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**The link between digital assessments and candidates´
assessment experiences**

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Executive Summary

Background

Due to the corona-crisis the HR-department of a large, international telecommunication organization converted their assessment centers into virtual assessments conducted via video technology. This study accompanied this process and investigated the candidates' acceptance of the technology-mediated assessment. Specifically, the aim of the study was to explore the differences between a face-to-face and a virtual assessment procedure. I tested whether

a) candidates experienced organizational attraction and test motivation differently in both assessment modes and whether test anxiety and procedural justice moderated the relationship and whether

b) trust in technology influences the reaction in the virtual assessment.

Methods

The face to face assessment center took place in organization-internal rooms and included a business challenge, a visionary discussion, a leadership simulation, a peer to peer simulation and a semi-structured interview. In contrast, in the virtual assessment all participants stayed at home and dialled into the video conference. The same exercises like in the face-to-face assessment were conducted. In both assessment modes the observers and moderator scored the performance on different competences after each exercise. Based on these scores, the observers evaluated whether the candidate is suitable, suitable with needs for development or not suitable for the job. The procedure took around 4,5h and ended with a short feedback session.

After the virtual assessment, the candidates received a link to an online survey via email. As no face-to-face procedures could be conducted due to social distancing regulations, I contacted candidates, that took part in a face-to-face procedure during January and February, via email and asked them to fill out the online questionnaire as well. In total, seventy-four employees participated in the study. Twenty participants conducted a face-to-face assessment center and fifty-four participants took part in a virtual assessment center.

Results

Moderation analyses revealed non-significant links between the assessment mode and test motivation and organization moderated by test anxiety. Nevertheless, a moderation effect for procedural justice on organizational attraction was found in the virtual assessment. Further linear regression analyses revealed a non-significant link between trust in technology and organizational attraction and test motivation

Conclusions

The present study found a significant moderation of procedural justice on organizational attraction in virtual assessment center. No further link between assessment modes on organizational attraction and test motivation moderated by test anxiety and trust in technology was shown. It can be concluded that there is no difference between virtual and face-to-face assessment centers on candidates' experiences and attitudes, so a virtual assessment center is a valid alternative to face-to-face procedures.

Recommendations

Evident advantages with regards to the organization are cost effectiveness, less need to travel and more flexibility. Additionally, the study results give the organization the opportunity to offer both virtual and face-to-face procedures. As the comparability can be ensured, a hybrid model will enable the organization to flexibly switch between a virtual and a face-to-face procedure in future. Nevertheless, the organization needs to be aware that the study could not provide any advantages of virtual procedures over to face-to-face assessments either.

Abstract

The study at hand investigated the differences between face-to-face and virtual assessment procedures on organizational attraction and test motivation moderated by test anxiety, procedural justice, and trust in technology. The study was conducted within a HR-department of a large, international telecommunication organization. Twenty participants conducted a face-to-face assessment center and fifty-four participants took part in a virtual assessment center. Afterwards, both conditions filled in an online questionnaire. Moderation analyses revealed non-significant links between the assessment mode on test motivation and organization moderated by test anxiety. But a moderation effect for procedural justice on organizational attraction was found in the virtual assessment center. Further linear regression analyses revealed a non-significant link between trust in technology and organizational attraction and test motivation. Implications for future research concerning generalizability of the results and testing the relationship in non-crisis times are suggested.

Keywords:

Assessment center, test-taking motivation, organizational attraction, test anxiety, procedural justice, trust in technology

Introduction

Digitalization affects nearly every aspect of modern organizations and they experience great pressure to move forward in digital transformation to remain competitive and grow in today's market (Kohnke, 2017). Those demands for digitalization do not stop at Human Resources (HR) departments. The business of HR is continuously facing new trends, including large amount of employee data, computer-aided training, employee online feedback, virtual teams and recruiting and selection with artificial intelligence (Fedorova, Koropets & Gatti, 2019), which they need to incorporate into their day-to-day practice. Assessment centers are another area in which digitalization takes place in the form of online tests and virtual tasks including video presentations. Assessment centers are used to select an employee for a job opening by measuring knowledge, skills, and abilities of applications. The exercises mostly consist of psychometric tests and behavioral samples like presentations, management games and conversation simulations. The applicants are rated on behavioral anchors by professional observers (Tippins et al., 2017).

