2000).

In line with the above definition, the current study operationalizes word-of-mouth as time spent talking to other people about the organization as an employer (see Van Hoye & Lievens, 2007, Wanberg et al., 2000). Given that we investigate word-of-mouth among its recipients, this refers to the amount of time that potential applicants spend on *receiving* word-of-mouth, regardless of whether it is actively sought or unsolicited (Mangold et al., 1999). In keeping with its characteristics as a company-independent source, we distinguish between positive and negative word-of-mouth, which is operationalized as time spent receiving positive, respectively negative employment information from others (Cable & Turban, 2001).

Determinants of Word-of-Mouth as a Recruitment Source

The recipient-source framework from marketing is applied to identify determinants of word-of-mouth as a recruitment source. Consonant with this theoretical framework, we expect that some potential applicants will receive more word-of-mouth than others and that some people will more often act as a source of employment information than others (Gilly et al., 1998). In addition, the relationship between the recipient and the source of job-related word-of-mouth is expected to influence its occurrence (Wirtz & Chew, 2002).

With respect to recipient characteristics, the recipient-source framework suggests that potential applicants with particular traits are more likely to receive word-of-mouth information than others (Gilly et al., 1998; Lau & Ng, 2001). In line with research findings from marketing (Mooradian & Swan, 2006; Mowen et al., 2007), Wanberg et al. (2000) found that of all Big Five personality factors only extraversion and conscientiousness were significant positive predictors of job seekers' time spent networking (i.e., intentional word-of-

mouth initiated by job seekers to gather employment information). Extraversion refers to the extent to which a person is sociable, gregarious, assertive, talkative, and active (Barrick & Mount, 1991). People with high levels of extraversion prefer social situations in which they can interact with others (Goldberg, 1990). We expect potential applicants higher in extraversion to receive more word-of-mouth for two reasons. First, given their characteristics, extraverts are likely to have larger social networks through which word-of-mouth information might be provided (Russell, Booth, Reed, & Laughlin, 1997). Second, even if their networks were equally large, extraverts will still interact more frequently with other people because they are more oriented toward social behavior, increasing the likelihood that employment-related word-of-mouth will occur (Caldwell & Burger, 1998).

Conscientiousness reflects dependability (i.e., being thorough, responsible, organized, and planful) and having a high will to achieve (i.e., being hardworking, achievement-oriented, and persevering) (Digman, 1990). We expect potential applicants higher in conscientiousness to receive more word-of-mouth because they tend to be more motivated and more persistent. Therefore, they will try harder to obtain company-independent word-of-mouth information in addition to company-dependent recruitment sources such as advertising to get a more complete and balanced picture of the organization (Caldwell & Burger, 1998).

Hypothesis 1: Extraversion will be positively associated with time spent receiving (a) positive and (b) negative word-of-mouth.

Hypothesis 2: Conscientiousness will be positively associated with time spent receiving (a) positive and (b) negative word-of-mouth.

In terms of source characteristics, the recipient-source framework suggests that some sources are more likely to send word-of-mouth information than others (Gilly et al., 1998; Lau & Ng, 2001). Consistent with its definition, word-of-mouth can be provided by many different sources (Bone, 1992). Instead of investigating a long list of possible sources (e.g.,

neighbor, friend, father, coworker, employee, and so forth), it makes more sense to conceptually distinguish the characteristics of those sources that are likely to influence the extent to which potential applicants receive employment information from them (Van Hove & Lievens, 2007). Along these lines, the perceived expertise of the source has been found to be a key determinant of word-of-mouth (Bansal & Voyer, 2000; Gilly et al., 1998; Lau & Ng, 2001; Sundaram et al., 1998). Source expertise is defined as the degree of knowledge and experience the source possesses with respect to the job or recruiting organization (Bone, 1995). In a recruitment context, Fisher, Ilgen, and Hoyer (1979) identified expertise as a major component of source credibility and found that potential applicants perceived employees as more knowledgeable than recruiters as sources of employment information.

In line with these research findings, we expect potential applicants to receive more word-of-mouth information from sources who work for the organization or have other personal experiences with the organization (e.g., as an applicant or a customer) than from less knowledgeable sources. First, job seekers are more likely to request word-of-mouth information from expert sources because they are perceived as being able to provide correct information (Fisher et al., 1979). Second, sources with higher degrees of expertise are more likely to generate unsolicited word-of-mouth because they have higher levels of involvement with the job or organization (Gilly et al., 1998).

Hypothesis 3: Source expertise will be positively associated with time spent receiving (a) positive and (b) negative word-of-mouth.

