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COMMENTARY

"I" feel(s) left out: The importance of information and communication technology in personnel selection research

Nicolas Roulin[1]* , Markus Langer[2] , and Joshua S. Bourdage[3]

[1]Saint Mary's University, [2]Universität des Saarlandes and [3]University of Calgary
*Corresponding author. Email: nicolas.roulin@smu.ca

Given the important advances in information and communication technology (ICT), Hu et al.'s (2021) attempt to consolidate research in industrial-organizational (I-O) psychology is timely. Indeed, we agree with the overall assessment that there is much room for improvement in research on ICT in I-O psychology. In their paper, Hu et al. argue that I-O ICT research is scattered and lacks overall theoretical integration and that myriad research streams investigate ICT without proper reference to each other or to important research outside of the field of I-O psychology. Indeed, we also see much potential for intra- and interdisciplinary integration. Trying to bring together different streams of ICT-related research in I-O psychology, Hu et al. mention a large variety of topics where ICT has become an integral part of I-O research and practice, such as telework, telecommuting, electronic monitoring, technology-related job demands and resources, virtual teams, cyberloafing, and work-related smartphone use at home. In spite of this breadth of topics, we believe that their paper missed integrating a central research area where ICT has strongly influenced I-O research and practice over the course of the last 20 years: the use of ICT in personnel selection. Given that one of the goals of the focal article is to unify this area and limit the degree to which different areas work in silos, we believe the integration of more "I"-focused topics to be important. With this commentary, we thus intend to provide a supplement to Hu et al. and emphasize the role of ICT in selection research, with a focus on the job interview as a prime example of how technology has changed the *experience* and *behaviors* (to use the framework of Hu et al.) of both job applicants and hiring managers.

Overall, there is an important and growing interdisciplinary body of literature that has demonstrated the importance of ICT in personnel selection more broadly and in the interview more specifically. Although we do acknowledge that Hu et al.'s (2021) review did mention selection and interviewing, the limited mention of these topics largely failed to touch on modern bodies of evidence. Indeed, when discussing the role of ICT in personnel selection, Hu et al. briefly mention a study by Chapman et al., (2003) about video-conference interviewing. Beyond this early paper, there has been a significant evolution of technology use in selection and interviewing over the last decades. In fact, ICT has become an integral part of employee selection. This can be seen in the development of many user-friendly platforms to conduct synchronous video interviews (e.g., Zoom, Skype, Microsoft Teams) or asynchronous video interviews (e.g., HireVue, Spark Hire, Aon VidAssess). Indeed, the most modern trend in interviewing (asynchronous video interviews) is now used to hire millions of workers across a variety of jobs and industries (see Lukacik et al., 2021, for a review). These trends toward more technology-based interviews had begun to rise over the last several years in an effort to reduce costs, limit travel requirements, or shorten the time to hire. In addition, the prevalence of ICT-mediated interviews in selection has certainly been

amplified during the COVID-19 pandemic, which has forced many organizations to shift away from in-person interviews for health/safety reasons. In short, ICT has been increasingly relevant to the practice of employee selection, and this trend will likely continue. Given this, an understanding of ICT in the selection context is aligned with Hu et al.'s call that such research be oriented toward addressing pressing organizational needs.

Over the last decade, several studies have examined how different forms of technology can influence applicants' reactions, behaviors, or performance in interviews (e.g., Basch & Melchers, 2019; Basch et al., 2020, 2021; Blacksmith, 2016; Langer et al., 2017, 2018; Lukacik et al., 2021). Many of these findings demonstrate that ICT in an interview context can be understood in terms of the two main perspectives put forward by Hu et al. (2021): technology experience and technology behavior. For instance, from a *technology experience perspective*, this research suggests that job applicants tend to have more negative attitudes and reactions toward ICT-mediated interviews than toward in-person interviews and report lower organizational attraction, unless detailed information about the benefits of the ICT-mediated interview process (e.g., standardization or flexibility) is provided (Basch & Melchers, 2019; Langer et al., 2017, 2018). From a *technology behavior perspective*, ICT can hinder applicants' ability to engage in impression management or reduce their performance (Basch et al., 2020; Blacksmith et al., 2016; Langer et al., 2020). However, despite these drawbacks, ICT integration into interviews may also have potential to make interviews *more* accessible to some individuals and enhance experiences and behaviors. For instance, although Hu et al. (2021) emphasize the potential negative consequences of using ICT outside of work hours for employees (e.g., on work–life balance or recovery), in the selection process ICT offers flexibility that can actually benefit individuals. As an example, asynchronous video interviews can be completed from any location at any time, which makes them more accessible and practical for parents or employed individuals who are working irregular hours (e.g., Lukacik et al., 2021). Similarly, more flexible options in asynchronous video interviews (e.g., the option to rerecord responses, complete practice questions, or complete the interview over a longer period) could potentially create a more positive applicant experience (Lukacik et al., 2021). Finally, ICTs have also largely changed hiring professionals' work, both in terms of where or when they can perform their job and how they perform their job (consistent with Hu et al.'s work design discussion). For instance, in the case of asynchronous video interviews, hiring professionals do not longer directly interact with applicants. In short, although there is more work to be done, the interview is one area where increased adoption of ICT may present a number of opportunities.