It is evident, that digitalizing an assessment center comes with great changes in the experience of such a selection procedure as candidates might evaluate digital procedures differently than traditional face-to-face procedures. The candidate's perspective on digital selection methods has been studied extensively with the focus on technology-based interviews via video platforms (Bausch & Melchers, 2020; Wiechmann & Ryan, 2003). Studies are often based on Gilliland's conceptual model of applicant reactions (1993) which describes factors that influence the candidate's perceptions and reactions to a selection process. This model includes outcome variables such as test-taking motivation and organizational attractiveness and individual differences such as acceptance of technology, test-taking anxiety, perception of procedural justice. These variables also provide the basis for the present study and I will explain these in the sections that follow.

To begin, organizational attractiveness can be defined as the company's efforts to communicate to existing and prospective staff that it is a desirable place to work (Pingle & Sodhi, 2011). Recruiting and retaining employees is an increasingly competitive challenge for organizations referred to as the war for talent (Pingle & Sodhi, 2011). Technological advancements are a critical aspect of, and gain importance in, competition for employees (Pingle & Sodhi, 2011). Whenever candidates take part in a selection or assessment procedure, they form attitudes about the organization. Thus, conducting an online assessment could show employees that the company remains an attractive employer in times of constant change. Person-organization fit also plays a role in employer branding (Bhatnagar &

Srivastava, 2008). According to the attraction-selection-attrition (ASA) framework (Schneider et al., 2000), organizations attract and select employees that fit their organizational image and culture. Simultaneously, it is the persons' characteristics that define the organization and build its foundation. Yu (2014) drew attention to the connection between person-organization fit and organizational attraction, which accounts for 31% of variance in organizational attraction. Therefore, employees that fit the organization better, are also more likely to rate the organization as more attractive (Schein & Diamante, 1988). Taken to the context of assessment procedures, this implies that individuals who are open for new experiences and enjoy working with new technology experience a higher person-environment fit and consequently rate the organization as more attractive. In line with this, research showed that digital selection tools heighten candidates' positive attitudes towards the assessment which in turn create the impression of an attractive organization (Wiechmann & Ryan, 2003; Smither et al., 1993).

Akin to organizational attraction, test-taking motivation is an important variable in testing which may influence test performance and ultimately acts on the validity of selection methods (Cheng et al., 2014). Thus, it is in the organizations' best interest to influence the candidate's test-taking motivation. Research showed that candidates perceive computerized tests as more efficient, more interesting, challenging, and less boring than paper-and-pencil versions (Wiechmann & Ryan, 2003). This in turn led to more engagement and a higher test-taking motivation in digital tests compared to paper-and-pencil versions. Furthermore, digital procedures can be conducted at home. Being in a familiar and comfortable environment, may make it easier for candidates to concentrate compared to their need to adapt to a new environment when performing the stressful assessment center. Consequently, they can save their cognitive resources and have more willpower to conduct the test as best as possible (Baumeister & Vohs, 2007).

An important individual characteristic hereby is the acceptance of technology (Gilliland, 1993). Basch and Melchers (2020) proposed that candidates' acceptance of technology has an influence on their reactions to online tools. Based on the technology-acceptance model by Davis et al. (1989) candidates that perceive technology as more useful and easier to use, have more positive attitudes toward technology and therefore higher behavioral intentions to use technology. Moreover, candidates who experience ease of use are likely to have a higher self-efficacy regarding technology (Saadé & Kira, 2009). Consequently, they feel more competent when working with the technology, leading to increased test-taking motivation (Davis et al., 1989).

In addition to technology acceptance, test anxiety may also affect test-motivation and organizational attractiveness. Test-taking anxiety is a situation-specific trait that leads people to respond with excessive worry, negative thoughts, strong affect, and physiological arousal in testing situations (Wiechmann & Ryan, 2003). Candidates that are not used to technology might be more anxious prior to an assessment procedure and more preoccupied with getting the technology to work. Therefore, they have a higher cognitive load which leads to faster depletion in the assessment, making the candidate less able to stay motivated and perform well (Maranges et al., 2017). On the other hand, introducing digital assessments might be a way for companies to decrease candidates' test anxiety and thereby gain more reliable results: that is, the digital procedures include preparation of one exercise a few days before the assessment, which provides candidates with more time to prepare for the actual test. Moreover, candidates get the chance to conduct the procedure at home in a comfortable and familiar environment. Both factors might make the candidates feel better prepared and less aware of being tested and consequently respond less anxious.