Moreover, the recipient-source framework posits that word-of-mouth is not only determined by the characteristics of its recipient and its source, but also by their mutual relationship (Bansal & Voyer, 2000). In this respect, tie strength refers to the closeness of the social relationship between the recipient and the source of word-of-mouth information (Brown & Konrad, 2001). Marketing research has demonstrated that consumers receive more

product-related word-of-mouth from strong ties such as friends than from weak ties such as acquaintances (Bone, 1992; Wirtz & Chew, 2002). Similarly, we expect that potential applicants will spend more time receiving job-related word-of-mouth from stronger ties. Given that people interact more frequently with strong ties than with weak ties (Gilly et al., 1998), tie strength should increase the likelihood that word-of-mouth is requested or provided.

Hypothesis 4: Tie strength will be positively associated with time spent receiving (a) positive and (b) negative word-of-mouth.

Outcomes of Word-of-Mouth as a Recruitment Source

On the basis of the accessibility-diagnostics framework, we expect word-of-mouth as a source of employment information to influence potential applicants' attraction to organizations because of its accessibility and diagnostics (Feldman & Lynch, 1988; Herr et al., 1991; Pornpitakpan, 2004). As marketing research revealed that word-of-mouth affects both consumers' attitudes and behavior (Bansal & Voyer, 2000; Bone, 1995; Wirtz & Chew, 2002), we also hypothesize that receiving employment-related word-of-mouth will influence perceived organizational attractiveness as well as actual application decisions. These are key outcomes in the first phase of recruitment, in which organizations try to identify and attract *potential* applicants (Barber, 1998). Organizational attractiveness is defined as potential applicants' attitude toward an organization as an employer (Turban & Keon, 1993). Application decisions reflect potential applicants' choice to apply to a given organization or not (Highhouse, Lievens, & Sinar, 2003).

Only a few prior studies have examined the outcomes of word-of-mouth as a recruitment source. Cable, Aiman-Smith, Mulvey, and Edwards (2000) found that receiving employment information through word-of-mouth did not influence the accuracy of applicants' beliefs about organizational culture. However, the effects on organizational attraction were not measured. In a student sample, Collins and Stevens (2002) observed a strong effect of

receiving positive word-of-mouth on perceived organizational attractiveness and self-reported application decisions. Furthermore, a lab study of Van Hoye and Lievens (2005) found that exposure to positive word-of-mouth enhanced students' perceptions of organizational attractiveness after receiving negative publicity. However, both studies did not consider negative word-of-mouth, even though both positive and negative word-of-mouth have been found to influence consumers' attraction to products (Bone, 1995). In another lab study, Van Hoye and Lievens (2007) demonstrated that receiving negative word-of-mouth negatively affected students' perceived organizational attractiveness. We extend this previous recruitment research by examining the simultaneous impact of receiving positive and negative word-of-mouth on both perceived organizational attractiveness and actual application decisions in a sample of potential applicants for a real organization, the Belgian Defense.

Hypothesis 5: Time spent receiving positive word-of-mouth will be positively associated with (a) organizational attractiveness and (b) application decisions.

Hypothesis 6: Time spent receiving negative word-of-mouth will be negatively associated with (a) organizational attractiveness and (b) application decisions.

As word-of-mouth constitutes a fairly new concept in recruitment source research, it is of key importance to assess its relevance by investigating if it accounts for incremental variance in these outcomes beyond other commonly used sources (Cable & Turban, 2001). According to the accessibility-diagnostics model, company-independent sources such as word-of-mouth are more credible and therefore more diagnostic than company-dependent sources such as advertising (Pornpitakpan, 2004; Van Hoye & Lievens, 2007). In addition, the framework suggests that personal sources such as word-of-mouth are more accessible than impersonal sources such as mass media publicity (Herr et al., 1991; Van Hoye & Lievens, 2005). Therefore, we expect word-of-mouth to account for incremental variance in organizational attraction beyond potential applicants' exposure to other sources.

Hypothesis 7: Time spent receiving positive and negative word-of-mouth will explain incremental variance in (a) organizational attractiveness and (b) application decisions beyond time spent receiving information from other recruitment sources.

Method

Participants and Procedure

The present study is situated in the first phase of recruitment, in which organizations try to attract potential applicants and persuade them to apply (Barber, 1998). Potential applicants are people who have some interest in the job and might consider applying (Ryan, Horvath, & Kriska, 2005). However, unlike actual applicants, they have not yet taken the decision to apply and they might decide not to. Therefore, it is an important group that organizations typically compete for (Collins & Han, 2004). Unlike the more general population of job seekers, they express some interest, usually by actively looking for (additional) information about the organization and possible jobs, for instance on the organization's website (Ryan et al., 2005).