Importantly, Hu et al. (2021) rightly commented about the dearth of research directly comparing in-person with ICT-mediated experiences or behaviors. Yet, selection research is one area that has a substantial track record of studies comparing both different types of ICT (e.g., Horn & Behrend, 2017; Langer et al., 2017) or in-person versus technology-mediated interviews (e.g., Basch et al. 2021; Blacksmith et al., 2016). Overall, this literature suggests that the evidence and best practice that has accumulated over several decades about traditional in-person interviews cannot simply be applied to synchronous video interviews (and what we have learned in the last 20 years about synchronous video interviews does not always translate to asynchronous formats). For example, interview research often examines applicant ingratiation (e.g., flattery, opinion conformity, laughing at the interviewer's jokes; Melchers et al., 2020). Although such behaviors are technically possible in synchronous video interviews, they are harder to use effectively because it is more difficult to make eye contact and interpret nonverbal reactions from interviewers (Basch et al., 2021). In an asynchronous interview, there is no interviewer at all to flatter and no reciprocity behavior between interviewer and interviewee. Thus, the behavior and manifestations of these constructs may differ depending on the integration of ICT. Therefore, in the context of interviewing, there are important limitations to trying to limit construct proliferation or engage in "defragging" (in the terms of Hu et al.), and instead there is arguably value in new lines of research to better understand the benefits and risks associated with ICT. However, we agree with

Hu et al. that there is certainly value in avoiding superficial construct proliferation, for instance by limiting the number of labels that are used to describe the same ICT (e.g., asynchronous video interview vs. digital interview vs. on-demand interview).

Overall, the technology experience and technology behavior perspective that Hu et al. (2021) propose also applies to ICT in job interviews, and there are many theoretical connections to draw between the research reviewed by Hu et al. and job interview research. For instance, Hu et al. note the important role of approaches such as media richness to understand the influence of ICT, and in line with this, we believe that media richness theory and its successors (Daft & Lengel, 1986; Potosky, 2008) provide a similarly useful framework for understanding how ICT will affect behavior and experiences in the selection context (see for instance, Langer et al. 2017, who build on media richness theory to examine applicant reactions). Thus, we believe that our commentary augments Hu et al.'s perspectives, as we emphasize the increasingly important role of ICT to job interview research (Lukacik et al., 2021).

Finally, although it is beyond the scope of this commentary to provide a comprehensive review of the areas of personnel selection that have evolved because of ICT, we would like to briefly mention two additional and prominent examples for consideration. First, ICT has extensively transformed the way organizations vet job applicants. Traditionally, the screening of applicants' resumes or background or reference checking done prior to making a job offer has been complemented (and, in some cases, largely replaced) by cybervetting applicants' presence on social media (e.g., Berkelaar, 2017). Therefore, part of the communication between applicants and hiring managers indirectly takes place through the information applicants post on platforms like Facebook or LinkedIn and how it is interpreted by hiring managers. Existing research emphasizes that cybervetting largely differs from traditional vetting and also works differently depending on the platform used. For instance, in terms of *technology experience*, applicant reactions differ between platforms, and job seekers are more accepting of cybervetting done on professional platforms like LinkedIn than on personal platforms like Facebook or Instagram (Cook et al., 2020). In terms of *technology behavior*s, the way decision makers use social media content and the psychometric properties of social-media-based decisions also varies by platform, again in favor of professional platforms (e.g., Roulin & Levashina, 2019; Zhang et al., 2020). Cybervetting is thus arguably another area in which there might be limitations to how much "defragging" can be done and illustrates the importance of considering the novel role played by ICT in the applicant screening/vetting process.

