Research article

Selecting talent using social networks: A mixed-methods study

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ABSTRACT

Previous studies on the use of Social Networking Sites (SNS) in personnel selection generally focus on examining this phenomenon in the selection process as a whole. However, personnel selection is a macro-process composed of several activities. This paper aims to investigate how human resource professionals use SNS in hiring decisions during the different stages of the selection process. The research uses an explanatory sequential mixed-methods approach. The first study consisted of a questionnaire-based survey of hiring professionals with the intent to describe various aspects of current practice (n = 429). Survey data was analyzed using descriptive and inferential statistics. The second study comprised semi-structured interviews with hiring professionals to provide a more in-depth, richer analysis (n = 24). Interview data was analyzed via qualitative thematic analysis. Results uncovered two types of users. Single-stage users emphasized efficiency concerns, whereas multiple-stage users mentioned to access profiles on an as needed-basis. Participants reported that the patterns of use could be quite complex and dynamic, with selectors revisiting the profile of the same applicant several times for different purposes, or examining profiles of the same applicant in different SNS. The assessment of SNS information is typically non-systematic, but some employers reported using scales, mainly in pre-selection. Evidence emerged of potential adverse effects during the selection process. Overall, this paper contributes to theory and practice by providing a better understanding of the use of SNS across the different stages of personnel selection. To our best knowledge, this is the first mixed-methods study of its kind.

1. Introduction

The use of Social Networking Sites (SNS), such as LinkedIn or Facebook, to assist decisions in personnel selection is becoming increasingly popular among organizations (Bohnert and Ross, 2010; McFarland and Ployhart, 2015). Large-scale industry surveys, such as those of Career-Builder (Pool, 2017) and the Society for Human Resource Management (SHRM, 2016), corroborate the vast practitioner interest, while the press publishes introductory articles touting its advantages (e.g. Wirthman, 2016). SNS in personnel selection can be defined as the analysis of applicants' SNS information (e.g. previous training, work experience) to make various kinds of inferences (e.g. communication skills, person-organization fit) so as to inform hiring decisions. It represents the core subset of the more general concept of "SNS assessments" (Roth et al., 2016) or "cybervetting" (Berkelaar, 2014), which refers to the process whereby employers use online information from social media and search engines to evaluate applicants.

Despite the enormous practitioner enthusiasm, the academic community has only recently started to investigate carefully this

phenomenon. To stimulate further research from scholars, Roth et al. (2016) take stock of the extant body of knowledge, recommending that SNS information is valuable to personnel selection to avoid negligent hiring claims. Early research also suggests that SNS information can provide, under certain conditions, cues about the applicant's personality (Back et al., 2010; Van de Ven et al., 2017), and job performance (Kluemper and Rosen, 2009; Roulin and Levashina, 2019; Van Iddekinge et al., 2016). However, as HR professionals may come across with non-job related information while analyzing profiles, some studies have drawn attention to potential negative effects like discrimination, privacy violation, and unlawful conduct (Jeske and Shultz, 2016; Slovensky and Ross, 2012). Other studies have highlighted issues with the lack of standardization of information across applicants and platforms, as well as difficulties in making reliable and valid assessments (Davison et al., 2016; Kluemper et al., 2016). Not surprisingly, those scholars have been advising caution for the moment.

A manifestation of the infancy of SNS in personnel selection has been the overwhelming shortage of empirical research (Kluemper et al., 2016; Roth et al., 2016). Specifically, there is still little understanding about

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how practitioners use SNS within personnel selection. Although a number of studies have been conducted (Becton et al., 2019; Berkelaar, 2017; Caers and Castelyns, 2011; Chang and Madera, 2012; Henderson, 2019; Hoek et al., 2016), they generally focus on examining the use of SNS in the selection process as a whole. However, personnel selection is a macro-process composed of several activities. It is, thus, germane to investigate how SNS are used within the different stages of the selection process, as it would allow to capture information that might have been missed by previous research and, thus, provide richer insights into the phenomenon of SNS in personnel selection.

To address this gap, we employ a mixed-methods approach. The first study, a quantitative survey, describes various aspects of current practice. The next study, qualitative interviews, elicits further complementary insights about how Human Resource (HR) professionals use SNS during personnel selection. We respond to calls from Roth et al. (2016) for further investigations in this field. Overall, this paper contributes to the existing body of knowledge of SNS in personnel selection by providing a better understanding of its practice.

2. Previous research

Personnel selection is often seen as a process of deciding which applicants to hire (Cascio and Aguinis, 2008). This typically involves assessing the applicants' knowledge, skills and abilities (KSA) to ensure that applicants are a good fit to the job (person-job fit), but also to the organization (person-organization fit) (Carless, 2005). Although varying widely between jobs and organizations, this process commonly involves the following stages (Gatewood et al., 2016):

- Pre-selection. It starts with reviewing the application and/or curriculum vitae, followed eventually by preliminary testing or an initial interview (usually by phone). The main goal of this stage is to exclude applicants who do not fulfill the essential criteria (i.e. KSA) of the job opening.
- In-depth assessment. It commonly entails administering selection tests (e.g. ability tests, work sample tests and simulations) and/or conducting face-to-face interviews to select applicants that best match the job and organization.
- Background checks. In this stage, employers conduct checks (e.g. previous employment checks, reference checks, web searches) to ensure that applicants are providing truthful information.
- Final selection decision. It consists of comparing each applicant with the selection criteria, determining if the best applicant wants the job, and offering this job.

It should be pointed out that this should be viewed as a general process, and, thus, in actual practice, some stages may be omitted or their sequence may be changed.

Selection plays a pivotal role in the success of organizations as it is directly responsible for identifying applicants with a high level of KSA that contribute to organizational performance (Van Iddekinge et al., 2009), it affects the accumulation of human capital (Ployhart, 2006), and it has costly and legal impacts when poorly conducted (Kuhn, 2015). It is not surprising, thus, that researchers turn their attention to this topic when new technological and practice developments emerge, such as SNS in personnel selection.

Extant literature on SNS in personnel selection generally falls into three streams. The first includes conceptual papers and literature reviews, which discuss the pros/cons of SNS in personnel selection, provide an assessment of the literature, and make recommendations for practice and research (e.g., Davison et al., 2016; Jeske and Shultz, 2016; Kluemper et al., 2016; Roth et al., 2016). The second category consists of papers that discuss or address specific issues regarding the use of SNS in personnel selection, including, for example, applicant reactions (e.g., Stoughton et al., 2015; Suen, 2018), validity (e.g., Roulin and Levashina, 2019; Van Iddekinge et al., 2016), and ethical and privacy (e.g., Black

et al., 2015; McDonald et al., 2016) issues. The third category contains papers investigating the practice of using SNS in personnel selection (e.g., Berkelaar, 2017; Caers and Castelyns, 2011; Hoek et al., 2016). This paper represents a contribution to this last stream of research, which we will discuss in detail in the next section.