As the test-taking attitudes change, perceptions of justice might also be influenced by the digitalization. In this study, I will conform the differentiation made by Gilliland (1993), who distinguished between procedural and distributive justice. Distributive justice describes the fairness of outcomes while procedural justice focuses on the fairness of rules and processes to reach a specific decision (Alexander & Ruderman, 1987). Ployhart & Ryan (1998) showed that even if an individual is hired, the reaction can still be negative if the process of selection was perceived as unfair. Given this, I chose to focus on procedural justice perceptions. Previous research has demonstrated that these justice perceptions are mediated by social presence (Basch & Melchers, 2020), meaning that the possibility to create a personal bond with the moderator and observers influences how fair candidates feel treated. That is, participants seem to find it more difficult to create a bond with each other via virtual communication tools. Moreover, the influence of non-verbal behavior (transactions in any modality that does not involve words; Matsumoto et al., 2012) and para-verbal behavior (transactions alongside verbal communication e.g. rhythm, tempo, pitch, accent; Heimlich, 1980) is restricted during virtual communication. In consequence, the observers might rate the candidate less positive and candidates might feel treated less fairly (Basch & Melchers, 2020).

Based on the framework I presented above, I have shown the importance of test-taking attitudes. Smither et al. (1993) mentioned three reasons for the importance of investigating applicant reactions; first they indirectly influence acceptance of job offers and have spillover effects on organizational behavior; second reactions are related to legal issues like defending

a selection procedure; third they affect validity and utility of the selection. Despite their usefulness, there is little to no research available on the impact of test-taking motivation, - anxiety, technology acceptance, organizational attraction, and perceived procedural justice in the setting of assessment centers (Basch & Melchers 2020). Moreover, selection methods have often been tested in a fictitious sample, where the outcome has no tangible costs (Bauer et al., 1998). Following this, Maertz et al. (2004) drew attention to the need to study these relationships in actual employment settings. Hence, in the present study I want to answer the research question whether the assessment mode (digital/face-to-face) influences organizational attraction and test-taking motivation of candidates, moderated by procedural justice and test-taking anxiety in a practical setting in a telecommunication company. In the second research question I will investigate whether technology acceptance influences organizational attraction and test motivation in the digital assessment group. In doing so, I can contribute to the research on technology in employee assessment which is lagging behind the practical use by testing the candidates' reactions. Company's selection methods are an influential touch point with new and existing employees and therefore companies need to be aware of the effect on the candidates. This becomes even more important when implementing new methods like a digital procedure.

As mentioned in the framework above, digital selection tools show that the company is an attractive employer and heightens candidate's positive attitudes towards the assessment and create the impression of an attractive organization (Wiechmann & Ryan, 2003). Moreover, showing employees that the company adapts in times of change (such as the corona virus crisis in 2020), creates an image of an agile, fast responding organization. By quickly implementing virtual alternatives the company ensures a smooth staffing process so employees can move to their new job. By doing so, organizations may demonstrate to their employees that the organization values them and offers them career opportunities even in hard times, which in turn increases employees trust and loyalty towards the company. Therefore, I hypothesize the following:

Hypothesis 1: Organizational attraction will be higher in the experimental condition than in the control condition.

Next, regarding test motivation, the digital procedure can heighten the candidates' motivation as they can stay in a comfortable and familiar environment which may increase their willpower to perform good in the test (Baumeister & Vohs, 2007). This argument is in line with research that showed that candidates perceive computerized tests as more efficient,

more interesting, challenging, and less boring than paper-and-pencil versions (Wiechmann & Ryan, 2003). Therefore, I hypothesize the following:

Hypothesis 2: Test motivation will be higher in the experimental condition than in the control condition.

It is known that candidates who experience higher acceptance of technology in the experimental condition will experience more self-efficacy and increased test-taking motivation (Davis et al., 1989). Moreover, they are more likely to experience their organization as attractive and modern (Schein & Diamante, 1988). Consequently, I hypothesize the following:

Hypothesis 3: Acceptance of technology moderates the relationship between a) assessment mode and test-taking motivation and b) assessment mode and organizational attraction in the experimental condition; when candidates' acceptance of technology is high, their test-taking motivation and organizational attraction are higher as well.

Next, candidates who complete the assessment center in their usual environment may be less aware of the testing situation and therefore be less anxious. Consequently, these candidates may experience more test-taking motivation and report more organizational attraction (Maranges et al., 2017). Hence, I hypothesize the following:

Hypothesis 4: Test-taking anxiety is lower in the experimental condition than in the control condition. Test-taking anxiety moderates the relationship between assessment mode and test-taking motivation and organizational attraction; when test-anxiety is low, test-taking motivation and organizational attraction are high.

Furthermore, as candidates might get the impression that observers cannot rate their skills adequately via video, they might feel treated less fairly (Basch & Melchers, 2020). This in turn might influence candidate's perceptions of organizational attraction and test motivation. Therefore, I hypothesize the following:

Hypothesis 5: Procedural justice perception is lower in the experimental condition than in the control condition. Procedural justice moderates the relationship between test-taking motivation and organizational attraction such that when candidates' justice perceptions are low, their test-taking motivation and organizational attraction are lower as well.

