

AN EYE TRACKER ANALYSIS OF THE INFLUENCE OF APPLICANT ATTRACTIVENESS ON EMPLOYEE RECRUITMENT PROCESS: A NEUROMARKETING STUDY¹²

Hakan BOZ

*Usak University, School of Applied Sciences, Turkey
Hakan.boz@usak.edu.tr*

Özer YILMAZ

*Bandırma Onyedi Eylül University, Faculty of Applied Sciences, Turkey
oyilmaz@bandirma.edu.tr*

Abstract

Tourism sector is one of the largest service sectors in the world economy both in terms of revenues and the numbers of tourists involved. One of the structural problems in the Turkish tourism industry is the high level of labour turnover. This study aims to explore the role and influence of attractiveness/attractivity on the recruitment process in the tourism and hospitality sectors. The study particularly aims to measure the influence of attractiveness on the selection of job candidates by managers involved in recruitment. Particularly, the study aims explore to what extent managers act rationally or under the influence of Pavlovian conditioning in making their recruitment decisions. That is to what extent managers resort to heuristics, i.e. shortcuts regarding attractiveness of job applicants for backstage positions in a hotel. The study has used a neurological data gathering tool, the Eye Tracker (ET, to determine the influence of attractiveness on the recruitment decisions of managers in the hospitality sector .

Keywords: *Attractiveness, Hospitality, Tourism, Recruitment Process, Eye Tracker,*

JEL Classification: *M30, M31, L83*

I. INTRODUCTION

Tourism sector is one of the largest and fastest growing industry in the world (Meyer and Meyer, 2015). Tourism sector comprises about 7% of the total workforce in the world and it accounts for about 10% of the global gross domestic product (GDP) (UNWTO, 2015). In Turkey tourism accounts for about 5% of the total GDP (Turkish State Institute of Statistics, 2016). Moreover, 9% of Turkey’s total labor force is employed in the tourism industry (AKTOB, 2014).

It is seen that the sector try to find solutions to the many structural problem. One of these problems is high labor turnover rate. The rate may vary between 26% and 300% for tourism businesses in a year (Chalkiti and Sigala, 2009; Woods, 1997). According Waldman et al.’s (2004) study, particularly service businesses may incur significant costs for the employment of new employees needed due to high labour turnover. Mistakes in recruitment may increase labour costs as wrong people recruited may underperform and may resign before they learn and become productive in their jobs.

The cost of employee exit for a business may be as much as 1.5 times higher than the income that employee would bring had s/he not quitted work (Chikwe, 2009). Due to the high level labour turnover, businesses may find it difficult to reach the standard of service they aim to offer (Koc, 2006). The inexperience of staff results in dissatisfied customers and a weak brand image for the firm. As tourism and hospitality are highly labour-intensive industries, getting the most out of employees is of paramount of importance.

II. ATTRACTIVENESS AND HIRING PROCESS

Attracting and recruiting the most appropriate candidates is a significant challenge for tourism and hospitality businesses. Therefore, predictors of applicants’ job choice have always been a central topic in research on personnel selection (Wehner, Giardini and Kabst, 2012: 601). “By nature, it is considered that good looking people are good in every aspect” (Subhani and Iqbal, 2012). Social psychologists have identified a “halo” effect of physical attractiveness leading to inferences that the attractive are more competent, confident, and socially skilled than the unattractive (Gupta, Etcoff and Jaeger, 2016: 1314). Dion, Berscheid and Walster (1972) researched by the title “What is Beautiful is Good”, indentified the bias, which states that if someone is attractive, then they must be healthier and well-adjusted to everything than an unattractive person, seems almost universal and has been detected in a variety of different cultures (trans by. Estrada et al).

^{12 12} This study was presented at Scientific Cooperation for Future International Conference-2016, Usak/Turkey and supported by Usak University Scientific Research Projects (BAP)department, project no:2016 /SOSB004

Physical attractiveness has been defined as "the degree to which one's physical and facial image elicits favorable reactions from others. It is important to note that some studies restricted physical attractiveness definition of attractiveness to facial attractiveness. The consistent use of facial appearance in evaluating physical attractiveness is justified because the face has unique and powerful properties, which appear to make it omnipotent and omnipresent" (Chiu and Babcock, 2002).