2.1. Use of SNS in personnel selection

Although an increasing number of organizations integrate the use of SNS information in their personnel selection procedures, academic research examining this phenomenon often lags behind practice. Recent times have seen the publication of some scholarly empirical studies that have contributed to shorten this gap, but it is essential that more scholars focus attention on this theme because what selectors do with SNS information and how do they employ it may have consequences in the life of individuals, organizations and society (Roth et al., 2016).

Prior literature on the use of SNS in personnel selection entails some industry surveys and a number of scholarly, empirical studies. The most comprehensive industry survey to date is perhaps SHRM (2016), which was carried out in the USA among the members of the world largest association of HR professionals. 43% of respondents reported using social media in personnel selection, and, of these, only 16% claimed that their organizations have a formal policy about the use of SNS. Another key finding was that respondents from privately owned for-profit organizations were more likely to use SNS to screen applicants than respondents from non-profit or public-sector organizations, which may suggest that its use may vary according to the activity sector. The most popular reported SNS was LinkedIn (93%), followed by Facebook (63%), but their use throughout the selection process was not uniform. While some participants indicated that their use differed on the job level (36%), others mentioned using them before an interview (28%), or after an interview but before a job offer (20%), and only a small proportion referred using them before a contingent job offer (9%). This study offered general pointers on how practitioners go about using SNS in selecting applicants, but it is useful to obtain a more detailed picture of such use during the selection process as well as to verify these results in other settings.

A number of scholarly empirical studies have added to the body of knowledge on this theme, some of which have adopted survey methods. Caers and Castelyns (2011) found that many Belgian HR professionals report using LinkedIn (70%) and Facebook (43%) before an interview to find more information about applicants, and a smaller proportion of them indicate using these platforms (26.1% and 13.2%, respectively) to decide who should be called to the first interview. A significant amount of respondents believed that the profile picture on Facebook gave cues on the applicants' extroversion and maturity, which have led the authors to conclude that SNS information might introduce biases in the early stages of the selection process. Focusing on the USA hospitality sector, Chang and Madera's (2012) survey research found that respondents reported to give more importance to negative information in SNS profiles than to positive one; indicated using SNS more for selecting management-level and front-office employees than entry-level and back-office employees; and reported using SNS mostly in pre-selection (84%). There was evidence that organization size was positively related with the use of SNS in personnel selection. Also in the USA, Henderson (2019) surveyed employers who had recruited students from a private university, having found that practitioners used SNS during personnel selection to make inferences primarily about the applicants' professionalism. Another key result was that the most frequently mentioned "red flag" that led practitioners to disqualify an applicant was inappropriate behavior, such as inappropriate posts and unprofessional photos.

These survey studies confirmed various anecdotal and industry reports, while shedding light into some aspects of the use of SNS, such as the reasons of using SNS before and after a face-to-face interview, factors affecting the use of SNS, and how professionals disqualify applicants. However, they generally treated personnel selection as a single or a two-stage process (i.e. before and after face-to-face interviews), and, thus,

lack a more profound analysis of how selectors use SNS during the various stages of such process.

In an attempt to advance the field further, recent empirical research has tended to conduct more in-depth studies, either by employing qualitative or experimental methods. For example, Hoek et al. (2016) examined through qualitative interviews how New Zealand HR professionals accessed, observed and used SNS information during applicant selection, along with the issues they faced. Going further than Caers and Castelyns' (2011) survey, they found that when the profile was accessed before an interview, selectors mentioned using SNS to look for interview cues; whereas when the profile was accessed after an interview, selectors mentioned using SNS to validate the information transmitted by the applicant. One interesting insight, though, has been on how SNS are used to identify applicant fit, with practitioners reporting using Facebook mainly to ascertain organization fit and LinkedIn to ascertain job fit. They went on to conclude that "the whole area is at an early stage in its development and clearly there is a paucity of empirical enquiry" (p.80).

The most rigorous qualitative empirical study conducted so far is Berkelaar (2017). Her interview-based research gave a deeper understanding on the different functions that HR professionals attribute to cybervetting: screening applicants with concerning behavior (e.g. lack of relational abilities) or "red flags" (e.g. gaps in work history); collecting more information about applicants and automating time-consuming interaction processes with applicants; accelerating and deepening the relationship (e.g. information about hobbies, interests, etc.) with applicants, either before or after an interview. This study also lent valuable empirical evidence to anecdotal accounts of how practitioners use SNS to make hiring decisions, suggesting that their approach to assessing profile content is typically heuristic and intuitive. As with Hoek et al. (2016), she found that selectors reported making overall assessments about the applicants.

With the aim to better understand how practitioners use SNS to disqualify applicants, Becton et al. (2019) performed an experimental study with 354 HR professionals from the USA. The results suggest that SNS profiles with unprofessional content (i.e., photos showing heavy drinking, or comments with rude or unprofessional language and references to heavy drinking and partying) influence negatively the evaluation of applicants irrespective of their education level. On the other hand, SNS profiles with professional content did not improve the evaluation of applicants. They then go on to advise practitioners to exercise great caution as there is no empirical evidence to date showing a relationship between SNS content and actual job performance. This study corroborates the Chang and Madera's (2012) finding that practitioners tend to weight more heavily negative content than to positive one, albeit using a different research approach.

Overall, the use of SNS in personnel selection is a widespread practice, and despite the growing number of empirical studies, this phenomenon remains surprisingly little known. While the abovementioned studies provide valuable insights, there is still a lack of understanding of how selectors use SNS throughout the selection process. As Van Iddekinge et al. (2016, p. 1819) put it "relatively little is known about how organizations review and evaluate SM [Social Media] information during the staffing process". Similarly, Henderson (2019, p.1) asserted that "it is alarming how little we know about how social media is being used during the selection process". Specifically, extant empirical studies generally focus on how selectors use SNS in personnel selection as a whole or as a two-stage process. However, it is important to open the black-box of the selection process, and perform a more fine-grained investigation of how SNS are used within the various stages of the selection process. Furthermore, several aforementioned studies (Berkelaar, 2017; Hoek et al., 2016) acknowledge the need to carry out more empirical work with larger samples and/or in other countries. Indeed, five of the seven studies discussed above were conducted in the USA. Fulfilling these gaps would contribute towards a more comprehensive understanding of the dynamics of incorporating SNS in hiring decisions along with its potential impacts.

3. Methodology

This research aims to study how HR professionals use SNS in hiring decisions within the various stages of the selection process. The overall guiding research question was:

- RQ: *How selectors report using SNS within the various stages of the selection process?*

We adopt a mixed methods approach that combines both quantitative and qualitative methods (Creswell and Clark, 2011). The reason for this is that, as concluded in the previous section, the phenomenon under study remains understudied, being devoid of empirical research that could provide a more holistic understanding of how practitioners use SNS within the selection process. The research design employs a qualitative-driven explanatory sequential mixed methods strategy (Creswell and Clark, 2011; Teddlie and Tashakkori, 2009; Venkatesh et al., 2013). We begin with a quantitative study (survey) to describe the practices on the use of SNS in personnel selection. Then, we followed this with a qualitative study (interviews) to provide more in-depth, supplementary information on the quantitative results. This qualitative study was the dominant component (quan → QUAL).