Method

Procedure

I conducted this study within the HR-department of a large telecommunication company in Germany and across Europe. The department conducts regular assessment procedures for employees in their office buildings. Due to the Corona virus most employees were forced to work from home and face-to-face assessments could not take place. Therefore, from mid-April 2020 the assessments were transferred into digital procedures which could be conducted from home via a video communication tool. Five days prior to the virtual assessment, the candidate received a business challenge via email to get acquainted with the material. On the procedure day, the candidate, the moderator and two observers dialled into a video conference. After an introduction round, the candidates received the first exercise to the material they had already received in advance. The first task was to present a new business idea based on the fictional company. The subsequent tasks included a visionary discussion, a leadership simulation, a peer to peer simulation and a semi-structured interview. After each exercise, the observers and moderator scored the performance on different competences. Based on these scores, they evaluated whether the candidates were suitable, suitable with needs for development or not suitable for the job. The procedure ended with a short feedback session, during which the candidates were informed about their performance and further steps. The whole procedure took around 4,5h.

A few days after the procedure the candidates received a mail from the HR-department with a link to a organization-internal survey about the individual experiences in the procedure, including the variables of interest for this study. When following the link, respondents were presented with an information letter and were asked to sign an informed consent form. Filling in the questionnaire took around 10-15 minutes. After completing the survey, respondents were debriefed and thanked. All data was collected anonymously and could not be traced back to personal data or selection results.

To collect data for the control group I reached out to candidates, who took part in an assessment from January until March, via email and asked them to fill in the questionnaire. The pre-corona face-to-face assessments took place in the organization-internal rooms, all participants were present and the candidate was sent to a separate room when preparing for the exercises. They consisted of the same tasks as the virtual procedure with one difference: the candidates did not receive the material for the business challenge in advance but had an hour preparation time at the start of the procedure.

Participants

A total of 80 subjects participated in the study. I had to exclude four respondents because they did not fill in the questionnaire. Hence, I included a total of 76 respondents in

the analysis. Forty-three respondents were male (57%), 33 were female (43%). All respondents hold an experienced management position and took part in an assessment center to take a next career step into a higher management position. The experimental group consisted of 56 respondents who took part in a virtual assessment procedure, while the control group consisted of 20 respondents who participated in a face-to-face procedure. I sent the link to the online survey to 96 employees and the response rate was 63% ($N = 60$). For the control condition I contacted 154 employees and the response rate was 13% ($N = 20$).

Materials

I distributed the test material in English and German and included demographic items of gender (*male, female, other*), moderation (*external moderator, internal moderator*) and company internal types of procedure indicating different management levels (*Leadership Quality Gate Executive, Leadership Quality Gate Start, Development Center, Assessment Center*). I could not ask for more demographic information due to data restrictions by the workers council.

I measured *test-taking motivation* with the motivation scale of the Test Attitude Survey (McCarthy & Goffin, 2003). It contained 10 items that are rated on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). An example item was “I tried to do the very best I could on this test”. Cronbach’s alpha for the ten items was $\alpha=.46$. To enhance reliability of the scale, I deleted item ten. After deletion Cronbach’s alpha was $\alpha=.62$.

I measured *organizational attractiveness* with the Employer Attractiveness Scale designed by Pattnaik and Misra (2014). It contained 5 items that are rated on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). An example item was “I would not hesitate to recommend this company to a friend seeking employment”. Cronbach’s alpha for the five items was $\alpha=.70$.

I measured *test-taking anxiety* with a 5-item short form of the Test Anxiety Inventory (Taylor & Deane, 2002). It included items like “During examinations I get so nervous that I forget facts I really know”. The participants answered on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The TAS-5 version yielded similar psychometric properties as the full form. Cronbach’s alpha for the five items was $\alpha=.83$.

I measured *perceptions of procedural justice* with the short version of the Selection Procedural Justice Scale (SPJS) by Bauer et al. (2001). It consisted of two subscales. I used the structure subscale with items such as “doing well on this test means a person can do the job well”. It consisted of 3 items. For all statements the respondents answer on a 5-point

Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). 3 scale. Cronbach's alpha for the three items was $\alpha=.90$.

I measured *trust in technology* with a questionnaire measuring Trust in specific Technology by McKnight et al. (2011). The scales measured faith in general technology and trusting stance and candidates answered on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). In total, the questionnaire consists of 3 items. Cronbach's alpha in the experimental condition was $\alpha=.97$

Data Analysis

The study was a mixed design with two dependent variables and four independent variables. The dependent variables were organizational attraction (quantitative, 1-5) and test-taking motivation (quantitative, 1-5). The assessment mode (qualitative, levels: digital/face-to-face) and trust in technology (quantitative, 1-5) were between subject factors. The within subject factors were test-taking anxiety (quantitative, 1-5) and procedural justice (quantitative, 1-5).