Our sample consisted of potential applicants targeted by the Belgian Defense. The Belgian Defense is one of the largest employers on the Belgian labor market, with over 40,000 employees. Therefore, it has a strong and distinctive image as an employer (Lievens, 2007). In comparison with other countries, the Belgian Defense is relatively small and focuses mainly on humanitarian and peacekeeping operations (Schreurs et al., 2005). Recent recruitment campaigns have emphasized this peacekeeping mission, as exemplified by slogans such as "Priority to Peace".

During nine months, visitors of the jobs page on the Belgian Defense's website were invited to participate in a study about the Belgian Defense as an employer and were provided with the website address where the questionnaire could be completed. It was stressed that participation was voluntary and would in no way affect their official record, that answers

would be treated confidentially, and that they should answer honestly on the basis of their own opinion or experiences, as there were no right or wrong answers. It was also explained that participants could take part in a raffle to win one of 50 gift certificates worth 50 Euro. The questionnaire was administered online on an independent website especially created for this study. Following recommendations for web-based data collection strategies (Stanton & Rogelberg, 2001), the data obtained were carefully screened (i.e., for responses not matching “legal” identifiers and for inadvertent and malicious multiple responses), and all suspect cases were removed (about 5%). Six months after the completion of the study, the recruitment database of the Belgian Defense was screened on the basis of participants’ social security number to assess whether they had applied or not.

In total, we received usable responses from 612 potential applicants. The majority of our sample were men (71%), which is typical for the military (Schreurs et al., 2005). The average age was 23 years ($SD = 4.34$). With respect to education, 5% obtained a primary school degree, 56% a high school degree, and 39% a college degree. Most potential applicants (69%) had some work experience and 63% had experience in applying for a job. Almost half of our sample (48%) indicated that they would be most interested in a job with the Belgian Defense’s Ground Force; others preferred the Air Force (16%), the Medical Component (9%), the Navy (5%), or had no preference (22%). With respect to job type, 14% was most interested in a civilian position, 17% in a soldier position, 21% in a non commissioned officer position, 28% in an officer position, and 20% indicated no preference. The recruitment database revealed that 23% of our sample actually applied for a job with the Belgian Defense. Overall, these sample characteristics converge to the sample properties in previous recruitment research situated in the Belgian Defense, although our sample was somewhat higher educated (Lievens, 2007).

Measures

Unless stated otherwise, items were rated on a 5-point rating scale, ranging from 1 = *completely disagree* to 5 = *completely agree*.

Extraversion. Potential applicants' level of extraversion was measured with five items taken from the International Personality Item Pool (2001), corresponding to the broad extraversion domain of the Revised NEO Personality Inventory (Costa & McCrae, 1995; Goldberg, 1999). A sample item is "I feel comfortable around other people". The internal consistency of the scale scores was .71.

Conscientiousness. Potential applicants' level of conscientiousness was also measured with five items taken from the International Personality Item Pool (2001), corresponding to the broad conscientiousness domain of the Revised NEO Personality Inventory (Costa & McCrae, 1995; Goldberg, 1999). A sample item is "I make plans and stick to them". The internal consistency of the scale scores was .74.

Source expertise. On the basis of previous research (Bansal & Voyer, 2000; Fisher et al., 1979), two items were developed for measuring the perceived knowledge and experience of the word-of-mouth sources with respect to the job or organization. An example item is "Most people I have talked with about the Belgian Defense work or have worked for the Belgian Defense themselves". The internal consistency of the scale scores was .90.

Tie strength. The closeness of participants' social relationship with the sources of word-of-mouth information was measured by three items adapted from Brown and Konrad (2001). A sample item is "Most people I have talked with about the Belgian Defense are people I know very well, such as family or friends". The internal consistency was .87.

Word-of-mouth. We followed guidelines from the recruitment source literature to develop an adequate measure of word-of-mouth received by potential applicants. First, potential applicants are likely to vary in the extent to which they receive employment

information from a particular recruitment source (Saks & Ashforth, 1997; Zottoli & Wanous, 2000). This implies that a Likert-type scale measuring the amount of time spent receiving information through a source might be more appropriate than a simple yes/no response scale measuring whether or not any information was received from that source (Blau, 1994; Van Hooft, Born, Taris, Van der Flier, & Blonk, 2004). Second, potential applicants can receive both positive and negative employment information from company-independent sources such as word-of-mouth, which do not have the explicit purpose to promote the organization (Cable & Turban, 2001). Therefore, consistent with previous research in marketing (Bone, 1995; Herr et al., 1991; Mangold et al., 1999) and recruitment (Van Hove & Lievens, 2007), we used separate measures for assessing positive and negative word-of-mouth. The use of a single measure would not have allowed us to take both the amount and the valence of word-of-mouth into account, as a low score could have referred both to receiving no word-of-mouth and to receiving negative information through word-of-mouth.