Physically attractive individuals are seen as more likely to achieve success and more hireable as managers and management trainees than less attractive individuals. Physically attractive individuals receive higher offers for starting salary and receive higher performance evaluations (Johnson et al. 2010; Koc, 2015:119-122; Koç, 2016:312-321). The employment interviewer's task is very complex and it has been demonstrated that interviewers are influenced by many variables including first impressions, ideal applicant (Gilmore, Beehr and Love, 1986). So that physical appearance has been found to be a beneficial characteristic in both the employment process and in subsequent selection, placement and promotion decisions. Attractiveness affects first impressions in job interviews and as the employment selection process involves interpersonal relationships, the attractiveness bias may be activated as better-looking candidates are preferred over equally qualified but less attractive people in hiring decisions (Chiu and Babcock, 2002).

III. LITERATURE REVIEW

The literature concerning marketing and social psychology emphasized the point that the receiver's understanding of the message was affected by the sender in the process of communication (Alpert and Anderson, 1973; Reingen and Kernan, 1994). Kelman (1961) proposed that the attractiveness of the sender was one of the factors affecting receiver's acceptance of the message in this communication process.

It is commonly accepted that people with an attractive face have advantages over the ones who have less attractive face (Zebrowitz, 1990). For instance, in their study, Ahron et al., (2001) showed that people paid more attention to attractive faces compared to others.

According to the study of Hamermesh and Biddle, (1994) students with physical (especially face) attractiveness were more successful compared to their rivals without physical attractiveness. It can be claimed that students with better attractiveness have higher chances in getting higher grades in exams, taking the job offers, getting higher levels of salary, and to be elected in the elections compared to less attractive rivals. Also, according to many studies (Ohanian, 1991; Praxmarer, 2006), especially in the commercials of beauty products, actors and actresses with higher face attractiveness are ahead of their rivals in terms of persuasion effect. Many other studies (Biddle and Hamermesh, 1998; Pfann et al., 2000; Hamermesh et al., 2002; Hamermesh and Parker, 2005; Slater et al., 2012) concluded that physical attractiveness can affect interpersonal interaction

Most research on the role of physical attractiveness in the workplace has focused on bias in employee selection (e.g., Cash and Kilcullen, 1985; Watkins and Johnston, 2000, Commisso and Finkelstein, 2012). Stone et al. (1992) argued that attractiveness is an important factor that deserves more attention than it has received thus far in organizational research. In addition, several researchers asserted that although attractiveness may not be the most important determinant of personnel decisions, it may be the deciding factor when decision makers are faced with difficult choices among job applicants or incumbents who possess similar levels of qualifications or performance (Hosoda, Stone-Romero and Coats, 2003).

IV. DATA AND METHODOLOGY

One of the most important tasks in tourism researches is to determine the correct methodology. Because determined methodology and data collection methods will be directly affect the reliability, validity and generalizability of the research (McGrath & Brinberg, 1983; Crouch & Housden, 2003; Zhu & Brilakis, 2009; Tillyer et al. 2010).

The data obtained by asking questions to participants through traditional data collection methods may not reflect the truth (Koc & Boz, 2014). This situation can be basically due to several reasons. First one is the hidden motives which are not aware by participants, can affect the answers. Second, participants tend to be giving the answers that people want to hear because of impression management motion or social interaction (Koc & Boz, 2014a; Goffman, 1959). For this reason the Eye Tracking device which is a part of medical data collection is decided through the data collection process.

Data gathering

For the study data were obtained from 17 right handed 4 and 5 star hotel managers between 26th May and 02nd June, 2016 in Bodrum and Didim. The ages of the participants ranged from 23 to 52 (mean 38,47 years) years old. Of the 17 participants 11 of them were males and 6 of them were females.

All subjects voluntarily participated in the experiment. The participants had no previous history of any psychiatric, psychological and neurological disorders. Before starting of the experiment, the procedure of the

study and the Eye Tracker device were briefly explained to the participants. 17 participants can be considered to be a minimal for conventional data collection method. However there have been several neuro marketing studies conducted with less than 30 participants (Hedgcock et al., 2012; Valenzi et al., 2014; Dimpfel, 2015; Falk et al., 2015; Menéndez, 2015).

The Task and Experimental Procedure

Accounting chief and warehouse clerk positions were selected specifically to show the curricula vitae of the candidates because these positions do not require physical beauty. Equal numbers of male and female curricula vitae (4 for each) were shown to accounting chief and warehouse clerk, with a total of 8 curricula vitae. The managers rated candidates for each position from the most likely candidate to take the job to the least likely one.

