

E-recruiting and fairness: the applicant's point of view

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Abstract More and more companies currently recruit online, partly because of cost savings and competitive pressure, and partly because it is the best way to reach their target group of applicants. In our study, applicants' perceptions of procedural fairness were examined in e-recruiting contexts. Using an adapted form of the Social Process Questionnaire on Selection, we found that 1,373 participants' expectations regarding fairness were mediocre and always lower than the perceived importance of five procedural fairness aspects. Based on an experimental manipulation, we showed that feedback was particularly important in online application procedures, whereas participation had smaller effects. Furthermore, participants tend to rate procedural fairness for offline application procedures as fairer than for online procedures although they reported generally positive experiences with online applications in the past. Based on our results, we discuss practical implications and limitations.

Keywords E-recruiting · Justice · Fairness · Online application · Recruiting

1 Introduction

In recent years, more and more companies have been recruiting online [1, 32, 39], partly because it is cheaper

than classical offline recruiting and partly because of competitive pressure. As a consequence of changes in demography, companies have been faced with a market situation that provides fewer and older personnel [50] because fewer children have been born since the 1990s and because people are getting older on account of a better medical supply. Furthermore, there has been a change in technology. The technologization and globalization of the markets has led to a lack of highly qualified personnel. Therefore, companies have been on a “war for talent” [15, 16, 40, 41], a term introduced by McKinsey and Company, Fast Company, and other management consultancies [41]. It is based on the idea that in our globalized world, talent is a worthwhile attribute, and those companies that manage to recruit the most highly qualified personnel are going to have a competitive advantage [41]. The global economic crisis had changed the labor market in the recent years—but qualified talent is still very valuable, especially as some economic sectors are recovering by now. Therefore, recruiting, which from our point of view is best described as the active process of advertising and reaching out to potential applicants, is the first phase and hence a very important part of the hiring procedure. Adequate recruitment strategies could help to reduce selection ratios and allow organizations to select personnel more critically.

How can companies stand up to their competitors and recruit highly qualified personnel? They need to conceptualize recruiting strategies that address and attract their target groups [25, 36, 39]. When wanting to open up new target groups, e-recruiting can be a zeitgeisty and cost-effective option (see e.g., [7, 10, 35, 46]). E-recruiting includes a broad variety of marketing measures to attract potential applicants via the World Wide Web—ranging from job advertisements via email, organizational websites, online newspaper platforms, employment websites or online

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communities to virtual business games online. But due to its novelty, empirical research about applicants' general perceptions of e-recruiting is still on the onset (see [21, 35, 43]), several studies deal especially with design factors of recruiting websites and web users reactions to them (e.g., [1, 6, 11, 12, 37, 39, 42, 52]). However, there has been general research by Feldman and Klaas [24] that states that there are problems in e-recruiting processes (like slow feedback or technology problems), and therefore, applicants have been discontented. This can cause disadvantages for companies as no company can afford to lose qualified applicants because of discontent in recruiting processes [8] or to lose potential applicants because of multiplication effects (e.g., as shown for offline recruiting by [44]). On the contrary, when there are positive applicant reactions, this means the applicants' attitudes toward the organization are more positive [29, 36, 45] and applicants are more likely to accept a job offer [38]. Thus, *employer branding* focuses on an active management of a company's image as seen through the eyes of its associates and potential applicants. Different scientists have emphasized the importance of research on both applicant reactions in general (e.g., [30, 34]) and in online contexts (e.g., [5, 43]). Applicants reported generally positive reactions to the web-based procedures used by an organization and named process fairness as one determinant of applicant satisfaction [46]. Because e-recruiting application forms are sometimes in parts technically poorly designed or require the entry of unnecessary information they could be frustrating to use. In addition, there is a high potential that applicants experience internet-based pre-selection instruments as unfair because they are not based on personal contact [26, 28, 48]. Although there is a possibility of designing standardized forms more objectively, this does not guarantee that this is in accordance with the applicants' fairness perceptions [28]. Hence, the current study was designed to scrutinize procedural justice and applicant reactions in e-recruiting processes as an approach in order to further understand applicants' reactions to online recruiting.