In keeping with these guidelines, we developed two items to measure how much time potential applicants had spent on receiving positive employment information from other people (*positive word-of-mouth*) and two items to assess how much time they had spent on receiving negative employment information from others (*negative word-of-mouth*). The specific wording of the items (see Appendix) was based on previous research (Cable et al., 2000; Collins & Stevens, 2002; Van Hove & Lievens, 2007; Wanberg et al., 2000) as well as on discussions with several career counselors and potential applicants of the Belgian Defense. All items were rated on a 5-point rating scale, ranging from 1 = *no time at all* to 5 = *very much time*. The internal consistencies of the scale scores were .80 for positive word-of-mouth and .76 for negative word-of-mouth.

Other recruitment sources. To investigate the incremental contribution of word-of-mouth to organizational attraction, we also measured the extent to which potential applicants

received employment information through other sources. To ensure that all types of recruitment sources were represented in the current study, we selected at least one source from each category of Cable and Turban's (2001) recent comprehensive taxonomy (see Table 1). In this theory-driven classification, two dimensions are combined to form four distinct categories. The dependent-independent dimension refers to the degree of control the organization has of the information source. The experiential-informational dimension represents the degree to which the source allows potential applicants to acquire information through personal, vivid media versus impersonal, pallid media.

Consistent with the above guidelines, two items were developed to measure how much time potential applicants had spent on receiving employment information from each recruitment source. Similar to word-of-mouth, separate positive and negative scales were developed for the company-independent source publicity. Again, the wording of the items (see Appendix) was based on previous research (Blau, 1994; Cable et al., 2000; Collins & Han, 2004; Collins & Stevens, 2002; Saks & Ashforth, 1997; Van Hooft et al., 2004) and on discussions with several career counselors and potential applicants. All items were rated on a 5-point rating scale, ranging from 1 = *no time at all* to 5 = *very much time*. All scale scores had satisfactory internal consistencies: recruitment advertising (.79), recruitment website (.91), recruitment events (.83), positive publicity (.89), and negative publicity (.94).

We conducted a confirmatory factor analysis using EQS 6.1 (Bentler, 2003) to test the factor structure of our measure of word-of-mouth and the other recruitment sources. Given that separate positive and negative scales were used for word-of-mouth and publicity, we expected to find seven factors. The goodness-of-fit indices showed that this seven-factor model produced a good fit to the data, comparative fit index (*CFI*) = .993, root mean square error of approximation (*RMSEA*) = .031. Inspection of the factor loadings revealed that each item had a significantly high loading on the factor it was purported to measure. In addition,

the seven-factor model fitted the data significantly better than a five-factor model in which the positive and negative scales for the company-independent sources were combined into two general word-of-mouth and publicity factors, $\Delta\chi^2(11) = 818.88, p < .01$, and than a one-factor model in which all items loaded on one single factor, $\Delta\chi^2(21) = 1849.18, p < .01$. Both the five-factor model, $CFI = .815, RMSEA = .143$, and the one-factor model, $CFI = .591, RMSEA = .199$, produced a poor fit to the data.

Organizational attractiveness. Potential applicants' attitude toward the Belgian Defense as an employer was assessed with three items from Turban and Keon (1993). An example item is "I would like to work for the Belgian Defense". The internal consistency of the scale scores was .89.

Application decision. As an objective measure of application decision, we looked up participants' social security number in the Belgian Defense's recruitment database to find out whether they had applied or not. To allow participants ample time to apply, this was done six months after the completion of the study. Using an archival measure eliminated common method variance with our measure of recruitment sources whereas the separation in time allowed us to draw causal conclusions. Application decision was coded as 0 = *did not apply* or 1 = *applied*.

Results

Means, standard deviations, and correlations among all variables are presented in Table 2. Potential applicants reported spending more time receiving positive word-of-mouth than negative word-of-mouth. A paired samples *t*-test indicated that this difference in means was significant, $t(611) = 20.94, p < .01$. With respect to determinants, conscientiousness, source expertise, and tie strength were positively related to time spent receiving positive as well as negative word-of-mouth, whereas extraversion was related only to time spent receiving positive word-of-mouth. Regarding outcomes, all recruitment sources were

positively associated with organizational attractiveness (except for negative publicity) and with actual application decisions (except for negative publicity and negative word-of-mouth). Organizational attractiveness and actual application decisions were positively correlated.