3.1. Sampling frame

The sampling frame is 10,000 organizations randomly selected from 28,007 active organizations operating in Portugal (i.e. both Portuguese organizations and multinationals operating in Portugal), with a minimum of 10 employees and an email address, listed in the SABI at the date of July 7th, 2017. SABI (Iberian Balance sheet Analysis System) is a database that contains comprehensive information on the vast majority of Portuguese and Spanish organizations. From these organizations, we targeted the representatives of the HR department, which includes HR directors, HR assistants, recruiters, or, in their absence, managers with hiring responsibilities.

3.2. Survey

We conducted a questionnaire-based survey during July 2017. The final instrument included six sections: organization/participant profile; use of SNS; elements of profile analyzed; KSA assessed; assessment outcomes; and other comments. Sections 3-5 had a five-point Likert-type scale ranging from 1 (Never) to 5 (Always). The questionnaire design was informed by the literature review. We adapted a few questions from the SHRM (2016) survey, namely the reasons of use and use by job levels. We also added a few open-ended questions to elicit more comprehensive explanations. Three academics and ten HR professionals pretested the questionnaire for clarity and consistency, their feedback being incorporated in the final version.

We sent emails to the sampling frame with links to the online (SurveyMonkey©) questionnaire, addressed to the director of HR department, inviting her or other person who might be in a better position to participate in the study. To increase the response rate, this email gave confidentiality assurances, offered a report summarizing the findings, and a prize draw. We sent a reminder after approximately 15 days.

We received 1,052 complete responses (corresponding to a response rate of 10.5%), of which 429 claimed to use SNS in personnel selection. As this research is part of a larger project, only the results from these latter respondents will be analyzed here; also, the results from sections 3-6 will be omitted for the same reason. Table 1 shows the list of questions used in this study, along with their options, and sources.

Users are mostly female (68.1%), have a bachelor's degree (63.9%), have between 11 and 20 years of professional experience (43.4%), and are HR directors (63.2%). 38.5% of respondents work in small organizations, 32.2% in medium-sized organizations, and 29.4% in large organizations. Not surprisingly, this sample is somewhat biased towards

Table 1. List of questions, options and sources.

Variable	Options	Source
Gender	Female Male	-
Age	Less than 30 years 30–40 years 41–50 years More than 50 years	-
Education	Master or doctoral degree Undergraduate degree Other	-
Work experience	Less than 3 years 3–5 years 6–10 years 11–20 years More than 20 years	-
Type of industry	Agriculture, Forestry and Fishing Mining Construction Manufacturing Transportation, Communications, Electric, Gas and Sanitary service Wholesale Trade Retail Trade Finance, Insurance and Real Estate Services Public Administration	-
Number of employees	Less than 50 employees 50 to 259 employees 250 or more employees	-
Role played in human resources	HR assistant HR manager Applicant's supervisor	-
Organization policy about the use of SNS	Formal policy Informal policy Not formal or informal policy	-
Use of SNS in the selection process	Yes No	-
Reasons for using SNS in the selection process	It is a quick and efficient method It avoids negligent hiring issues It complements the information provided by applicants' CV and cover letter It enables to check the information provided by applicants' CV and cover letter It enables to draw inferences about applicants' future job performance It enables to assess whether applicants would be a good fit to the organization Other (please specify)	Adapted from SHRM (2016)
SNS used in the selection process	Facebook Google+ LinkedIn Profession or geographic focused SNS Twitter Other (please specify)	-
Use of SNS within the selection process by job levels	Management levels Before a face-to-face interview After a face-to-face interview Non-applicable Non-management levels Before a face-to-face interview After a face-to-face interview Non-applicable	Adapted from SHRM (2016)
Approach used to evaluate applicants	If problematic content is found, applicants are disqualified; otherwise, go to next stage I make an overall impression on applicants' fit to the organization I score applicants based on a scale or structured protocol Other (please specify)	-

medium-sized and large organizations because small organizations generally have less hiring needs. The three sectors with the highest number of responses are services (41.0%), manufacturing (24.0%), and wholesale and retail trade (19.3%).

Since the purpose is to describe current practice, this study is primarily descriptive in nature. Thus, quantitative data was analyzed using descriptive statistics. Nevertheless, given the large sample used, we thought it would be valuable to ascertain whether there were statistical differences among key variables. For this purpose, inferential statistics,

namely chi-square tests with pairwise comparisons using Bonferroni corrections, were employed where appropriate. We used SPSS v. 23 to conduct both descriptive and inferential analysis. Qualitative data was analyzed through content analysis.

3.3. Interviews

We then conducted in-depth, semi-structured interviews between March and June 2018. To gather participants, we sent invitation emails

to respondents of the first study who gave their contact details. In addition, invitations were also sent via LinkedIn to HR professionals from organizations included in the sampling frame and known to the authors to be using SNS in their recruitment and selection processes. In turn, we asked these participants to suggest other professionals who might be interested in participating in the study. Thus, this sample mixtures several types of non-random sampling, namely, purposive, snowball and self-selection sampling (Saunders, 2012). All participants are from different organizations.

The research question guided the design of the interview protocol. To verify the clarity and adequacy, we tested this protocol with one practitioner and one academic, and made improvements accordingly. The protocol included questions about the profile of the participant and organization, the types of SNS used, how and why participants used SNS throughout the selection process, the way profiles where assessed, and what benefits and challenges of using SNS were. Table 2 shows the list of questions in the protocol.

At the start of the interviews, we gave confidentiality assurances and asked permission to record them. We recorded and transcribed verbatim all interviews. Their length varied from 30 to 65 min.

Twenty-four interviews were conducted: three in-person, five via phone, and sixteen over videoconference. Around 70.8% of interviewees were female, 54.2% had a master degree, and 58.3% were HR assistants (i.e. recruitment and talent acquisition specialists, HR generalists, etc.); their average professional experience in HR was 8.4 years and their average experience in using SNS in personnel selection was 4.3 years. 12.5% of interviewees were from small organizations, 33.3% from medium-sized organizations, and 54.2% from large organizations. The sectors represented were services (41.7%), manufacturing (33.3%), wholesale and retail trade (16.7%), construction (4.2%), and transportation (4.2%). When compared with the survey sample, the interviewees over-represented higher education levels and large organizations.

Data from the interviews were analyzed through NVivo v.11 following a three-step iterative procedure adapted from Miles et al. (2014). First, the transcripts were read several times to gain familiarity

with the material. We then proceeded to first-level coding by assigning codes to chunks of text, and then by grouping codes into categories. We did not impose an a priori coding scheme, but used the research question and the literature review as a frame of reference. Third, we searched for patterns and relationships in the first-level codes and categories to organize them into a smaller list of themes (pattern coding) that were related with the research question. Matrices and memoing were used to assist this stage. To increase the validity and reliability of the analysis, the second author critically reviewed the data analysis performed by the first author and, in case of disagreement, the differences of views were reconciled through discussion. A report summarizing the results was sent to all interviewees inviting them to provide feedback, of which three replied, commenting that the findings were consistent with their experiences. The results of the data analysis were also triangulated with the survey's findings. Figure 1 displays the coding structure that was developed based on the interview data.