1.1 Fairness in e-recruiting

It is important to know how applicants perceive the e-recruiting process because perceptions of procedural justice can influence applicants' satisfaction [46], job-pursuit intentions [34, 38], and because the recruiting process communicates the organization's values to the applicants [22]. Additionally, the perceived fairness of recruiting processes has been shown to be positively related to the perceived fairness of other organizational practices [45] and can result in a favorable attitude being held by applicants toward the organization [29, 45]. The importance especially of information variables (meaning the amount and mode information given) on the fairness

perception of applicants was clearly shown in an impressive field study by Truxillo et al. [47]; the importance of feedback is as well stressed by Van Vianen et al. [51]. And there are further relevant outcome variables: Truxillo et al. [48] gave an overview about several studies and a wide range of "soft" and "hard" outcome variables in respect to the importance of organizational justice in personnel selection. As possible "soft" outcomes aspects like satisfaction with the selection process, organizational attractiveness, self-efficacy, test-taking motivation or intention to pursue legal action were named. "Hard" outcomes of selection fairness could be aspects like applicants' withdrawal, reapplication, test validity, test performance and organizational commitment.

Some studies suggest that fairness perception in selection processes is influenced by factors lying in the mode of communication or the applicants themselves. In several studies, Cober et al. [11, 12] showed major differences between traditional recruiting and e-recruiting; those differences were particularly found for the form of communication, content of job advertisements and functionality and design of web-based recruiting [12]. There are studies that revealed that face-to-face communication was perceived as fairer than computer-mediated-communication in selection processes, at least for some fairness dimensions [4, 9]. However, these results might not only be explained by the mode of communication but rather by mediating processes like psychological distances and evaluation apprehension [2]. Furthermore, there is some evidence, that personality variables are related to applicants' fairness perceptions (e.g., [49, 51]) and fairness perceptions are dependent on cognitive processes like the ease of information retrieval as well as uncertainty and personal experience [31]. At this point, further research is needed, to better understand the processes behind fairness judgments and describe those in a model of justice experience in e-recruiting.

1.2 Models of procedural justice

Whilst most participants experience more than two stages during a recruiting process, all participants experience at least two: application and rejection or job offer. Multidimensional models of procedural justice can give HR departments information about their instrumental and procedural designs [27]. Therefore, these models can be used to work against current weaknesses in online screening systems [35]. A popular approach for describing and systemizing applicants' sensations and reactions during recruiting is the Model of Applicant Reactions [27] that distinguishes between distributive and procedural justice. Distributive justice describes the outcome of a decision-making process and the degree to which an applicant perceives the outcome as fair. Procedural justice describes the

applicant's perception of decision-making procedures and the degree to which (s)he perceives them as fair [27]. Online applicant screenings, which are focused in our article, are part of these procedures. Therefore, procedural justice will be particularly discussed in the following sections.

Gilliland [27] formulated 10 procedural justice rules that influence the applicants' perceptions of the decision-making process as fair; such as *opportunity to perform*, *feedback* or *two-way communication*, and *selection information*. Opportunity to perform, for example, describes the fact that applicants can participate in the selection process prior to the decision. In online recruiting, an opportunity to perform can thus include the possibility of attaching documents or other additional information to the application. Truxillo et al. [48] discussed consequences of technologies like screening of applicants via Internet on the organizational justice theory and applicant reactions, demanding some fine-tuning and augmentation of existing applicant reactions models. After a detailed discussion of Gilliland's model, Lievens and Harris [35] suggested that future research on e-recruiting should refer it.