Our first set of hypotheses suggested that time spent receiving word-of-mouth would be determined by the three components of the recipient-source framework, namely recipient characteristics, source characteristics, and the recipient-source tie. Therefore, two regression analyses were performed with extraversion, conscientiousness, source expertise, and tie strength as predictors and with time spent receiving positive and negative word-of-mouth as respective dependent variables. As shown in Table 3, potential applicants higher in extraversion had spent more time receiving positive word-of-mouth, supporting Hypothesis 1a. Conversely, Hypothesis 1b was not supported as extraversion was not related to negative word-of-mouth. Consistent with Hypotheses 2a and 2b, conscientiousness was positively associated with receiving both positive and negative word-of-mouth. In terms of source characteristics, potential applicants reported spending more time receiving positive and negative word-of-mouth from sources with higher expertise regarding the organization, supporting Hypotheses 3a and 3b. Finally, tie strength emerged as a positive predictor of time spent receiving positive word-of-mouth, corroborating Hypothesis 4a. Contrary to Hypothesis 4b, tie strength did not significantly predict negative word-of-mouth.

To test if time spent receiving word-of-mouth explained incremental variance in organizational attractiveness and actual application decisions beyond potential applicants' degree of exposure to other recruitment sources, two hierarchical regression analyses were conducted. Whereas an ordinary least squares regression analysis was conducted for organizational attractiveness, a logistic regression analysis was performed for application decisions. In each analysis, recruitment advertising, the recruitment website, recruitment events, and positive and negative publicity were entered in the first step. In the second and

final step, positive and negative word-of-mouth were added. The results in Table 4 indicate that time spent receiving word-of-mouth accounted for about 3% of additional variance in both organizational attractiveness, $F(2, 604) = 13.73, p < .01$, and application decisions, $\chi^2(2) = 12.95, p < .01$, beyond time spent receiving employment information from other recruitment sources, supporting Hypotheses 7a and 7b. In line with Hypotheses 5a and 5b, potential applicants receiving more positive word-of-mouth were more attracted to the Belgian Defense as an employer and were more likely to actually apply for a job with the Belgian Defense. Time spent receiving negative word-of-mouth was not associated with organizational attractiveness and application decisions, contrary to Hypotheses 6a and 6b. An additional hierarchical regression analysis was conducted to explore the effects of time spent receiving word-of-mouth on application decisions while controlling for potential applicants' initial attraction. Organizational attractiveness was entered in the first step, the other recruitment sources in the second step, and positive and negative word-of-mouth in the third step. As shown in Table 5, the positive effect of time spent receiving positive word-of-mouth on actual application decisions remained significant, even when potential applicants' initial level of organizational attractiveness was controlled for.

Discussion

Main Conclusions

To advance our understanding of word-of-mouth as a company-independent source of employment information early in the recruitment process, we drew on conceptualizations of word-of-mouth in the marketing literature. Our study yields several important conclusions that contribute to the recruitment literature. First, we found support for all three components of the recipient-source framework as determinants of time spent receiving word-of-mouth (Bansal & Voyer, 2000; Gilly et al., 1998; Lau & Ng, 2001). With respect to recipient characteristics, potential applicants higher in extraversion and conscientiousness reported

spending more time receiving positive word-of-mouth, which is in line with Wanberg et al. (2000). Furthermore, time spent receiving negative word-of-mouth was positively predicted by conscientiousness. Regarding the characteristics of the source, we found that potential applicants had spent more time receiving positive and negative word-of-mouth from sources with greater expertise concerning the job or organization. On the one hand, this suggests that potential applicants are more likely to request word-of-mouth information from people perceived as possessing valuable employment information (Bansal & Voyer, 2000; Fisher et al., 1979). On the other hand, people who have personal experiences with the recruiting organization such as current or former employees probably provide more unsolicited word-of-mouth information because they are more involved (Gilly et al., 1998; Mangold et al., 1999). Finally, positive word-of-mouth was not only determined by the characteristics of its recipient and its source, but also by their mutual relationship. Consistent with marketing research (Bone, 1992; Wirtz & Chew, 2002), potential applicants received more positive word-of-mouth from strong ties such as friends and family than from weak ties such as acquaintances. This supports the assumption that frequent interactions increase the likelihood that job-related word-of-mouth is requested or provided (Gilly et al., 1998).

As a second key contribution, our findings demonstrate that receiving positive employment information through word-of-mouth early in the recruitment process is positively related to perceived organizational attractiveness and actual application decisions. This is in line with the accessibility-diagnostics model, which suggests that information provided through word-of-mouth affects potential applicants' evaluations of the organization because of its accessibility in memory and its diagnosticity (Feldman & Lynch, 1988; Herr et al., 1991). This finding is also consistent with previous recruitment research demonstrating a positive impact of receiving positive word-of-mouth on organizational attraction in student samples (Collins & Stevens, 2002; Van Hoye & Lievens, 2005). Extending this previous

research, we further found that time spent receiving word-of-mouth explained incremental variance in perceived attractiveness and actual application decisions beyond potential applicants' exposure to recruitment advertising, the recruitment website, recruitment events, and publicity. This further corroborates the accessibility-diagnostics model, which posits that word-of-mouth's unique characteristics as a company-independent experiential recruitment source increase its accessibility and diagnostics, allowing it to influence potential applicants' perceptions and decisions beyond company-dependent and informational sources (Bone, 1995; Cable & Turban, 2001; Herr et al., 1991; Pornpitakpan, 2004).