4. Results

4.1. Survey results

When questioned about whether SNS are used in selection, 429 respondents (40.8%) replied yes. Data showed significant differences in the reported prevalence of use by organization size and activity sector. Chi-square tests with multiple comparisons indicated that it was higher in respondents from large organizations than in respondents from medium-sized ones, which in turn was higher than in respondents from small ones (66% vs 45.8% vs 29.5%, $p < 0.001$). Respondents from the service sector reported a greater use than the construction and public administration sectors (49.9% vs 21% vs 8.3%, $p = 0.001$).

Almost half of the users (45.9%) replied that there is an informal policy on the use of SNS in personnel selection, 34.7% claimed their organizations to have a formal policy, and 19.3% indicated that their policy is neither formal nor informal. Chi-square tests with multiple comparisons confirmed significant differences by organization size, with

Table 2. Questions of the interview protocol.

1.	What is your level of education?
2.	What role do you current play in HRM?
3.	How many years of experience do you have in HRM?
4.	How many years of experience do you have in using SNS in personnel selection?
5.	How many employees does your organization have?
6.	What kind of policy does your organization have about the use of SNS in personnel selection?
7.	What SNS do you use in personnel selection?
8.	Why do you use SNS in personnel selection?
9.	How do you access the applicant's profile?
10.	What are the typical stages of the selection process in your organization?
11.	Repeat the following questions for each stage of the selection process:
11.1	Do you use SNS in this stage? What SNS do you use in this stage? For which job levels? How do you use SNS in this stage?
11.2	How do you assess profile information in this stage? What criteria/decision rules do you use to assess profile information in this stage? Please could you provide examples? Do you use a scale or protocol to assist profile assessment in this stage? How do you use this scale or protocol?
11.3	What inferences do you make in this stage from the applicant profile? How do you make such inferences?
11.4	Do you exclude applicants based on profile information? If so, what criteria/decision rules do you use to exclude applicants?
12.	Repeat the following question for two of the most used SNS in personnel selection by the organization (typically, LinkedIn and Facebook):
12.1	Imagine that you have a [LinkedIn, Facebook] profile in front of you. Please explain step-by-step the information that you observe, analyze, and how you evaluate it. What decisions do you make? How?
13.	If the selector uses both LinkedIn and Facebook ask: How does your use differ between LinkedIn and Facebook in personnel selection?
14.	What benefits have SNS brought to the selection process of your organization? Why? Has the selection process changed because of the use of SNS? If so, what has changed and why?
15.	What challenges do you face in using SNS in personnel selection? Why?
16.	Do you wish to make any other comment not mentioned previously?

Codes

- Excluding applicants based on applicant's profile
- Complementing information from CV and cover letter
- Checking the consistency of profile with CV
- Collecting information to prepare the interview
- Inferring KSA and organization fit

- Assisting the questioning process
- Validating information transmitted by the applicant

- Collecting additional information after an interview
- Cross-checking information with CV after an interview
- Comparing profiles after an interview
- Investigating red flags after an interview
- Inferring writing skills, professionalism and personality

- Using a matrix technical skills to exclude applicants
- Using an spreadsheet to exclude applicants

- Checking for socially undesirable behavior
- Checking for incompatible behavior with organizational culture

- Checking protected information (marital status, etc.)
- Checking for extremist convictions

- Clarifying doubts/inconsistencies of the interviews
- Excluding applicants if inconsistencies or incompatibilities
- Collecting additional information from profiles
- Inferring KSA and organization fit

Categories

- Beyond complementing and preparing before an interview
- Assisting interviewing
- Beyond validating information after an interview
- Using scales in pre-selection
- Investigating problematic behavior
- Generating potentially unintended consequences
- Revisiting profiles

Patterns/dimensions

- During pre-selection
- Before first face-to-face interview
- During first face-to-face interview
- After first face-to-face interview

Single-stage use

- During curriculum review and during/after face-to-face interviews
- After curriculum review and during/after face-to-face interviews
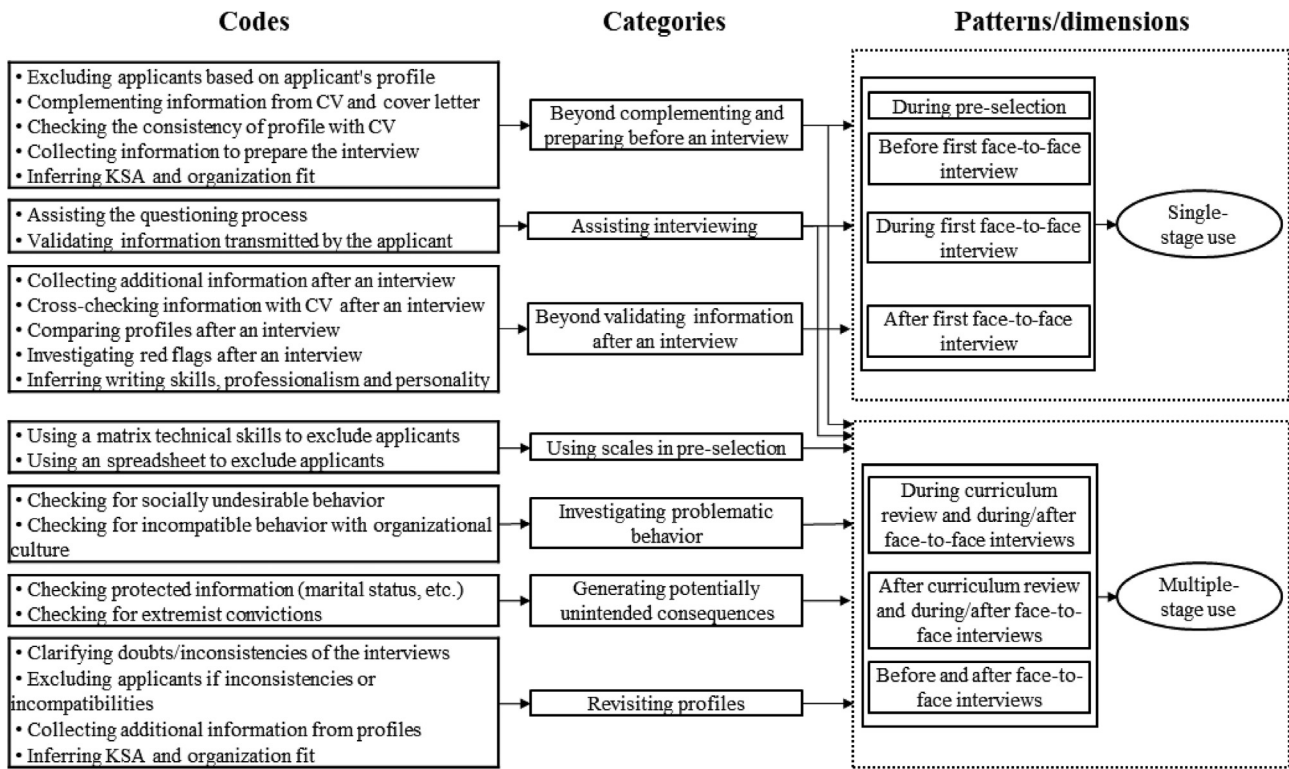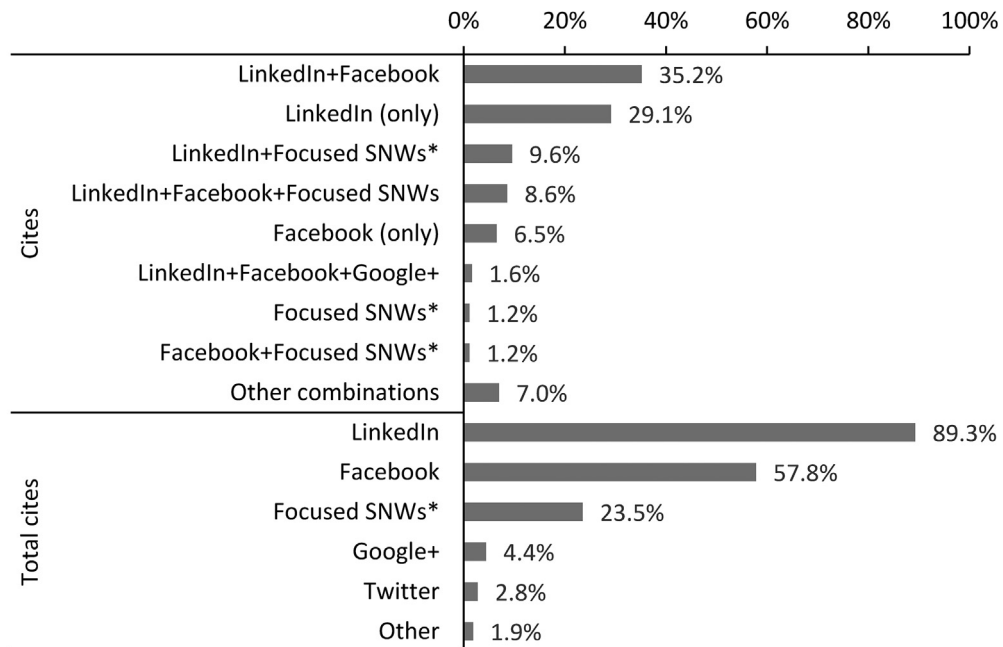- Before and after face-to-face interviews