The photos in the experiment were gathered from two sources. One photo (female candidate no. 3) gathered from <http://www.freedigitalphotos.net/>, stock photos, Image ID: 100171666. The remaining seven photos were gathered from Chicago Face Database, Version 2.02. The attractiveness and the level of beauty of the candidates were determined by the 152 people.

The participants prepared their curricula vitae by changing roles. According to this role changing process, the most attractive candidates prepared their curricula vitae as if they had the least experience; the least attractive ones did as if they had the most experience. 4 female candidates for accounting chief and 4 male candidates for warehouse clerk’s resumes were shown side by side on the screen. Data was collected with the previously mentioned devices simultaneously during the test. Experiment paradigm and procedure are shown in Table 1.

Table 1. Flowchart of the Experiment

Black Screen	Profiles for Acc. Chief	Eval. Screen	Why of Choice	Black Screen	Profiles	Eval. Screen	Why of Choice	Black Screen	Profiles for War. Clerk	Profiles for Acc. Chief
20 seconds	90 seconds	20 seconds	20 seconds	20 seconds	90 seconds	20 seconds	20 seconds	10 seconds	60 seconds	60 seconds
Total: 420 Seconds										

Abbreviations: Acc.= Accounting, Eval.=Evaluation, War.= Warehouse

V. EMPIRICAL ANALYSIS

Eye Tracker devices measure and collect data on visualization of specific stimuli. Heat or attention maps show the number of fixations participants made in a specific areas of the image or for how long they fixated within that area. Moreover heat maps are indicators of a participant’s focus, with red labeled areas suggesting a high number of gaze points (increased level of attention), followed by yellow and green. On a heat map red color denotes a highest number of fixations or the longest time and green denotes the least, with varying levels in between. An area with no color on a heat map shows that the participants did not fixate on that particular area of the stimuli.

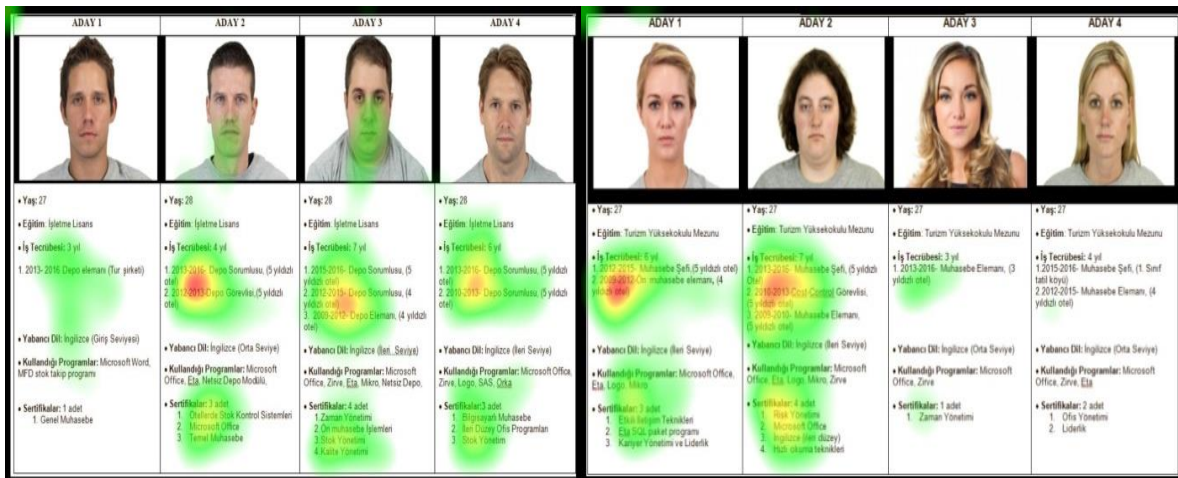


Figure1: Eye Tracker Heat Map

Figure 1 shows the heat map data collected by the Eye Tracker device. Heat map results show that, the participants look more the candidate's work experience. In the second place, the participants look the certificates of candidates. Table 2 and Figure 2 show the fixation count of participant's area of interest