I began data preparation with calculating the mean scores for all qualitative variables. Item four and eight of the test motivation scale were mirrored. I extracted descriptive statistics for demographics and test scores and its correlations. To begin, I tested the assumptions for linear regression analysis including normality, homoscedasticity, linearity, and multicollinearity. I completed four independent moderation analyses to test if procedural justice and test anxiety moderate the relationship between the assessment mode and organizational attraction and between the assessment mode and test-taking motivation.

I conducted the main analyses with the SPSS (IBM Corp, 2017) in PROCESS (Hayes, 2012) using model 1. Group was always the independent variable. The first analysis tested procedural justice as moderator and organizational attraction as dependent variable. The second analysis tested procedural justice as moderator and test-taking motivation as dependent variable. In the third analysis I tested test anxiety as moderator and organizational attraction as dependent variable. The fourth analysis used tested taking motivation as dependent variable and test-taking anxiety as moderator. The PROCESS model automatically centered the predictors to make the scores comparable and interpretable. Then it computed the interaction between the variables and conducted a simple slope analysis to determine the direction of effects. Additionally, I conducted two linear regression analyses with trust in technology as predictor and test-taking motivation and organizational attraction as independent variables for the experimental condition. I used bootstrapping with 5000 samples for each analysis to counteract the small group size of the control condition and account for

the unequal group sizes. Additionally, I corrected for multiple testing by dividing the p-value of $p=.05$ by the number of analysis run. Hence, $p=.008$ is the threshold for significance in the following analyses. When looking at the results for organizational attraction, keep in mind that the scale had a low reliability. I will discuss further implications in discussion.

Results

Descriptive results

Prior to the main analysis, I checked the histograms of the residuals and found that participants 22 and 41 had extreme scores (only rated 1 on all scales) and were therefore excluded from further analyses. Further tests of linearity, multicollinearity, and homoscedasticity revealed that all other assumptions of linear regression analyses were met. The descriptive statistics and correlations for test motivation, organizational attraction, procedural justice, trust in technology and test anxiety can be taken from Table 1 below.

Table 1.

Descriptive Statistics and Correlation Matrix

	M	SD	Test Motivation	Organizational Attraction	Procedural Justice	Trust in Technology	Test Anxiety
Test Motivation	4,72	0,26	-	-	-	-	-
Organizational Attraction	4,35	0,61	.00*	-	-	-	-
Procedural Justice	4,29	1,02	.35	.23	-	-	-
Test Anxiety	2,24	0,94	.24	.17	.43	-	-
Trust in Technology	4.31	1,01	.07	.05	.66	.64	-

Note: Ntest motivation, organizational attraction, procedural justice, test anxiety= 74, Ntrust in technology = 54