Multiple-stage use

Figure 1. Coding structure.

*Focused SNS mentioned include Rede-T, GitHub, Xing, Stack Overflow, Behance, AngelList

Figure 2. Types of SNS used in personnel selection (n = 429).

users from large organizations being more likely to claim to have a formal policy than those from small organizations (41.3% vs. 26.7%, p = 0.006).

As shown in Figure 2, the most used SNS reported were LinkedIn (89.3%), followed by Facebook (57.8%), and SNS focused on certain professions or geographies - focused SNS (23.5%). Other SNS like Google+, Twitter or Instagram had a residual role. Of the SNS for private (non-professional) purposes, Facebook was the most SNS reported by far, possibly because it has the largest user base (Statista, 2020) and selectors can potentially analyze a higher variety of content than other similar SNS. In addition, most respondents indicated using more than one SNS in

personnel selection. The most frequent combination was LinkedIn and Facebook (35.2%), followed by LinkedIn (only) (29.1%) and focused SNS (9.6%), and then by LinkedIn, Facebook, and focused SNS (8.6%). Interestingly, comparisons by organization size and organizational role revealed significant differences using the chi-square test. Participants from large organizations showed a higher use of LinkedIn than those from medium-sized and small ones (97.6% vs. 88.4% vs. 83.6%, $p <$ 0.001), whereas the reported use of Facebook was just the opposite, i.e. was higher in small and medium-sized organizations than in large ones (67.9% vs. 58.7% vs. 43.7%, $p = 0.003$). In turn, HR managers conveyed a higher use of LinkedIn than the applicants' supervisors did (93% vs. 76.3%, $p = 0.001$).

Figure 3 displays the use of SNS during the selection process. Respondents indicated using SNS mostly before face-to-face interviews either for management positions (75.5%) or for other positions (64.1%). Their reported usage decreases significantly after face-to-face interviews for management positions (19.4%) or other positions (22.6%). Chi-square tests revealed significant differences by organizational role and organization size. For management levels, HR managers indicated a higher use of SNS after a face-to-face interview than HR assistants (22.5% vs. 9.1%, $p = 0.003$). For non-management levels, HR assistants showed a higher use of SNS before a face-to-face interview than HR managers and applicants' supervisors (78.8% vs. 59.4% vs. 61%, $p = 0.008$), whereas HR assistants reported a lower use of SNS after a face-to-face interview than HR managers and applicants' supervisors (8.1% vs. 26.2% vs. 30.5%, $p = 0.001$). A possible explanation for these results is that HR managers and applicants' supervisors tend to intervene in the later stages of selection. In addition, for non-management levels, respondents from large organizations indicated a higher use of SNS before a face-to-face interview than respondents from small organizations (74.6% vs. 58.2%, $p = 0.003$), while respondents from small organizations exhibited a higher use after a face-to-face interview than respondents from large organizations (26.7% vs. 14.3%, $p = 0.008$).

The next questions collected data about a topic that is little understood, namely, how practitioners assess SNS content during the selection process. Most respondents indicated that they make an overall impression on the applicant's fit to the organization (75.1%). About 12.4% mentioned that the evaluation is done by disqualifying applicants when problematic content is found. Only 10.3% stated to evaluate applicants through a scale or protocol. About 2.3% declared using other methods (representative sample quotes): "complement the profile information with that of the remaining selection stages"; "identify applicants that fulfil the requirements of the vacancy"; "formulate an impression about the adequacy of the applicant's education and work experience to the job". We found no significant differences amongst different levels of education, experience, organizational roles and organization size.

4.2. Interviews results

Although the survey results indicated that the majority of selectors used various SNS in the selection process, the interview research reported a slightly different picture. Most interviewees (63%) used just LinkedIn, whereas 25% used both LinkedIn and Facebook, 8% used both LinkedIn and focused SNS, and 4% used just Facebook. This difference may be because survey participants interpreted the selection process in a broader sense, and, thus, mentioned SNS that used both in the recruitment and selection phases (staffing). In addition, almost half of the interviewees (46%) employed SNS in the selection of qualified/specialized professionals, as well as middle and top management positions. This is perhaps not surprising as nowadays most of these kind of professionals have an online persona in LinkedIn. However, as pointed out by some interviewees, an increasing number of junior and lesser-qualified applicants are creating profiles in LinkedIn, and, thus, 38% of interviewees reported to use SNS across all job levels. Three interviewees (12%) used LinkedIn only for middle management levels and one interviewee (4%) used both LinkedIn and Facebook for all job levels except junior profiles or jobs involving high levels of trust.