Gilliland's procedural justice rules are included in the *Social Process Model of Selection* (SPS), developed by Derous et al. [18], which is based on a broad literature review. In a later article, they created the *Social Process Questionnaire on Selection* (SPQS) to reflect the SPS Model [19]. The authors extracted six factors using exploratory factor analysis (*transparency*, *objectivity*, *participation*, *job information*, *feedback*, and *humane treatment*) and integrated them into a general model of applicants' perceptions of selection procedures. Derous et al. [19] suggested that these factors influence applicants' motivation to apply for a job or not. Scale homogeneity, measurement invariance, factorial validity and aspects of discriminant validity of the SPQS were shown [19]. Thus, this questionnaire provides the possibility of collecting data about applicants' perceived justice independent of an organization's specific e-recruiting process. Furthermore, justice dimensions can be ranked, which gives companies important information about how to prioritize demands of fairness in recruiting, especially with respect to costs, efficiency, and process optimization.

1.3 Aim of the current study

Before applying the SPS model to a large sample of e-recruiting user, we will first take a general look at applicants' attitude. Several studies found major differences between traditional and e-recruiting (see above and e.g., [4, 9, 11, 12]), especially caused by the form of communication, functionality and design of web-based recruiting or by mediating factors like cognitive ease of

information retrieval. Thus, we expect general differences between traditional and e-recruiting in respect to the applicant's perception in general and in particular regarding to procedural justice.

First, we wanted to explore the general experiences and expectations of applicants with respect to e-recruiting (Question 1), independently from a special application form or situation of recruiting.

Second, we used an adapted version of the SPQS to analyze applicants' expectations and perceived importance of procedural justice in e-recruiting. In particular, we wanted to ascertain whether there was a difference between expectations and importance of the procedural justice aspects included in the SPQS (Question 2). Derous et al. [19] found that applicants valued the SPS factors generally higher than they expected them to be realized. Thus, we expected the same effect in e-recruiting, as it is part of general recruiting procedures which were evaluated by Derous and colleagues (Hypothesis 1). Although it is reasonably probable that the same effect will occur in online recruiting, it is of practical importance to ensure that this result applies to e-recruiting, too.

Third, we wanted to further investigate the relevance of some fairness aspects for e-recruiting using a different method. Thus, we wanted to ascertain how applicants would react to different experimental information given in a fictitious online recruiting situation (Question 3). In this experimental part, we varied three of the SPS dimensions: participation, transparency, and feedback.

2 Method

2.1 Participants

The study was announced as a survey for job applicants and people with experience in e-recruiting. Participants were mainly actively recruited from two different online panels. A total of 1,373 persons took part in this study on an anonymous and voluntary base. They did not receive any compensation for completing the study apart from the participation in a lottery of 25 shopping vouchers, each with a value of 10 Euro. Of the participants 43.2 % were male and 56.8 % were female. The average age was 27.54 years ($SD = 9.10$), ranging from 17 to 64 years. The average time since participants had first used the Internet was more than 8 years ($M = 8.39$, $SD = 2.88$). The average active Internet surfing time (without passive activities like downloads or updates) was over 16 h per week ($M = 16.34$, $SD = 13.90$). All participants had experiences as applicants with e-recruiting and had applied online for a job at least once. Common online application procedures (like e-mail, organizational website, or employment website like monster.com or

newspapers' online platforms) were known by over 90 % of the participants (range 92.4–99.4 %) except for online business games (81 %). Altogether, 757 participants had read about online application possibilities during the last 2 years, and 428 participants had actively applied online during the last 2 years. They had applied for an average of 12.48 jobs ($SD = 32.55$) within this time period.

2.2 Measures

To answer our first question (Q1) global experiences and acceptance of e-recruiting were measured with four questions regarding general experiences, fairness, justice, and a comparison between online and offline recruiting. The first item here was “All things considered, how would you describe your experiences with online application procedures so far?” (given on a 5-point scale from *very negative* to *very positive* plus the option *not applicable*). The second and third item were “Overall, I think my next online application will proceed in a fair manner” and “Overall, I think my next online application will proceed in a just manner” respectively, both presented with a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). In the fourth question in this part participants have to decide which application procedure is fairer (all things considered)—there were five answer possibilities: *offline applications*, *rather offline applications*, *neutral*, *rather online applications* or *online applications* plus the option *not applicable*.