Whereas the current field study found that time spent receiving negative word-of-mouth early in the recruitment process did not significantly predict potential applicants' perceived organizational attractiveness and application decisions, Van Hove and Lievens (2007) observed a large negative impact on students' perceptions of organizational attractiveness in their lab study. Besides differences in sample and design, brand equity theory (Keller, 1993) might provide a possible explanation for these findings. Previous marketing research has demonstrated that brand equity can act as a buffer against the detrimental impact of negative word-of-mouth, such that receiving negative word-of-mouth has a greater impact on consumers' evaluations of unfamiliar or unfavorable brands than of familiar or favorable brands (Laczniak et al., 2001). Applied to a recruitment context (Cable & Turban, 2001), it is possible that organizations with a strong employer brand (such as the Belgian Defense in the present study) are less affected by negative word-of-mouth than organizations with a weak employer brand (such as the fictitious organization in Van Hove & Lievens, 2007). Therefore, future research should investigate employer brand equity as a possible moderator of the impact of receiving negative word-of-mouth (Cable & Turban, 2001).

Moreover, the determinants investigated in our study explained only 6% of the variance in time spent receiving negative word-of-mouth versus 40% for positive word-of-

mouth. Future research can further use the recipient-source framework to identify other possible determinants of negative word-of-mouth. One possibility would be to explore more recipient traits that might increase potential applicants' likelihood of receiving negative employment information, such as negative affect (Watson, Clark, McIntyre, & Hamaker, 1992). Another option is to investigate additional source characteristics that make people more likely to spread negative word-of-mouth, such as employees' level of job dissatisfaction (Wirtz & Chew, 2002).

Limitations

This study is not without limitations. First, in accordance with calls for more research on the first phase of recruitment (e.g., Rynes & Cable, 2003), we investigated the determinants and outcomes of employment information received through word-of-mouth by *potential* applicants *early* in the recruitment process (Barber, 1998). It is important to study how early recruitment activities affect initial organizational attraction because if job seekers are not attracted in this first stage, they irrevocably disappear from the recruitment and selection process (Carlson et al., 2002; Murphy, 1986). Future research should examine word-of-mouth in other populations, such as actual applicants and job seekers who have not yet expressed some interest in the organization. For instance, we found that potential applicants reported receiving less negative than positive word-of-mouth. However, it is possible that job seekers who receive negative word-of-mouth information never even become potential applicants, implying that the occurrence and impact of negative word-of-mouth may be higher in the general population.

In addition, it is possible that the potential applicants in our study received employment information from more or other sources later in the recruitment process that may have influenced their final application decisions. Therefore, our results pertain only to how word-of-mouth received early in the recruitment process affects later application decisions.

Future longitudinal research with multiple time waves or a diary design would help to better capture the dynamic nature of the relationship between recruitment sources and organizational attraction. For instance, in the current study we investigated whether receiving employment information through word-of-mouth at an early stage predicted perceived organizational attractiveness and actual application decisions. However, in turn, potential applicants' initial level of attraction might affect their subsequent search for word-of-mouth information.

Next, our study was one of the first to take the valence of company-independent recruitment sources into account. However, we used a self-report measure that required participants to judge whether received employment information was positive or negative. Future research could ask potential applicants to describe the content of the received information and use independent coders to have a more objective measure of valence.

Finally, our sample consisted of potential applicants targeted by the Belgian Defense. It might be that this specific context affected some of the observed relationships. Our results probably best generalize to well-known large organizations with a strong employer brand. Whereas our findings with respect to positive word-of-mouth are consistent with previous recruitment research in other contexts (Collins & Stevens, 2002; Van Hove & Lievens, 2005), the results are less consistent for negative word-of-mouth (Van Hove & Lievens, 2007). Given the scarcity of previous research, additional research is needed to investigate word-of-mouth in other settings and countries.