From the content analysis of the interviews, we identified two main groups of professionals: those using SNS in only one stage and those using SNS in several stages of the selection process. The following sections explain how SNS are used in these two different groups.

4.2.1. Single-stage use

Fourteen (58%) selectors use SNS in just one stage of the selection process, of which ten in pre-selection (42%), one before the first face-to-face interview (4%), one during the first face-to-face interview (4%), and two after the first face-to-face interview (8%). Table 3 shows their profile of use.
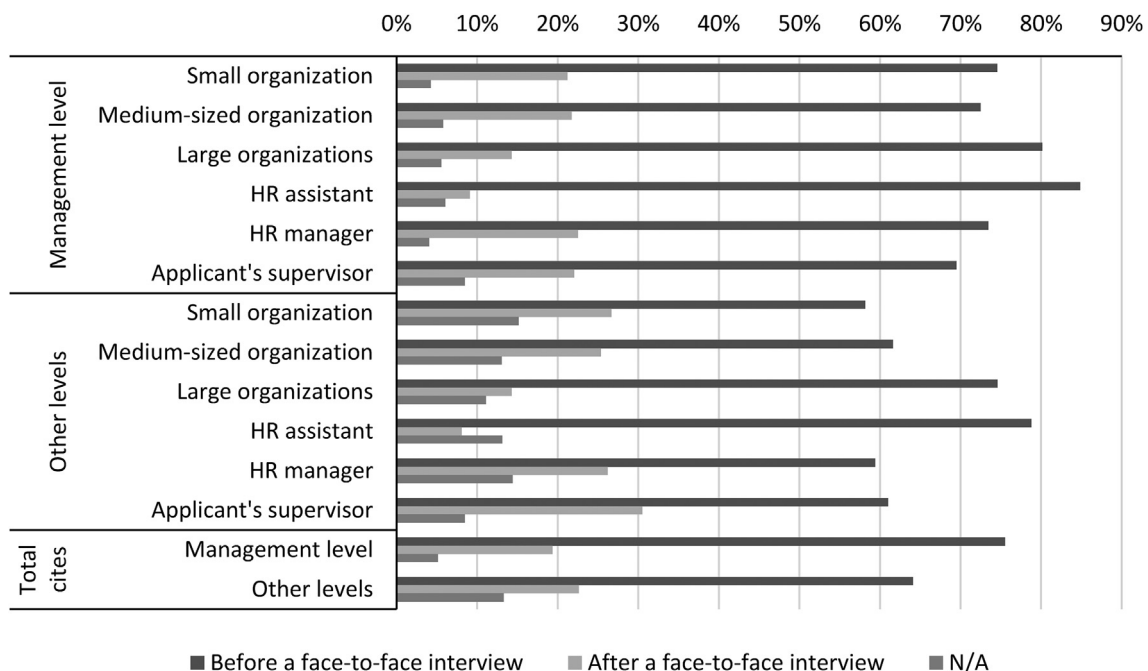

Figure 3. Use of SNS during the selection process (n = 429).

Table 3. Usage profile for single-stage users.

Participants[1]	Curriculum review (Pre-selection)		Face-to-face Interviews[2]			L[3]	F[3]	S[3]
	During	After	B1I	D1I	AI			
E11 (D, I, L)	X					X	X	
E12 (A, I, L), E20 (A, W, L)	X					X		
E17 (S, Se, M)	X					X	X	X
E1 (D, I, M), E9 (A, W, L), E13 (A, Se, L), E19 (D, I, L), E21 (D, I, L)		X				X		
E23 (S, Se, Sm)		X				X	X	
E18 (A, Se, L)			X			X		
E7 (A, Se, Sm)				X		X		
E14 (D, I, M)					X	X	X	
E15 (A, Se, M)					X	X	X	

[1] D – HR director; A – HR assistant; S – Applicant's supervisor. I – Industry; Se – Service; W – Wholesale and retail trade. L – Large organization; M – Medium-sized organization; Sm – Small organization.
[2] B1I – Before first face-to-face interview; D1I – during first face-to-face interview; AI – After face-to-face interview.
[3] L – LinkedIn; F – Facebook; S – Scale.

4.2.1.1. Beyond complementing and preparing before an interview. When applications are received via LinkedIn, interviewees (E11, E12, E20) usually conduct the curriculum review via the applicant's profile. Applicants are excluded if a set of essential requirements (i.e., those related with "education", "professional experience", "language skills", "management tools", "location") are not met; these requirements "are often used as a checklist when analyzing SNS profiles" (E12). When applications are received through an institutional website, email or chat, pre-selection is based primarily on the curriculum, and often SNS profiles are also analyzed during curriculum review (E11-E12, E17, E20) or immediately after (E1, E9, E13, E19, E21, E23). The key reasons for doing so are to:

- Complement the information included in the curriculum and cover letter (notably, "work experience", "recommendations", "skills", "comments", "posts", "common connections") (E1, E9, E12-E13, E19-E20, E23);
- Check the consistency of the curriculum's information with that of the SNS profile (namely, "dates of professional experience", "training", "academic degrees") (E11, E19, E21);
- Prepare the interview (E11, E19, E23).

Four respondents indicated other motives. When the LinkedIn profile "raises doubts", E11 examines also the Facebook profile ("interests", "hobbies", "causes involved") to "know the other side of the applicant", making preliminary "inferences about her psychological profile". E19 analyzes the LinkedIn profile ("interests", "comments") to make initial "inferences about the applicant's behavioral profile". E17 analyzes the LinkedIn and Facebook profiles to make an "initial, non-binding assessment of the applicant's adjustment to the organizational culture" based on 10 criteria on a +/- scale. This is because the organization has a "strong culture" and considers that "it is more difficult to shape the applicant's personality than her technical profile". Finally, E23 checks the profile in LinkedIn and Facebook to evaluate her "engagement with the organization" and her skills in the use of SNS, as in the organization's activity sector it is usual to share campaigns in SNS.

4.2.1.2. Assisting interviewing. An interviewee (E7) checks during the face-to-face interview both the curriculum and LinkedIn profile to assist in the questioning process. This use seems rather atypical and occurs because the selector "did not have time or opportunity to access the profile at an earlier stage".

4.2.1.3. Beyond validating information after an interview. Three professionals examine the applicants' profiles only after the first interview. E18 checks the LinkedIn profile after the screening interview to "collect additional information" (e.g. "work experience", "recommendations") and "prepare the interview". E15 analyzes the LinkedIn profiles to make inferences about "writing skills and professionalism", "collect complementary information" (e.g. "recommendations", "skills"), "cross-check information with the curriculum" (i.e. "work experience"), and "make a comparative analysis between applicants". She might also access posts, comments and photos of the Facebook profile in an attempt to "clarify doubts that the applicant could not explain during the interview". Similarly, E14 checks the LinkedIn and eventually the Facebook profiles if a "red flag" emerges in the interview (e.g. "applicant's lack of availability to work on a given day"). The posts, comments and interests may be verified to "clarify doubts and identify traces of personality". Although the information provided by the profiles did not have an eliminatory nature in these three cases, it contributes "to form a more positive or negative general impression of the applicant" (E15).