The specific acceptance part was meant to reflect participants' perceptions of procedural justice (Q2). This was measured by the SPQS [19]. The SPQS was originally developed to describe applicants' perceived fairness of offline selection procedures; thus, it is difficult to ascertain the SPQS factor *humane treatment* (as it is defined by [19]) for online applications as they are not based on personal contact and personal interaction but rather on computerized and standardized electronic application forms. Humane treatment in general might also be a relevant facet of e-recruiting, but the items used in the SPQS are mainly targeted on the personal behavior of the recruiter and some connected environmental conditions. Therefore, we excluded this factor from our study and used only the first five factors *transparency*, *objectivity*, *participation*, *job information*, and *feedback*. The items were adapted to online recruiting by replacing offline terminology with online terminology. Furthermore, the SPQS reflects two aspects of the SPS dimensions: expectations (SPQS-E) and Importance (SPQS-I). Hence, participants were asked to answer two questions for each item. Question 1 asked what role they anticipated the item to play in the next e-recruiting process they would participate in. Answers were given on 5-point Likert scales from 1 (*not correct at all*) to 5 (*totally*

correct). Question 2 asked what importance they attached to the item in the process. Answers were given on 5-point Likert scales from 1 (*not important at all*) to 5 (*very important*). All SPQS items were presented in a completely randomized order.

In the experimental part of the study (Q3), participants were asked to rate a fictive informational text from the fictive homepage of an online job application site with three questions regarding fairness (“The company's e-recruiting process seems fair to me”), justice (“The online application proceedings are just”), and the general impression made by this form of recruiting (“I have a good impression about the company's online preselection process”). The fictive informational text was presented on a blank web site always showing the same design and thus only differing in respect to the given text. Answers were given on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) presented on the button of the web site. These three items were used combined to a short scale, internal consistency in the current study was $\alpha = .90$.

2.3 Procedure

Participants were mainly recruited from two different German online panels. Additionally, participants were invited by sending out the study's URL via email and by publishing it in online communities. The survey itself was conducted with the software EFS Survey and was divided into three parts: a demographic part, a part with global acceptance ratings and the adapted SPQS, as well as an experimental part for which participants had to rate an imaginary informational text from the homepage of an online job application site. In this part no specific website was presented to the applicants. Only the text and an instruction to imagine that it was shown on a typical recruiting website were presented. To avoid effects of position, parts two and three were presented in a random order. We used a fully crossed $2 \times 2 \times 2$ design to vary the given text in the experimental part regarding the aspects *participation*, *transparency*, and *feedback* (see Table 1). This created eight text versions using a between-subjects design. Each participant rated only one text version. We chose these three SPS dimensions for variation based on the results of a manipulation check with 46 participants. Furthermore, the SPS *humane treatment* dimension did not fit into online recruiting (as explained above), *job information* would have demanded a specific job description, and *objectivity* applies more to a process and was not appropriate for assessing an informational text on a homepage. Thus, the three chosen SPS aspects seemed to be best for the experimental manipulation and most relevant for e-recruiting.

Table 1 Text variations used in the experimental treatment

	Low fairness	High fairness
Participation	You can apply by completing our standardized application form. It is not possible to give extra information in a free text field. It is not possible to upload references/certificates or other documents. Please send us those only when asked to do so.	You can apply by completing our standardized application form. It is possible to give extra information in a free text field if you consider the information to be pertinent. Please upload your cover letter, required references/certificates, and other documents on the last page.
Transparency	The application procedure will last a few weeks. During this time, the applications will be evaluated.	The application procedure will end on dd/mm/yyyy. Evaluation of applicants with regard to the qualifications mentioned in the job posting is going to last 2 weeks.
Feedback	We do not send confirmations of receipt. Please understand that we will contact only those candidates who have passed the preselection process.	After sending your application, you will receive an automatically generated confirmation of receipt. After completing the preselection process, each applicant will be given feedback about the different requested qualifications.