Implications for Practice

Several practical implications follow from our study. Organizations should try to stimulate positive word-of-mouth early in the recruitment process because of its positive impact on potential applicants' attraction and application decisions. Even though word-of-mouth is a company-independent recruitment source, organizations can try to influence it indirectly through other recruitment activities such as image management, campus

recruitment, building relationships with key influentials and opinion leaders (e.g., career counselor, class president), employee referral programs (e.g., providing referral bonuses), or internships. Our finding that potential applicants were more likely to receive positive word-of-mouth information from strong ties and from people with high expertise provides organizations with specific clues for how to influence word-of-mouth most effectively. First, organizations should broaden the target group of their recruitment activities to include potential applicants' friends and family. In this respect, "Refer a Friend" programs on recruitment websites can encourage job seekers to forward relevant vacancies to their friends. In addition, organizing family fairs or open house events may increase the involvement of potential applicants' family. Furthermore, as much of word-of-mouth seems to be provided by an organization's own employees, the organization should ensure that all employees have easy access to accurate, consistent, and complete information about the organization and vacant positions. Moreover, this finding illustrates the importance of marketing an organization's employer brand both outside and within the organization (Ambler & Barrow, 1996). This will increase the likelihood that the content and valence of the word-of-mouth information provided by employees will be consistent with the message communicated to potential applicants through company-dependent recruitment sources such as advertising.

Implications for Future Research

To further advance our understanding of word-of-mouth as a recruitment source, we see at least the three following avenues for future research. First, an intriguing research question would be how variations in the medium through which word-of-mouth is received affect its prevalence and effects. One possibility would be to compare face-to-face word-of-mouth to web-based word-of-mouth, as the importance of the latter has increased in recent years (Dellarocas, 2003). Along these lines, media richness theory postulates that "richer" media are more persuasive than less rich media (Allen, Van Scotter, & Otondo, 2004). Media

richness is determined by the medium's capacity for immediate feedback, the number of cues and channels utilized, personalization, and language variety (Daft & Lengel, 1986).

Therefore, a face-to-face conversation with a word-of-mouth source should have a greater effect on potential applicants' attraction to organizations than an e-mail from the same person.

A second fruitful area for future research would be to investigate the motives for providing positive and negative word-of-mouth among the sources of employment-related word-of-mouth information. On a practical level, such research would provide valuable information for organizations trying to influence word-of-mouth. In this respect, Sundaram et al. (1998) found that consumers engaged in positive word-of-mouth for altruistic, product involvement, and self-enhancement reasons. Negative word-of-mouth was motivated by altruism, anxiety reduction, vengeance, and advice seeking.

Third, future research should investigate the relative efficacy of various strategies used by organizations to influence word-of-mouth such as employee referral programs and internships. In addition to their effects on the occurrence of word-of-mouth, their impact on the outcomes of word-of-mouth should also be taken into account. For instance, rewarding current employees for referring applicants is likely to increase their extrinsic motivation for spreading word-of-mouth. However, this might also undermine the credibility of word-of-mouth if potential applicants would perceive employees as having a self-interest in promoting the organization (Wirtz & Chew, 2002).

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Appendix

Measures of Word-of-Mouth and Other Recruitment Sources

Variable	Items
Positive word-of-mouth	<ol style="list-style-type: none"> 1. Talking to people you know who told you positive things about the Belgian Defense. 2. Inquiring about the Belgian Defense of family, friends, or acquaintances who recommended the Belgian Defense as an employer.
Negative word-of-mouth	<ol style="list-style-type: none"> 1. Talking to people you know who told you negative things about the Belgian Defense. 2. Inquiring about the Belgian Defense of family, friends, or acquaintances who advised against the Belgian Defense as an employer.
Recruitment advertising	<ol style="list-style-type: none"> 1. Reading job postings of the Belgian Defense. 2. Going through recruitment advertisements of the Belgian Defense.
Recruitment website	<ol style="list-style-type: none"> 1. Visiting the Belgian Defense's website. 2. Looking up information on the Belgian Defense's website.
Recruitment events	<ol style="list-style-type: none"> 1. Attending events or job fairs where the Belgian Defense was present. 2. Attending information sessions or open house events of the Belgian Defense.
Positive publicity	<ol style="list-style-type: none"> 1. Going through positive media messages about the Belgian Defense. 2. Going through favorable information about the Belgian Defense on/in TV, radio, newspapers, or magazines.
Negative publicity	<ol style="list-style-type: none"> 1. Going through negative media messages about the Belgian Defense. 2. Going through unfavorable information about the Belgian Defense on/in TV, radio, newspapers, or magazines.

Note. Items were preceded by the stem question "How much time have you spent on ...?".