4.2.2. Multiple-stage use

Ten (42%) interviewees use SNS in various stages of the selection process. Specifically, six selectors use them during curriculum review and during/after face-to-face interviews (25%), three after curriculum review and during/after face-to-face interviews (13%), and one before and after face-to-face interviews (4%). Table 4 shows their profile of use.

4.2.2.1. Using scales in pre-selection. When applications are collected via LinkedIn (E3, E5, E10), curricular review is undertaken directly from the profiles. As in the single-stage use, LinkedIn profiles are regarded as digital versions of the curricula, and curriculum review is, thus, similar to its conventional form, being applied to weed out applicants that do not meet job requirements. In this regard, E5 uses a matrix with the required technical competencies to make a verification of their fulfilment for each applicant. This assists him to structure the assessment, but reports as this one are more the exception rather than the rule.

If applications are received by other means, E2, E4 and E24 check during curriculum review the LinkedIn profiles to complement information of the curricula, and confirm information or inferences made from the curricula. Here, SNS serve "to strengthen decision-making on who should move to the next stage" (E2). When the number of applicants in this stage is high, E4 uses a scale built in Excel "to determine who should be contacted for an interview". In this scale, E4 validates, for each applicant, "the competencies required for the function, being contacted those having a percentage of adjustment higher than 74%".

Table 4. Usage profile of multiple-stage users.

Participants[1]	Curriculum review (pre-selection)[3]					Face-to-face Interviews[2,3]						
	During	After	L	F	S	D1I	A1I	AAI	BFI	AFI	L	F
E2 (A, I, M)	X		X					X			X	
E3 (A, Se, L)	X		X				X					X
E4 (A, Se, M)	X		X		X					X	X	
E5 (A, I, L)	X		X		X		X				X	
E6 (S, Se, M)							X		X		X	
E8 (D, I, L)		X		X			X			X		X
E10 (A, Se, L)	X		X			X				X	X	
E16 (A, C, L)		X	X				X	X			X	
E22 (A, Se, M)		X	X			X					X	
E24 (A, Se, Sm)	X		X			X					X	

[1] D – HR director; A – HR assistant; S – Applicant's supervisor. I – Industry; Se – Service; C – Construction. L – Large organization; M – Medium-sized organization; Sm – Small organization.

[2] D1I – During the first face-to-face interview; A1I – After first face-to-face interview; AAI – After any face-to-face interview; BFI – Before final face-to-face interview; AFI – After final face-to-face interview.

[3] L – LinkedIn; F – Facebook; S – Scale.

4.2.2.2. Investigating problematic behavior. Three selectors (13%) analyze the profiles soon after the curriculum review. Thus, a decision has already been made to advance the applicant to the face-to-face interview. For E8 and E22, the reasons for doing so are, as before, to "supplement the curriculum", "crosscheck information with it", and "prepare the interview". Any "red flags" that may arise are cleared up in the first face-to-face interview. E16 reviews the Facebook profile to "identify socially undesirable behaviors or behaviors that are inconsistent with the organization's views". Posts, comments, photographs, likes and interests are checked to "identify the applicant's viewpoints on the activity sector, and divisive issues, like xenophobia, homophobia, and club, religious or political fanaticism". When detected, E16 admitted that the applicant is not excluded, but that "would be something that would disadvantage her in a tie". Thus, this organization is trying to reduce risk of hiring applicants with "problematic" behavior, but this could also potentiate the risk of discriminatory treatment. E16 added that sometimes finds "desirable behaviors that can favor the applicant for an interview call", a finding that concurs with Berkelaar (2017). Overall, from the twenty-four interviewees, nineteen reported using SNS in pre-selection, which accords with the survey's results that SNS are mostly used before the face-to-face interview.

The second analysis of the profiles may occur during the first face-to-face interview, after the first face-to-face interview, after any face-to-face interview, and before/after the final face-to-face interview. In particular, E10, E22 and E24 check both the LinkedIn profile and the curriculum while conducting the first face-to-face interview "to validate the information transmitted by the applicant", as well as "guiding the questioning process".

4.2.2.3. Generating potentially unintended consequences. The motives for analyzing profiles after the first face-to-face interview can be various. E3 examines the Facebook profile if "the applicant transmits information that raises doubts regarding personal issues or beliefs that may interfere with job performance". For example, if a job requires a considerable investment in training, one reason may be to check "whether there's something (e.g. spouse, girlfriend, and children) holding the applicant to a location far from the job". Clearly, this raises ethical and legal issues as to which depth should the selector go to find job-relevant information. Another reason is to "detect extremist convictions such as racism, xenophobia, homophobia", as the organization operates in a multicultural environment. If confidentiality is of utmost importance, another reason is to understand whether the applicant "reveals much about herself or is more discreet". E3 disqualifies the applicant whenever compromising content is found. Although this kind of disqualification is consistent with existing reports (Berkelaar, 2017; Henderson, 2019; Becton et al., 2019), it seems apparent that while doing these checks, the selector may come across with personal content that may contaminate the hiring decision. E6 stated that, although the "curriculum is the basis of the selection process", additional information may be collected from LinkedIn profiles, namely "recommendations". E8 conducts a check on Facebook profiles "if for any reason that was not possible after the curriculum review (e.g. lack of time)". E16 may perform a new analysis after the first face-to-face interview to "compare detailed information from two applicants", thus, assisting to decide who should proceed to the next step.

4.2.2.4. Revisiting profiles. E2, E5 and E16 conduct in some circumstances a profile analysis after any face-to-face interview. For E2 and E16, this intends to clarify any doubts that may have arisen following new or inconsistent information transmitted in an interview. E2 further revealed to have excluded an applicant at this stage because "information was collected from LinkedIn and from contacts in the applicant's network that contradicted the information passed in the interview". In E5's organization, selectors are asked not to access profiles on personal SNS, such as Facebook. There are, however, two exceptions. For a position of community manager, "all online pages that the applicant manages are checked to evaluate her communication abilities". For positions with media exposure, "the applicant's views are analyzed in all profiles in relation to topics that are sensitive to the organization". If those views are contrary to internal policies, E5 admitted that the applicant is disqualified. This was the only participant whose organization had a formal policy on the use of SNS, and it is evident that there is a concern to not unnecessarily expose professionals to potential personal content, unless it is predictive of future job performance.

Regarding the use made in the final face-to-face interview, interviewees (E4, E6, E8, E10) may revisit the profile if "red flags" or doubts surface (e.g. the dates of work experience). They may also contact common connections with the applicant for referrals. E10 stated that the applicant is disqualified "if there're discrepancies in the dates of the work experience that she can't explain or if she can't orally demonstrate the experience she claims to have".