3 Results

3.1 General expectations (Q1)

About half of the participants (50.4 %) said they had experienced their previous application procedures as “rather positive” or “very positive,” and only 9.8 % stated negative or rather negative experiences. Of the participants, 45.1 % said that they expected their next online application procedure to be fair, 14.1 % expected unfair treatment, and 40.6 % had neutral expectations. Regarding justice, 44.9 % expected their next online application procedure’s organization to be just, 16.6 % assumed it would be unjust, and 38.5 % were neutral. When asked whether offline or online application procedures were fairer, participants tended to rate offline application procedures as fairer (32.0 % “rather offline” and “offline,” 37.1 % “neutral”), 22.5 % rated online applications as generally fairer, and 8.3 % stated they did not know.

3.2 SPS dimensions expectations and importance (Q2)

The average answers of the participants for the SPS dimensions were analyzed (see Table 2). Regarding fairness in future e-recruiting processes, participants tended to expect dimensions to be marginally lower than “neutral” or to equal “neutral” with the relatively highest score for objectivity and the lowest for expected transparency. The importance of the dimensions was rated significantly higher; participants rated them mostly as “rather important,” and feedback was stressed here in particular.

In order to ascertain whether there was a difference between expected procedural justice and its importance, we used a paired *t* test for each dimension. *Importance of procedural justice* always scored higher than *expectations of procedural justice*. Thus, hypothesis 1 was confirmed. According to Cohen’s [13] classification, effect sizes for all

dimensions were large. The largest difference was found for *feedback*; the smallest difference for *participation*.

3.3 Experimental investigation (Q3)

In order to ascertain whether applicants ascribed different importance to given information in an e-recruiting process, we used a fully crossed 2 × 2 × 2 experimental design. An ANOVA was computed with the three manipulated aspects (*participation*, *transparency*, and *feedback*, see Table 1) as independent variables and the participants’ evaluations of the given information on a short scale as dependent variable. The ANOVA showed significant differences (see Table 3); effect sizes indicated relevant differences in the manipulation of the given information for *participation* and *feedback*. The effect size for *participation* was small ($\eta^2 = .08$), while the effect size for *feedback* was medium ($\eta^2 = .13$). Differences for *transparency* were significant ($p = .02$), but the effect size was very small ($\eta^2 < .01$).

4 Discussion

While most participants in general stated no negative experiences with former online applications or negative expectations of procedural justice and fairness in future ones, they tend to rate offline application procedures as a little fairer than online procedures (Q1). The results are consistent with studies showing a preference for face-to-face communication in recruiting (e.g., [4, 9]) and research stating that because of problems in e-recruiting processes (e.g., slow feedback) applicants are discontented [24]. Furthermore, it confirms Harris’ statement [28] that internet-based preselection procedures have a high potential to be seen as unfair by applicants.

This general opinion was also reflected in mediocre ratings of the five SPS dimensions regarding participants’

Table 2 Results for the SPS dimensions

	SPQS-E		SPQS-I		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Transparency	2.65	0.69	3.62	0.64	−39.37**	1372	.00	1.07
Objectivity	3.08	0.64	3.93	0.62	−37.35**	1372	.00	1.01
Feedback	2.78	0.71	4.02	0.60	−48.76**	1372	.00	1.32
Job information	2.80	0.68	3.81	0.62	−43.02**	1372	.00	1.17
Participation	2.88	0.69	3.62	0.65	−30.98**	1372	.00	0.83

SPQS-E: answers were given on 5-point Likert scales from 1 (*strongly disagree*) to 5 (*strongly agree*). SPQS-I: answers were given on 5-point Likert scales from 1 (*not important at all*) to 5 (*very important*)