* correlation is significant at the .008 level

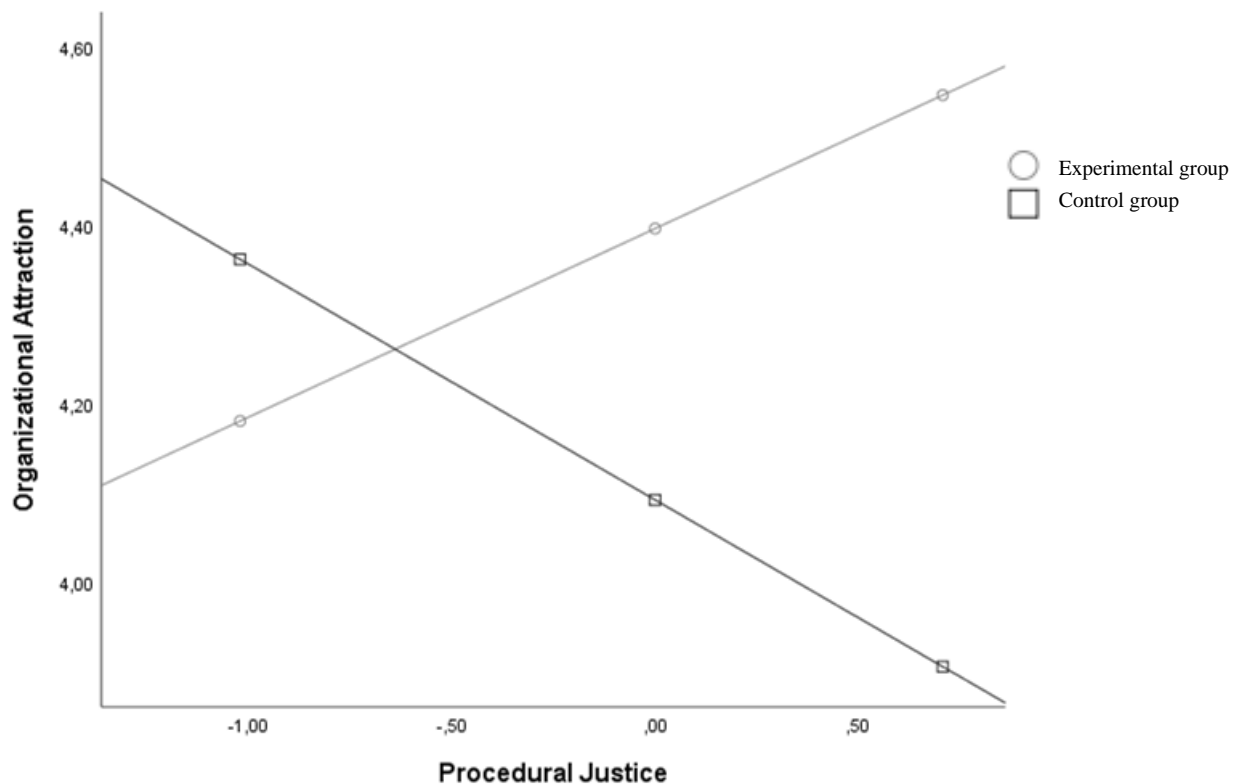
Inferential Results

Analysis of the relationship between group and organizational attraction moderated by test anxiety revealed non-significant results ($F(3,70) = 2.99, p=.036, R^2 = .11$). Analysis of the relationship between group and organizational attraction moderated by procedural justice revealed significant results ($F(3,70) = 4.96, p=.0035, R^2 = .42$). Both group ($b = -.30, t = -$

1.99, $p=.50$) and procedural justice ($b= .08$, $t= 1.26$, $p=.21$) were non-significantly related to organization attraction. The interaction between group and procedural justice was significant ($b= -.47$, $t= -3.31$, $p=.001$). To further investigate the relationship in each subgroup, a regression analysis for each subgroup was done. It showed non-significant results for the control group ($F(1,19) = 3.97$, $p=.06$, $R^2=.18$) but significant results for the experimental group ($F(1,53) = 7.80$, $p=.007$, $R^2=.13$). Hence, the higher the procedural justice the higher the organizational attraction in the experimental group ($b= .211$, 95% CI [0.66, 0.38], $t= 2.79$, $p= 0.005$) (see Figure 1).

Figure 1.

*Interaction plot organizational attraction * procedural justice*



Analysis of the relationship between group and test motivation moderated by test anxiety revealed non-significant results ($F(3,70) = 1.62$, $p=.19$, $R^2=.25$). Analysis of the relationship between group and test motivation moderated by procedural justice revealed non-significant results ($F(3,70) = 2.05$, $p=.11$, $R^2=.28$).

To test the second research question whether trust in technology influences the test motivation and organizational attraction, results revealed a non-significant result ($F(3,52) =$

3.97, $p=.052$, $R^2=.06$). It also revealed a non-significant result for test motivation ($F(1,52) = 3.32$, $p=.074$, $R^2=.06$).

Discussion

In the present study I examined the difference between a face-to-face and a virtual assessment procedure on organizational attraction and test motivation moderated by test anxiety, procedural justice and trust in technology. The results indicated that there is no difference on organizational attraction and test motivation between the virtual and the face-to-face procedure. Second, I found no moderation effect of test anxiety on either organizational attraction or test motivation in both conditions. Third, procedural justice does not moderate test motivation, but it moderates organizational attraction. This moderation effect is only present in the virtual procedures. Finally, in virtual procedures trust in technology has no link to organizational attraction or test motivation.

Implications

Some findings are in line with the existing literature; the non-significant finding of assessment mode on organizational attraction and test motivation is in line with Wiechmann and Ryan (2003) who found that the mode of administration does not influence candidates' post-test reactions. Moreover, previous research by Bauer et al. (1998) supports the significant positive association between procedural justice and organizational attraction in the experimental group. In contrast, other results are in contrast to the literature; the present results on trust in technology contradict the technology-acceptance model (Davis et al., 1989) stating that individuals that perceive technology as useful have a more positive attitude and are more motivated. Additionally, this non-significant relation contrasts with results showing that computer experience and computer anxiety influence the perception of the selection tool (Wiechmann & Ryan, 2003). Furthermore, the findings on test anxiety contrast findings by Maranges et al. (2017) who found that candidates are more anxious in the digital procedures compared to classical face-to-face procedures because they are not used to the new technology. Summing up, the results show that the virtual procedure does not lead to worse reactions of the candidates towards the assessment and the organization compared to the face-to-face procedures. Thereby, both assessment modes can be used without negative consequences on candidates' attitudes. Nevertheless, unlike other literature (Wiechmann & Ryan, 2003) the current study could not prove any advantages of virtual assessments over

face-to-face assessments on candidates' attitudes towards the selection procedure and the organization itself.