As another example, with recent advancements in artificial intelligence (AI), the use of automated systems to support or even automate selection processes has received increasing attention (Hickman et al., 2021; Langer et al., 2019, Langer et al., 2021, Newman et al., 2020). For instance, in addition to having human hiring managers assess asynchronous video interviews, several companies provide fully automated assessments of applicant recordings that can be used as an additional criterion or even to automatically filter the most viable applicants from an applicant pool. This further changes interview dynamics for applicants and hiring professionals. Consequently, with respect to *technology experience* and *technology behavior* as proposed by Hu et al., (2021), there are studies showing implications of automated systems in personnel selection for both applicants' and hiring managers. Applicants seem to perceive automated interviews as more consistent, but they express predominantly negative reactions to this kind of selection process (Acikgoz et al. 2020; Gonzalez et al., 2019; Langer et al., 2019). Moreover, there are initial findings indicating that knowledge of having no human listening to interview recordings changes applicants' interview behavior (Langer et al., 2020). Although there is less research for hiring managers and this work has not yet assessed actual hiring managers' experiences and behavior, initial research indicates that implementing automated decision-support systems can change decision makers' work-design-related experiences in personnel selection decisions (Langer et al., 2020). Although this kind of research is nascent in I-O psychology, research in this area (e.g., Langer et al., 2021) draws from classical work in human–automation interaction (e.g., Sheridan & Parasuraman, 2005),

considers findings from human–computer interaction research (e.g., Lee, 2018), and has much potential for further interdisciplinary integration (e.g., considering legal implications of AI in personnel selection). Therefore, this work is a prime example of a field that is working to achieve the interdisciplinary connection that Hu et al. see generally lacking in I-O psychology and ICT-oriented research.

   In conclusion, the present commentary sought to provide a supplement to the Hu et al. (2021) focal article to demonstrate the important role of ICT in areas beyond those reviewed and integrated in their review, such as more traditionally more "I" research areas like personnel selection. Given the importance of increased intra- and interdisciplinary communication and awareness, we hope that this paper is able to support the goals of the focal article to this end. In the present commentary, we focused primarily on interviews (and two novel areas of cybervetting and AI), as this area is inherently communication oriented and is a demonstration of an area where work is being done that aligns with many of the priorities identified by Hu et al. These include a focus on technology *experience* and *behavior*, a setting where ICT constructs and key outcomes are often unique from their "nontechnology" counterparts, where important theories such as media richness can be useful in explaining said differences, where interdisciplinary integration is critical, and where the findings of this research can address pressing organizational needs. Importantly, although we focused on job interviews in particular, ICT has been critically important for the field of personnel selection more broadly (e.g., gamified assessments, video-based situational judgment tests, adaptive testing) as well as other "I" areas (e.g., recruitment, training), and we believe that applying the ICT perspective to areas beyond those reviewed by Hu et al. is warranted.

References

Acikgoz, Y., Davison, K. H., Compagnone, M., & Laske, M. (2020). Justice perceptions of artificial intelligence in selection. *International Journal of Selection and Assessment,* 28(4), 399–416. https://doi.org/10.1111/ijsa.12306

Basch, J. M., & Melchers, K. G. (2019). Fair and Flexible?! Explanations can improve applicant reactions toward asynchronous video interviews. *Personnel Assessment and Decisions*, 5(3), Article 2. https://doi.org/10.25035/pad.2019.03.002

Basch, J. M., Melchers, K. G., Kegelmann, J., & Lieb, L. (2020). Smile for the camera! The role of social presence and impression management in perceptions of technology-mediated interviews. *Journal of Managerial Psychology*, 35(4), 285–299. https://doi.org/10.1108/JMP-09-2018-0398

Basch, J. M., Melchers, K. G., Kurz, A., Krieger, M., & Miller, L. (2021). It takes more than a good camera: Which factors contribute to differences between face-to-face interviews and videoconference interviews regarding performance ratings and interviewee perceptions? *Journal of Business and Psychology.* https://doi.org/10.1007/s10869-020-09714-3

Berkelaar, B. L. (2017). Different ways new information technologies influence conventional organizational practices and employment relationships: The case of cybervetting for personnel selection. *Human Relations*, 70(9), 1115–1140. https://doi.org/10.1177/0018726716686400

Blacksmith, N., Willford, J. C., & Behrend, T. S. (2016). Technology in the employment interview: A meta-analysis and future research agenda. *Personnel Assessment and Decisions*, 2(1), 12–20. https://doi.org/10.25035/pad.2016.002

Chapman, D. S., Uggerslev, K. L., & Webster, J. (2003). Applicant reactions to face-to-face and technology-mediated interviews: A field investigation. *Journal of Applied Psychology*, 88(5), 944–953. https://doi.org/10.1037/0021-9010.88.5.944