Table 2: Eye Fixation Data

Area of Interests (AOI)	Warehouse Clerk / Men Candidates				Averages
	Most Attractive Candidate	Second Most Attractive Candidate	Neutral Attractive Candidate	Non Attractive Candidate	
Picture	44	27	83	82	59
Age	8	13	14	8	10,75
Education	12	24	19	13	17
Experience	49	92	105	113	89,75
Language	9	5	9	11	8,5
Computer Skills	22	33	17	22	23,5
Certificates	8	42	47	53	37,5
Area of Interests (AOI)	Accounting Chief / Women Candidates				Averages
	Most Attractive Candidate	Second Most Attractive Candidate	Neutral Attractive Candidate	Non Attractive Candidate	
Picture	67	34	31	53	46,25
Age	5	7	3	15	7,5
Education	11	21	10	18	15
Experience	71	179	64	172	121,5
Language	9	19	8	23	14,75
Computer Skills	27	51	14	52	36
Certificates	25	69	6	83	45,75

As seen at Figure 2 and Table 2. the participants looked at the warehouse clerk candidates' working experiences most (avg.= 89,75 view). The second looking portions were candidates' photos (avg. 59 views). However the at least viewed portion was language knowledge (avg. 8,5 view) and age (avg.= 10,75 view).

It can be seen that women candidates' experiences (mean 121,75 view) were the most important factor in determining participants' decisions in recruitment which were followed by candidates' photographs (mean 46,25 view), and certificate information (mean 45,75).



Figure2: Fixation Count of Participant's Area of Interest

According to the results of studies examining the candidates will work as general manager of the hotel it seems they decide rationally. Results also show that attractiveness do not play an important role in the recruitment process.

VI. CONCLUSION

This study aims to explore to influence of attractiveness on the recruitment process in the tourism and hospitality sector with the help of eye tracker (ET) devices.

According to the findings, firstly, it can be deduced that hotel managers are more concerned with candidates' work experience rather than their attractiveness while they examine their curriculum vitae. Similar results can also be seen in the results of the study of Gilmore, Beehr and Love (1986).

However, it is also obvious that, secondly, hotel managers look at the photographs of the candidates while examining their curriculum vitae in order to employ them. Specifically, hotel managers are found to look at the most attractive candidate's face two times more compared to other unattractive ones during the process of women candidate selection. Thirdly, it can be seen that hotel managers go over candidates' certificates.

As a final remark, it may be suggested that candidates write their work-related experience in the beginning part of their curriculum vitae. Moreover, candidates who receive extra certificates during their university life may have advantages over their rivals by having more attractive curriculum vitae. Especially newly graduates may have problems with work experience. They may fill this gap with qualified certificates in order to decrease this disadvantage.