SPQS Social Process Questionnaire on Selection, *E* expectations, *I* importance

* $p < .05$; ** $p < .01$

Table 3 Experimental treatment: main effects of the ANOVA

	<i>F</i>	<i>df</i>	η^2	<i>p</i>
Participation	108.35**	1	.08	.00
Transparency	5.30*	1	<.01	.02
Feedback	187.40**	1	.13	.00

Independent variables were the three different manipulations regarding participation, transparency, and feedback as shown in Table 1. Dependent variable was a short scale consisted of answers to three questions regarding fairness, justice, and general impression

* $p < .05$; ** $p < .01$

expectations (Q2). As expected in hypothesis 1 there was a highly significant difference in the importance evaluation of these dimensions in respect to e-recruiting, what is consistent with the results of Derous et al. [19] for recruiting in general. All five dimensions were rated as important with feedback as the most important aspect, and with the largest difference to participants' expectations. This is in line with the experimental results (Q3), for which the variation of information regarding feedback led to highly significant differences between the conditions. Participants think that a procedure is fairest when feedback is given even if there is neither the opportunity of participating nor accurate transparency of the following procedure.

What are the possible reasons for the participants' statements and reactions? It can be assumed that experiences with former online applications had shaped the answers given on the SPQS and that there is a lot of diversity in recruitment processes regarding transparency, feedback, and participation. On a general level, participants reported mostly positive experiences with online recruiting (what is similar to the results of [46]), but had only mediocre expectations regarding fairness. Maybe those positive general statements are based on reasons besides justice and fairness? Other factors could have influenced participants' general opinions—for example, the low costs of online applications, the ease of multiple applications, or

the relative effortlessness of finding a job by creating only an online profile. Although expecting only mediocre fairness, participants still thought that the facets *transparency*, *objectivity*, *participation*, *job information*, and *feedback* were important. One can only guess why expectations are not as high as importance. The smaller differences between them were for the dimensions participation and objectivity. Most likely, people are more accepting of the restricted participation possibilities when using online application software, which leads in turn to a higher objectivity, which was rated as more important than participation. The biggest difference between expectations and importance was in the feedback dimension. This was reflected as well in our experimental results, showing the high value of feedback. Informative feedback such as announced in our experimental condition might be uncommon but still very welcomed by participants, which could have led to a strong effect of our manipulation. This is in line with the results of Anseel and Lievens [3], who showed that feedback—mediated by feedback acceptance—influences attitudes toward an organization and subsequent test performance.

However, transparency of the procedure that followed in the application process had no such strong effects. One could argue that it is not very common to provide a specific date for when an application procedure will be closed and its evaluation will be finished, and therefore participants did not expect to get such information and did not mind not

getting it. But this might be the wrong way of approaching this result in detail. Perhaps the solution lies in the interpretation of the manipulation made before undertaking the study. We had constructed the manipulation thinking that all dimensions were fairness dimensions. It is possible that applicants do not consider a timeline for feedback to be a fairness dimension, but rather view it as an organizational dimension. Thus, they might not have considered time specification when answering the questions regarding fairness and justice. Furthermore, it is difficult to investigate transparency without specific job information for all participants, which was technically impossible in our study. Thus, this manipulation could be weaker than the other two. Future research should further investigate this dimension in a situation in which it is possible to directly test different versions of given job information.

Our third manipulation, the freedom to provide further documents or information in the online application process, was created to reflect the participant's ability to participate in the process. Even though this is only one way for an applicant to participate, it still led to small, but highly significant effects. This opportunity might reflect the applicant's desire to show individual skills, but it conflicts with the company's wish for high standardization in HR processes.