Cook, R., Jones-Chick, R., Roulin, N., & O'Rourke, K. (2020). Job seekers' attitudes toward cybervetting: Scale development, validation, and platform comparison. *International Journal of Selection and Assessment*, 28(4), 383–398. https://doi.org/10.1111/ijsa.12300

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554–571. https://doi.org/10.1287/mnsc.32.5.554

Gonzalez, M. F., Capman, J. F., Oswald, F. L., Theys, E. R., & Tomczak, D. L. (2019). "Where's the I-O?" Artificial intelligence and machine learning in talent management systems. *Personnel Assessment and Decisions*, 3, Article 5. https://doi.org/10.25035/pad.2019.03.005

Hickman, L., Bosch, N., Ng, V., Saef, R., Tay, L., & Woo, S. E. (2021). Automated video interview personality assessments: Reliability, validity, and generalizability investigations. *PsyArXiv.* https://doi:10.31234/osf.io/a62jv

Horn, R. G., & Behrend, T. S. (2017). Video killed the interview star: Does picture-in-picture affect interview performance? *Personnel Assessment and Decisions*, 3(1), 51–59. https://doi.org/10.25035/pad. 2017.005

Hu, X., Barber, L.K, Parl, Y., & Day, A. (2021). Defrag and reboot? Consolidating information and communication technology research in I-O psychology. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, **14**(3), 371–396.

Langer, M., König, C. J., & Busch, V. (2021). Changing the means of managerial work: Effects of automated decision-support systems on personnel selection tasks. *Journal of Business and Psychology*. doi:10.1007/s10869-020-09711-6

Langer, M., König, C. J., & Fitili, A. (2018). Information as a double-edged sword: The role of computer experience and information on applicant reactions toward novel technologies for personnel selection. *Computers in Human Behavior*, **81**, 19–30. https://doi.org/10.1016/j.chb.2017.11.036

Langer, M., König, C. J., & Hemsing, V. (2020). Is anybody listening? The impact of automatically evaluated job interviews on impression management and applicant reactions. *Journal of Managerial Psychology*, **35**(4), 271–284. https://doi.org/10.1108/JMP-03-2019-0156

Langer, M., König, C. J., & Krause, K. (2017). Examining digital interviews for personnel selection: Applicant reactions and interviewer ratings. *International Journal of Selection and Assessment*, **25**(4), 371–382. https://doi.org/10.1111/ijsa.12191

Langer, M., König, C. J., & Papathanasiou, M. (2019). Highly-automated job interviews: Acceptance under the influence of stakes. *International Journal of Selection and Assessment*, **27**, 217–234. https://doi.org/10.1111/ijsa.12246

Lee, M. K. (2018). Understanding perception of algorithmic decisions: Fairness, trust, and emotion in response to algorithmic management. *Big Data & Society*, 5(1), Article 205395171875668. https://doi.org/10.1177/2053951718756684

Lukacik, E. R., Bourdage, J. S., & Roulin, N. (2021). Into the void: A conceptual model and research agenda for the design and use of asynchronous video interviews. *Human Resource Management Review*. https://doi.org/10.1016/j.hrmr.2020.100789

Melchers, K. G., Roulin, N., & Buehl, A. K. (2020). A review of applicant faking in selection interviews. *International Journal of Selection and Assessment*, **28**(2), 123–142. https://doi.org/10.1111/ijsa.12280

Newman, D. T., Fast, N. J., & Harmon, D. J. (2020). When eliminating bias isn't fair: Algorithmic reductionism and procedural justice in human resource decisions. *Organizational Behavior and Human Decision Processes*, **160**, 149–167. https://doi.org/10.1016/j.obhdp.2020.03.008

Potosky, D. (2008). A Conceptual Framework for the role of the administration medium in the personnel assessment process. *Academy of Management Review*, **33**(3), 629–648. https://doi.org/10.5465/amr.2008.32465704

Roulin, N., & Levashina, J. (2019). LinkedIn as a new selection method: Psychometric properties and assessment approach. *Personnel Psychology*, **72**(2), 187–211. https://doi.org/10.1111/peps.12296

Sheridan, T. B., & Parasuraman, R. (2005). Human automation interaction. *Reviews of Human Factors*, **1**(1), 89–129. https://doi.org/10.1518/155723405783703082

Zhang, L., Van Iddekinge, C. H., Arnold, J. D., Roth, P. L., Lievens, F., Lanivich, S. E., & Jordan, S. L. (2020). What's on job seekers' social media sites? A content analysis and effects of structure on recruiter judgments and predictive validity. *Journal of Applied Psychology*, **105**(12), 1530–1546. https://doi.org/https://doi.org/10.1037/apl0000490