VII. REFERENCES

- Aharon, I., Etcoff, N., Arieli, D., Chabris, C. F., O'Connor, E., & Breiter, H. C. (2001). Beautiful faces have variable reward value: fMRI and behavioral evidence. *Neuron*, 32, 537-551. [http://dx.doi.org/10.1016/S0896-6273\(01\)00491-3](http://dx.doi.org/10.1016/S0896-6273(01)00491-3)
- AKTOB, (Mediterranean Touristic Hotel Business Association). (2014) "Tourism Statistics", <http://www.aktob.org.tr/istatistik>, 11.12.2015)
- Alpert, M.I. & W.T. Anderson, Jr., 1973. Optimal heterophony and communication effectiveness: some empirical findings. *Journal of Communications* 23, 328-343. <http://dx.doi.org/10.1111/j.1460-2466.1973.tb00952.x>
- Cash, T. F., & Kilcullen, R. N. (1985). The eye of the beholder: Susceptibility to sexism and beautyism in the evaluation of managerial applicants. *Journal of Applied Social Psychology*, 15, 591-605. <http://dx.doi.org/10.1111/j.1559-1816.1985.tb00903.x>
- Chalkiti, K., & Sigala, M. (2010). Staff turnover in the Greek tourism industry: A comparison between insular and peninsular regions. *International Journal of Contemporary Hospitality Management*, 22(3), 335-359. <http://dx.doi.org/10.1108/09596111011035945>
- Chikwe, A. C. (2009). The Impact Of Employee Turnover: The Case Of Leisure, Tourism And Hospitality Industry. *Consortium Journal of Hospitality & Tourism*, 14(1).
- Chiu, Randy K., & Richard D. Babcock. (2002). "The relative importance of facial attractiveness and gender in Hong Kong selection decisions." *International Journal of Human Resource Management* 13.1 141-155. <http://dx.doi.org/10.1080/09585190110092857>
- Commisso, M., & Finkelstein, L. (2012). Physical attractiveness bias in employee termination. *Journal of Applied Social Psychology*, 42(12), 2968-2987. <http://dx.doi.org/10.1111/j.1559-1816.2012.00970.x>
- Crouch, S., & Housden, M. (2003). *Marketing research for managers*. Oxford: Butterworth-Heinemann Publishing.
- Dimpfel, W. (2015). Neuromarketing: Neurocode-Tracking in Combination with Eye Tracking for Quantitative Objective Assessment of TV Commercials. *Journal of Behavioral and Brain Science*, 5(04), 137. <http://dx.doi.org/10.4236/jbbs.2015.54014>
- Estrada, J., Chau, T.H, Hanna, J. A. & Dishaw, A. R. "The Effect of Attractiveness within the Hiring Process", Research Paper, http://people.clarkson.edu/~estradjm/Dowman_APA_ResearchPaper_mod.pdf
- Gilmore, D. C., Beehr, T. A., & Love, K. G. (1986). Effects of applicant sex, applicant physical attractiveness, type of rater and type of job on interview decisions. *Journal of Occupational Psychology*, 59(2), 103-109. <http://dx.doi.org/10.1111/j.2044-8325.1986.tb00217.x>
- Goffman, E. (1959). *The presentation of self in everyday life*. New York: Doubleday.
- Gupta, N. D., Etcoff, N. L., & Jaeger, M. M. (2016). Beauty in mind: The effects of physical attractiveness on psychological well-being and distress. *Journal of Happiness Studies*, 17(3), 1313-1325. <http://dx.doi.org/10.1007/s10902-015-9644-6>
- Hamermesh, D. S., & Biddle, J. E. (1994, December). "Beauty and the Labor Market" *American Economic Review*, 84 (5), pp. 1,174-1,194.
- Hedgcock, W. M., Vohs, K. D., & Rao, A. R. (2012). Reducing self-control depletion effects through enhanced sensitivity to implementation: Evidence from fMRI and behavioral studies. *Journal of Consumer Psychology*, 22(4), 486-495. <http://dx.doi.org/10.1016/j.jcps.2012.05.008>
- Hosoda, M., Stone & Romero, E. F., & Coats, G. (2003). The effects of physical attractiveness on job-related outcomes: a meta analysis of experimental studies. *Personnel Psychology*, 56(2), 431-462. <http://dx.doi.org/10.1111/j.1744-6570.2003.tb00157.x>
- Hosoda, M., STONE-ROMERO, E. F., & Coats, G. (2003). The effects of physical attractiveness on job-related outcomes: A meta-analysis of experimental studies. *Personnel Psychology*, 56(2), 431-462. <http://dx.doi.org/10.1111/j.1744-6570.2003.tb00157.x>
- Johnson, S. K., Podratz, K. E., Dipboye, R. L., & Gibbons, E. (2010). Physical attractiveness biases in ratings of employment suitability: Tracking down the "beauty is beastly" effect. *The Journal of social psychology*, 150(3), 301-318. <http://dx.doi.org/10.1080/00224540903365414>
- Kelman, H.C., 1961. Processes of opinion change. *Public Opinion Quarterly* 25, 57-78. <http://dx.doi.org/10.1086/266996>
- Koc, E. (2006). Total quality management and business excellence in services: The implications of all-inclusive pricing system on internal and external customer satisfaction in the Turkish tourism market. *Total Quality Management & Business Excellence*, 17(7), 857-877. <http://dx.doi.org/10.1080/14783360600595252>
- Koc, E. and Boz, H. (2014a) Triangulation in Tourism Research: A Bibliometric Study of Top Three Tourism Journals, *Tourism Management Perspectives*, 12, 9-14. <http://dx.doi.org/10.1016/j.tmp.2014.06.003>
- Koc, E. and Boz, H. (2014b). Psychoneurobiochemistry of Tourism Marketing, *Tourism Management*, 44, 140-148. <http://dx.doi.org/10.1016/j.tourman.2014.03.002>
- Koç, E. (2015). *Tüketici davranışı ve pazarlama stratejileri: global ve yerel yaklaşım: pazarlama ve tüketici davranışı kavramlarının İngilizceyle*. İstanbul: Seçkin Yayıncılık.
- Koç, E. (2016). *Hizmet Pazarlaması ve Yönetimi: global ve yerel yaklaşım*. İstanbul: Seçkin Yayıncılık.