4.1 Implications for practice

Our study showed the high importance of feedback for fairness perceptions in e-recruiting processes. Organizations need to optimize their e-recruiting feedback because otherwise they might lose highly qualified personnel [8]; shown for offline recruiting by [44]. Moreover, optimized feedback can lead to an increasing number of accepted job offers [38] and can optimize the applicant's attitude toward the organization [3, 29, 51]. Currently, feedback could be improved in several ways: Automatic responses could be used to ensure applicants that their documents have arrived, or feedback could be provided to tell applicants that they did not get the job—not only because they did not “match the profile,” but it would also be possible to state specific points regarding where they did not match. If online assessments are used, feedback on an applicant's performance on those tests could be given. This kind of feedback could even be computer generated and immediately presented by the online application software. Such improvements would allow applicants to learn why they did not get the job and would then allow them to improve themselves or to acquire discriminating skills. Furthermore, this might reduce the number of direct requests to companies' HR departments regarding reasons for rejection. However, it remains to be shown how much such feedback is feasible from a judicial perspective.

Our results regarding participation in an online application process showed that it is productive to give people opportunities to shape the process actively. This can be implemented by providing some freedom in online application forms pertaining to document uploads, free text fields, the possibility of buffering the application, being able to log in again later to complete it, or by simply having a contact person's e-mail or phone number for further questions or problems regarding the application.

Information about application procedures and selection criteria can improve perceived objectivity and transparency. Detailed information in the job description and about the company itself are important for the SPS dimension *job information* and will lead to a better fit between applicants' interests and skills on one side and companies' requirements on the other.

4.2 Limitations

Some limitations should be considered when interpreting our results. First, although our study was based on a large sample, all participants shared the same cultural background. The shared background might be a source of bias if the handling of online recruiting processes differs significantly (e.g., between the United States and Germany) or if the participants in our study made their statements based on a different background of experiences. Like Lin [37] stated is there a need for cross-cultural studies of online job seekers' attitudes and behavior.

Second, even as our approach was based on self-reports combined with an experimental treatment, ecological validity might be limited by the fact that our experimental treatment could not perfectly reflect a real recruiting situation. We used a manipulation check with 46 participants to test the different text versions of the experimental manipulation but those texts still might be not fully realistic for company recruitment websites.

Third, as in most empirical research of this kind, self-selection of the participants is a potential source of bias. We tried to reduce this bias by actively recruiting participants via online panels and by collecting a large sample. As participants showed a quite average Internet use time, we do not think our results are biased by heavy online users. Furthermore, several studies showed that results of online studies are highly comparable and equivalent to offline studies (e.g., [14, 17]), and showed lower effects of social desirability (e.g., [23, 33]). But, independent of the way of data collection, people might have tended to participate in the study if they are highly interested in online recruiting. This could have biased the generalizability of our findings in a way, that e.g., better informed or reflected people could have answered our questions.

Forth, one might argue that the evaluation of the importance of the SPS dimensions per se is something different than the expected fairness and in addition that importance ratings are biased by inflation of expectations. If we had just used the SPQS, that would be a considerable point of critique. In combination with the experimental results we can see that high importance ratings correspond with participants' reactions.

Fifth, as in all fields of web-based technologies, the processes and use of job application software is relatively fast moving and prone to technical improvements that may change user behaviors and evaluations in the future. Procedural justice will stay important, but the way to shape it in e-recruiting processes could change.

4.3 Conclusions and future research

Taken together, our study delivers information about the applicant's point of view of online recruiting processes in the light of procedural justice. While we found only mediocre expectations regarding justice and fairness in future online applications, participants' experiences from the past were rather positive. At this point, it would be interesting to further analyze the differences between offline and online application procedures. Perhaps people are just more used to offline procedures or prefer offline applications because they provide more room for self-expression.

In particular, we showed the importance of feedback in e-recruiting processes as well as the importance of five dimensions from the SPS model. Future research should investigate how to shape the experience of fairness and justice in online applications and how to optimize them. We were able to examine only a few variables in our experimental approach; therefore, further experiments are needed, for example regarding factors like job information or objectivity and perceptions of fairness in online recruiting. It would also be a promising approach to continue research like done by Devonish and Greenidge [20] and further investigate and include outcome variables as proposed by Gilliland [27] such as reactions during hiring, job performance, or future job-search intentions in studies dealing with fairness and justice perceptions in e-recruiting.

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