An explanation for the differences between this study and previous studies pertains to the setting under which the present study took place. Compared to previous studies (Wiechmann & Ryan, 2003) which took place in an imaginary job setting, the current study tested actual job applicants in a real organization. This implies, that there is more at stake for the candidates and the actual selection decision might influence their ratings of attraction and motivation. In fact, both groups filled in the questionnaire after they had already received the result of the assessment center, which might have influenced their fairness perceptions. Although Ployhart & Ryan (1998) found that procedural justice has the strongest effects on individuals' reactions, they also found an interaction with distributive justice. Therefore, the actual employment setting might be influenced more by other types of justice perceptions, including distributive justice, than in imaginary settings in which the selection has no actual consequences for the candidates.

Moreover, familiarity with virtual tools could explain the non-significant study findings of test anxiety and trust of technology on organizational attraction and test motivation. Even prior to the corona-crisis many employees in the organization worked from home or in international teams that could not meet face-to-face for meetings. As a corollary, the employees were already used to having conversations and meetings with multiple people via video. Based on the technology acceptance model (Davis et al., 1989) it can be assumed that candidates are more used to the technology, experience more ease and therefore have more positive attitudes and stronger behavioral intentions towards the use of the technology. This might have diminished the difference in test anxiety, organizational attraction, and test motivation between both assessment modes as using video technology was not a completely new experience for the candidates.

Additionally, it needs to be considered, that the research was conducted during the corona-crisis. Because people had to work from home for months, for many the work-life boundaries diffused. Work could no longer stay at the office, but due to home office the private home was cross-contaminated with work and could not easily be separated. For many candidates, the home might have turned to a place of work and they could not easily switch of other business distractions like emails while at home (Allen et al., 2013). Moreover, parents had to juggle childcare and work demands simultaneously from home. Therefore, the results need to be interpreted with care and in light of the current crisis and its effect on flexible work locations. In non-crisis times the results might have shown much stronger differences between

both assessment modes because differences between home and office may be stronger and candidates may experience it much differently to stay in a quite and comfortable environment at home for the assessment.

A further alternative explanation for the results is provided by the sample characteristics. It is important to consider that the sample consists of employees in management and leadership positions. The common perception is that leaders experience higher stress levels than non-leaders. However, Sherman et al. (2012) demonstrated that there is a negative relationship between leadership and stress. They explained their results by drawing from the stress buffering hypothesis (Sherman et al., 2012); compared to non-leaders, leaders tend to have a higher level of autonomy and control in their job which acts as a buffer against stress which in turn might explain why they experience less anxiety. Additionally, leaders experienced many stressful selection procedures throughout their career, are used to stressful daily tasks and therefore, might be more resilient to stressful situations (Sherman et al., 2012). To conclude, both higher control and more experience with stressful situations might act as stress-buffer, which might explain the lower anxiety reactions in the present sample. Furthermore, literature on organizational attraction in job seekers cannot be easily transferred to attraction in employees (Yu, 2014). While job seekers are restricted to a small number of experiences, full time employees have a much larger set of events and values they can base their ratings of organizational attraction on. Taken to the context of assessment centers, these procedures may have a much higher influence on job seekers than on employees already working in the company. Given the fact, that the organization imposed an external hiring stop during the corona-crisis, the sample consisted only of internal candidates who applied to a higher job position. Based on the argumentation above, the candidates already have a picture of their organization and a single event like an assessment center might not be sufficient to change the ratings of organizational attraction for employees.

Limitations

First, when investigating the scores for each variable it needs to be considered that the time of measurement was different in both groups and might influence the results. Due to the Corona virus, there were no face-to-face procedures conducted during the data collection phase of this study. Therefore, in the control group candidates took part in an assessment center in January or February but were asked to fill in the survey in April. The recollection bias states that the outcome of an event can impair the recollection of previous predictions, so people tend to forget the efforts that were necessary once an important milestone is reached

(Erdfelder et al., 2007). Hence, candidates might not be able to realistically assess their level of test anxiety or motivation a few months after the procedure leading to distortion of results.