26. Langlois, J. H., & Roggman L. A. (1990). Attractive faces are only average. *Psychological Science*, 1, 115-121. <http://dx.doi.org/10.1111/j.1467-9280.1990.tb00079.x>
27. Langlois, J. H., Ritter, J. M., Casey, R. J., & Sawin, D. B. (1995). Infant attractiveness predicts maternal behavior and attitudes. *Developmental Psychology*, 31, 464-472. <http://dx.doi.org/10.1037/0012-1649.31.3.464>
28. Lovelock, C., Wirtz, J., & Chatterjee, J. (2012). *Services marketing -people, technology, strategy*. Delhi: Singapore: Pearson Education Pte. Ltd.
29. McGrath, J. E., & Brinberg, D. (1983). External validity and the research process: A comment on the Calder/Lynch dialogue. *Journal of Consumer Research*, 115-124. <http://dx.doi.org/10.1086/208951>
30. Menéndez, J. (2015, October). Classification of Basic Human Emotions from Electroencephalography Data. In *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications: 20th Iberoamerican Congress, CIARP 2015, Montevideo, Uruguay, November 9-12, 2015, Proceedings (Vol. 9423, p. 108)*. Springer.
31. Meyer, N. & Meyer, D. (2015). "The role and impact of tourism on local economic development: A comparative study" *African Journal for Physical Health Education, Recreation and Dance* 21; 197-214
32. Ohanian, R. (1991). The impact of celebrity spokespersons' perceived image on consumers' intention to purchase. *Journal of Advertising Research*.
33. Praxmarer, S. (2006). Is Beauty Best Even for the Less Beautiful?. *Marketing ZFP*, 28(JRM 2), 103-114. <http://dx.doi.org/10.15358/03441369-2006-JRM-2-103>
34. Reingen, P.H. & J.B. Kernan, 1994. Social perception and interpersonal influence: some consequences of the physical attractiveness stereotype in a personal selling setting. *Journal of Consumer Psychology* 2(11), 25-38.
35. Simons, T., and Hinkin, T., (2001), The Effect of Employee Turnover on Hotel Profits : A Test Across Multiple Hotels, *Cornell Hotel and Restaurant Administration Quarterly*, pp: 42-65 [http://dx.doi.org/10.1016/s0010-8804\(01\)80046-x](http://dx.doi.org/10.1016/s0010-8804(01)80046-x)
36. Subhani, Muhammad Imtiaz, Noman Iqbal (2012): Impact of Physical Attractiveness on Selection and Recruitment Process. Forthcoming in: *International Journal of Accounting and Finance*
37. Tillyer, R., Engel, R. S., & Cherkauskas, J. C. (2010). Best practices in vehicle stop data collection and analysis. *Policing: An International Journal of Police Strategies & Management*, 33(1), 69-92. <http://dx.doi.org/10.1108/13639511011020601>
38. Turkish State Institute of Statistics (2016) Turkey's Basic Statistics (<http://tuik.gov.tr/UstMenu.do?metod=temelist>) (05.10.2016)
39. "United Nations World Tourism Organization (UNWTO) (2015). Tourism Press Release No 15006, 27 January 2015. [Online] Available: <http://media.unwto.org/press-release>. (10.10 2015).
40. Valenzi, S., Islam, T., Jurica, P., & Cichocki, A. (2014). Individual Classification of Emotions Using EEG. *Journal of Biomedical Science and Engineering*, 7(8), 604-621. <http://dx.doi.org/10.4236/jbise.2014.78061>
41. Waldman, D.J., Kelly, F., Arora, S., and Smith, H.L., (2004), The Shocking Cost of Turnover in Health Care, *Health Care Management Review*, 29(1): 2-7. <http://dx.doi.org/10.1097/00004010-200401000-00002>
42. Watkins, L. M., & Johnston, L. (2000). Screening job applicants: The impact of physical attractiveness and application quality. *International Journal of Selection & Assessment*, 8, 76-84. <http://dx.doi.org/10.1111/1468-2389.00135>
43. Wehner, M., Giardini, A., & Kabst, R. (2012). Graduates' reactions to recruitment process outsourcing: A scenario-based study. *Human Resource Management*, 51(4), 601-623. <http://dx.doi.org/10.1002/hrm.21490>
44. Zebrowitz, L. A. (1990). *Social perception*. Pacific Grove, CA: Brooks-Cole.
45. Zhu, Z., & Brilakis, I. (2009). Comparison of optical sensor-based spatial data collection techniques for civil infrastructure modeling. *Journal of Computing in Civil Engineering*, 23(3), 170-177. [http://dx.doi.org/10.1061/\(ASCE\)0887-3801\(2009\)23:3\(170\)](http://dx.doi.org/10.1061/(ASCE)0887-3801(2009)23:3(170))