5. Discussion and conclusion

To remedy the dearth of empirical research into how practitioners use SNS within personnel selection, this work advances our understanding of

(reported) the SNS' usage patterns, practices and processes employed by HR professionals during the various stages of the selection process.

5.1. Theoretical implications

Our research offers a number of contributions to academic knowledge. First, it uncovers two main types of usage patterns exhibited by HR professionals within the selection process, which were not previously reported in the literature. Single stage users examined profiles in one or more SNS at a specific stage of the selection process; they believed that this usage was more efficient, as it avoided a back and forth approach during the selection process, which is prone to some repetition. Multiple stage users analyzed profiles in one or more SNS at various stages of the selection process; they used SNS in a piecemeal fashion, accessing profiles on an as needed-basis, and making sense of the information collected as the selection process progressed. The study of the use of SNS across the selection process has been largely neglected in the literature to date, although its importance seems evident, in that different uses can have distinct consequences on the outcomes of the selection process (Roth et al., 2016; Van Iddekinge et al., 2016). For example, researchers could develop experimental studies to investigate the impacts of these two usage patterns on the validity of the inferences made and on the risks of adverse outcomes (e.g. discrimination, privacy violation and unlawful conduct). Thus, this research contributes to extant literature by providing a richer examination of the use of SNS throughout the different stages of the selection process.

Second, the results show that the use of SNS within the selection process is more complex and dynamic than reported in prior empirical studies. For instance, the reasons selectors gave for analyzing profiles before a face-to-face interview are wider than described in Caers and Castelyns (2011) and Hoek et al. (2016). For instance, some selectors reported to conduct curriculum review directly from profiles, to cross-check profiles with curricula quite early in the process to confront the applicant later for any potential mismatches, make early deductions about personality traits, and the fit to the job and company culture. Unlike the findings of Hoek et al. (2016), this work exposed that selectors mentioned accessing profiles, after a face-to-face interview, for more than just validating information, including also making inferences about KSA, comparing applicants, and investigating inconsistencies or "red flags". Furthermore, professionals reported revisiting the profile of the same applicant several times for different purposes, or examining profiles of the same applicant in different SNS (i.e. LinkedIn and Facebook) to obtain complementary insights. For example, E10 stated to examine the LinkedIn profile to do curriculum review, then after the first face-to-face interview to validate information and guide the interview, and again after the final face-to-face interview to investigate eventual "red flags". In this sense, our study sheds light on cybervetting scholarship by presenting a more nuanced view of the variety of ways HR professionals use SNS during the selection process.

Third, it provides strong empirical evidence that some of the reported practices are problematic, entailing risks of unintended consequences in the selection process. As in prior surveys (Caers and Castelyns, 2011; SHRM, 2016), the percentage of selectors reporting the existence of a formal policy for using SNS in personnel selection was low, suggesting that most selectors used SNS in a rather ad hoc fashion. Similarly, both survey and interview studies revealed that selectors mentioned using SNS more frequently during the initial stages of the selection process. Davison et al. (2016) recommended against this practice because of the higher potential of introducing biases. In particular, the use of Facebook in pre-selection seems problematic as it might expose selectors to non-job related content very early in the selection process. Besides, survey and interview data showed that only a small proportion of selectors reported using a scale or protocol to evaluate profiles. Davison et al. (2016) have criticized unstandardized approaches to assessing profiles, classifying them as similar to unstructured interviews, which lack reliability and validity. Additionally, using Facebook, as was reported by an

interviewee, to check whether the applicant has a spouse, partner or children far from the future workplace seems a very questionable practice, as this raises privacy, discrimination and even legal (according to Portuguese law, marital status and familiar situation are protected characteristics) issues. Finally, it was evident from the interview accounts that selectors may be facing a thin line between checking the Facebook profile for "red flags" and invasion of privacy, as in the former selectors do not typically have a clear information target. All this evidence gives further weight to arguments cautioning about the "dark side" of SNS in personnel selection (Jeske and Shultz, 2016; Roth et al., 2016; Slovensky and Ross, 2012), particularly personal SNS like Facebook.

Fourth, although not the focus of this study, it gives additional insights into how professionals assess profiles during the selection process. Both survey and interview participants stated that the analysis of SNS profiles is done, in most cases, in an intuitive, non-systematized way by formulating an overall impression about the applicant. This overall impression is, according to interview participants, is typically non-eliminatory, assisting to develop a more positive or negative view of the applicant. While these findings are consistent with earlier research (Becton et al., 2019; Berkelaar, 2017; Henderson, 2019; Hoek et al., 2016), this work went further to expose for the first time how selectors report using scales to evaluate profiles. Specifically, participant accounts suggest that scales tend to be rather simple (i.e., checklists, a set of criteria with plus/minus or yes/no assessments in a spreadsheet), mainly used during pre-selection, intended to help deciding who should move to the next stage.

Finally, consistent with contingency theory (Kim and Ployhart, 2018; Shaw et al., 2013), this research uncovered new organizational factors that may influence the use of SNS in personnel selection. Chang and Madera (2012) found that organization size and not having a formal policy were related to using SNS in personnel selection. Our study, which employs a more diverse sample, showed that besides organization size, selector's organizational role and educational level variables contribute to explain why there is variability between organizations in the practices of SNS for personnel selection.

5.2. Implications for practice

The practices uncovered in this work raised, in some instances, ethical, privacy and legal issues. To mitigate these issues, organizations and professionals should exercise great care, being recommended the implementation of the following measures. First, organizations should define a policy clearly stating what SNS can be accessed, what type of information can be accessed, for which jobs, who is allowed to access SNS profiles, and how access and profile evaluation is accomplished. Second, if profiles are to be accessed during the initial stages of the selection process (e.g. pre-selection), practitioners should have clear guidelines as to what kind of information they can/cannot access, as well as objective criteria for excluding applicants at those stages. If profiles need to be accessed later on in the process, a different professional should ideally access them to avoid potential bias. Third, professionals should preferably use professional SNS. Fourth, they should avoid making unstructured, global assessments in favor of structured, itemized assessments, using scales or protocols. Fifth, the creation of a culture designed to encourage ethical, nondiscriminatory and lawful behavior in professionals is fundamental to mitigate risks of inappropriate usage.

5.3. Limitations

Despite the consistency between the quantitative and qualitative findings and the resulting augmented validity, the contributions of this research should be seen in the light of some limitations. This research uses a sample from Portugal and, thus, the findings are mostly applicable to this setting. Future studies should consider samples from different geographies to ascertain how the findings unveiled herein relate to those that may be found in other countries. In addition, given the cross-

sectional nature of this study, the findings reflect the practices in Portugal at a given moment in time. Researchers could develop in the future longitudinal studies to investigate how and why these practices evolved over time. Finally, we collected data from a single respondent per organization. An interesting avenue for further research is to conduct in-depth case study research to explore the usage in ways that were not possible in this research.

Declarations

Author contribution statement

N. Melão: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

J. Reis: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data.

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