Table 1

Cable and Turban's (2001) Taxonomy of Recruitment Sources

	Company-dependent	Company-independent
Informational	Recruitment advertising	Publicity
	Recruitment site	
Experiential	Recruitment event	Word-of-mouth

Table 2

Means, Standard Deviations, and Correlations Between Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Extraversion	3.89	.66	-											
2. Conscientiousness	3.89	.66	.26**	-										
3. Source expertise	3.54	1.44	.20**	.18**	-									
4. Tie strength	3.43	1.24	.16**	.14**	.21**	-								
5. Recruitment advertising	2.72	.95	.19**	.25**	.23**	.26**	-							
6. Recruitment website	3.45	1.06	.09*	.27**	.22**	.23**	.61**	-						
7. Recruitment events	2.23	1.10	.13**	.22**	.29**	.13**	.43**	.40**	-					
8. Positive publicity	2.71	1.02	.13**	.21**	.21**	.24**	.62**	.54**	.46**	-				
9. Negative publicity	2.08	.97	.04	.11**	.15**	.12**	.32**	.31**	.31**	.64**	-			
10. Positive word-of-mouth	2.92	1.14	.27**	.23**	.50**	.45**	.53**	.49**	.45**	.53**	.30**	-		
11. Negative word-of-mouth	1.95	.91	.02	.13**	.22**	.10*	.29**	.32**	.24**	.35**	.52**	.38**	-	
12. Organizational attractiveness	4.28	.83	.24**	.34**	.29**	.26**	.42**	.39**	.25**	.28**	.05	.41**	.12**	-
13. Actual application decision	.23	.42	.07	.05	.09*	.10**	.27**	.18**	.13**	.13**	.06	.24**	.07	.28**

Note. All variables were rated on a 5-point scale, except for actual application decision, 0 = *did not apply*, 1 = *applied*. * $p < .05$. ** $p < .01$.

Table 3

Regression of Word-of-Mouth on Recipient, Source, and Relationship Characteristics

Predictor	Positive word-of-mouth	Negative word-of-mouth
Extraversion	.11**	-.06
Conscientiousness	.08*	.10*
Source expertise	.39**	.20**
Tie strength	.34**	.05
R^2	.396**	.061**
Adjusted R^2	.392**	.055**

Note. The values in the table are standardized beta weights (β). * $p < .05$. ** $p < .01$.

Table 4

Hierarchical Regression of Outcomes on Recruitment Sources

Predictor	Organizational attractiveness		Actual application decision ^a	
	Step 1	Step 2	Step 1	Step 2
Recruitment advertising	.27**	.23**	2.05**	1.93**
Recruitment website	.21**	.17**	1.12	1.05
Recruitment events	.06	.01	1.06	.98
Positive publicity	.09	.03	.82	.72*
Negative publicity	-.18**	-.16**	.98	1.05
Positive word-of-mouth		.24**		1.52**
Negative word-of-mouth		-.03		.89
R^2	.229**	.262**		
Adjusted R^2	.222**	.254**		
ΔR^2	.229**	.034**		
χ^2			46.38(5)**	59.32(7)**
Nagelkerke R^2			.111**	.140**
Δ Nagelkerke R^2			.111**	.029**

Note. The values in the table are standardized beta weights (β) for organizational attractiveness and logistic regression odds ratios, $\text{Exp}(B)$, for application decision. A significant odds ratio greater than 1 (less than 1) indicates that the odds of the outcome variable increase (decrease) when the predictor increases. Degrees of freedom for χ^2 are in parentheses. Nagelkerke R^2 is a goodness-of-fit measure for a logistic regression model that approximates the R^2 for linear regression; it similarly ranges from 0 to 1. ^a0 = *did not apply*, 1 = *applied*. * $p < .05$. ** $p < .01$.

Table 5

Hierarchical Regression of Actual Application Decisions on Organizational Attractiveness and Recruitment Sources

Predictor	Step 1	Step 2	Step 3
Organizational attractiveness	3.31**	2.68**	2.47**
Recruitment advertising		1.75**	1.69**
Recruitment website		1.01	.98
Recruitment events		1.03	.98
Positive publicity		.78	.70*
Negative publicity		1.09	1.15
Positive word-of-mouth			1.36*
Negative word-of-mouth			.91
χ^2	60.28(1)**	78.03(6)**	84.46(8)**
Nagelkerke R^2	.143**	.182**	.196**
Δ Nagelkerke R^2	.143**	.039**	.014*

Note. The values in the table are logistic regression odds ratios, $\text{Exp}(B)$. A significant odds ratio greater than 1 (less than 1) indicates that the odds of the outcome variable increase (decrease) when the predictor increases. Degrees of freedom for χ^2 are in parentheses. Nagelkerke R^2 is a goodness-of-fit measure for a logistic regression model that approximates the R^2 for linear regression; it similarly ranges from 0 to 1. ^a0 = *did not apply*, 1 = *applied*. * $p < .05$. ** $p < .01$.