Additionally, more implications due to the corona virus need to be considered. As the study was conducted during crisis times, the results must be handled with care and cannot be generalized to non-crisis times. First, the candidates might be more stressed and anxious due to uncertain societal and political circumstances such as lockdown, worries about health, family, and financials (de Quervain et al., 2020). Second, the attitude towards virtual technology and home office changed in general due to its increased use in day-to-day operations. Hence, it cannot be established how the results were influenced by the crisis time or the actual subject of the study.

Third, the sample of internal high management employees might lead to biased results. Compared to non-executives, employees in leadership positions might have higher autonomy at their work and more experience with stressful situations (Sherman et al., 2012). Hence, the results cannot easily be generalized to a wider more diverse sample of non-executive employees. Here, also social desirability comes in place. The social desirability bias describes the phenomenon that respondents might answer in ways, that fit to socially expected norms and values (DeMaio, 1984). In this case, although it was stated, that data was collected anonymously employees might feel the pressure to rate their organization as attractive, especially because they know that the survey was evaluated by an organization-internal department. Moreover, they might feel that experienced managers should not be threatened by an assessment center as they are used to examination situations throughout their career.

Additionally, the insufficient reliability of the test motivation scale ($\alpha=.62$) is a major limitation in the present study. Even after excluding one item, the scale still shows a poor internal validity. Because I do not know if the items measure the same factors, I cannot confidently say that I measured the right concept of test motivation.

Future Research Implications

Adding to the aspect of low reliability, future research should investigate the reliability of the test attitude survey (McCarthy & Goffin, 2003) or measure test motivation with a different scale. Moreover, a similar study set up should be investigated during non-crisis times to establish which effects are robust even in non-crisis times. To achieve more generalizable results, the effects in different populations should be investigated. As mentioned above, the present sample only included organization internal employees who had a leadership function. By investigating a more diverse sample, specifically integrating external

candidates and different hierarchical levels in an organization, future research can give a more realistic picture of an organization. This ultimately increases the generalizability of the results which provides a wider base for the research field and allows to draw conclusions across different organizations. Furthermore, future studies should focus on more types of organizational justice to find out more specific effects on candidates' reactions and attitudes. So far, the picture is heterogenous concerning possible moderators of technology mediated selection. For instance, openness to experience was shown to moderate between technology usefulness and candidate reaction in interviews while computer-self efficacy, extraversion or conscientiousness did not influence the candidate reaction (Basch & Melchers 2020; Wiechmann & Ryan; Alexander & Rudermann, 1987). Individual differences have been shown to influence other behavioral outcomes like organizational attraction or test-taking attitudes (Pobee, 2018). This underlines the importance of learning more about how individual characteristics influence test-taking attitudes, future research should investigate more individual differences in the context of assessment centers.

Practical Implications

Next to obvious advantages for an organization to offer virtual procedures such as cost effectiveness, less traveling, and more flexibility (Basch & Melchers), my results offer the organization the opportunity to offer both virtual and face-to-face procedures. As the comparability can be ensured, a hybrid model will enable the organization to flexibly switch between a virtual and a face-to-face procedure in the future. Moreover, digital skills in terms of virtual communication and leading remote teams gain more importance in today's business. Hence, successful virtual communication becomes a new competence necessary for leaders. A virtual assessment center directly offers the opportunity to evaluate this competence based on real behavior seen in the assessment. From the observers' point of view, the virtual procedures offer both an advantage and a disadvantage. On the one hand, the observers can evaluate less non-verbal behavior, on the other hand they can concentrate more on the verbal information the candidate conveys. Thereby, potential biases like similarity bias, first impression bias or sympathy (Kanning, 2020) cannot influence the observers as much and the ratings remain more objective and consistent among candidates. Ultimately, this can enhance transparency and reliability of the assessment procedures.

Conclusion

The present study found that procedural justice influences the ratings of organizational attraction in virtual assessment center. No further link between assessment modes and organizational attraction and test motivation moderated by test anxiety and trust in technology was shown. Because there are few differences in a practical setting between a face-to-face and a virtual assessment procedure on candidates' experiences and attitudes, a virtual assessment center is a valid alternative to face-to-face procedures. This is important knowledge for organizations because it gives reasons to develop digital selection procedures. Thereby, organizations can profit from the many advantages of digital procedures like less personnel resources, less costs, less traveling without facing negative reactions of candidates. Nevertheless, the present study only provides a basis for the discussion and its generalizability is limited. Therefore, future research needs to investigate aspects like justice perceptions and other individual differences and should test the results in more diverse samples.

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