

**Teleassessment with Children and Adolescents During the Coronavirus (COVID-19) Pandemic and
Beyond: Practice and Policy Implications**

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Abstract

Due to physical distancing guidelines, the closure of non-essential businesses, and the closure of public schools, the role of telehealth for the delivery of psychological services for children has never been more debated. However, the transition to teleassessment is more complicated for some types of assessment than others. For instance, the remote administration of achievement and intelligence tests is a relatively recent adaptation of telehealth, and despite recommendations for rapid adoption by some policy makers and publishing companies, caution and careful consideration of individual and contextual variables, the existing research literature as well as measurement, cultural and linguistic, and legal and ethical issues is warranted. The decision to use remotely administered achievement and intelligence tests is best made on a case-by-case basis after consideration of these factors. We discuss each of these issues as well as implications for practice, policy, and as well as issue provisional guidance for consideration for publishing companies interested in these endeavors moving forward.

Keywords: teleassessment; intelligence test; achievement test; COVID-19; assessment

Standardized achievement and intelligence testing with children and adolescents during the coronavirus (COVID-19) pandemic and beyond: Practice and policy implications

The full impact of the coronavirus disease 2019 (COVID-19) pandemic on children¹ and caregivers will remain unknown for some time. Forty-eight states and the District of Columbia have ordered or recommended school closure for the remainder of the school year (Education Week, 2020). Similarly, state and local physical distancing guidelines were put in place in March 2020 across a number of states, resulting in a significant decrease in travel, with one third of the nation ordered to stay at home (Maryland Transportation Institute, 2020). While many school districts have gone to non-traditional instruction and independent psychologists are adopting telepsychology for counseling and intervention services, the transition from in-person to online assessment is not so easily accomplished as that has never been before been considered a service delivery option at scale. However, many school districts/local education agencies (LEA), and consequently psychologists associated with these settings, may be beholden to policies regarding timely assessment. Situations where specific guidance regarding testing timelines remains unchanged may leave psychologists wondering how to proceed with comprehensive psychoeducational evaluations. A comprehensive psychoeducational assessment has traditionally required face-to-face administration of numerous norm-referenced and curriculum-based measures (Dombrowski, 2015). Although aspects of the evaluation process may be completed without direct child contact (e.g., record review; interviews), other aspects are more difficult (e.g., IQ and achievement testing) and perhaps even not possible at the moment (e.g., classroom observation). In the wake of distancing guidelines, professional organizations (e.g., Pliskin, 2020; 2020; Wright et al., 2020) and publishers (e.g., Pearson, n.d.) have released guidance documents and information to facilitate

¹ Throughout this document, we will refer to children and adolescents as ‘children’ for the sake of parsimony.

remote administration of norm-referenced academic achievement and intelligence tests; these documents predict an increase in the number of psychologists adopting teleassessment².

With physical distancing guidelines in place and schools closed for the foreseeable future, psychologists are faced with an important decision: whether to adopt teleassessment strategies during the COVID-19 pandemic or to defer such assessment until traditional testing is again feasible. Although data regarding the adoption of remote administration during the pandemic is not available, it is clear from inspection of professional organization and school psychological agencies' websites and discussions on professional listservs and message boards (e.g., *The Testing Psychologist*) that many psychologists and LEAs are now in the process of determining which option to adopt, especially as we move into an unpredictable future.

As of the writing of this document, there has been limited guidance from federal and state departments of education regarding the deferment of evaluation timelines (Farmer, McGill et al., 2020). Thus, the purpose of this manuscript is to discuss the myriad measurement, equity, legal and ethical issues that are not only relevant for the present crisis, but also beyond this time period as major test publishing companies are establishing platforms for teleassessment to potentially address present and future needs. Should public health concerns warrant school closure or delay in the 2020—2021 academic year or beyond, the impact of delayed educational intervention may pose a cumulative risk to the success of children (Lee, 2020; Marcotte & Hemelt, 2008; Van Lancker & Parolin, 2020); as such, indefinite delay of standardized achievement and intelligence tests testing may not be a viable option.

Remote Administration During the Pandemic

² Throughout this document, teleassessment will be used to refer to the general practice of completing psychological evaluations via telehealth technology. Remote administration will refer specifically to the format of ability tests.

In situations where norm-referenced achievement and intelligence testing is essential, examiners may need to adopt or rely solely on remote administration. In doing so, psychologists are reminded of the purpose of standardized achievement and intelligence testing, which is to provide an estimate of a child's current level of functioning relative to other children of the same age or in the same grade in important areas of concern (e.g., cognitive ability, math, writing, reading, motor, language). Psychologists and school-based teams render clinical and educational decisions based on these data; these decisions can impact the placement, intervention services, and long-term success (or failure) of children. Because of the role that standardized data play in the decision making process for many diagnostic conditions, it is critical that we rely on data that are valid for the given purpose (American Education Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014; APA, 2017; Messick, 1995; National Association of School Psychologists [NASP], 2010). Understanding how standardized achievement and intelligence data are interpreted and used in educational and clinical contexts helps us to address the necessary assumptions of such tests (Kane, 2013). To do this effectively, it is beneficial to first briefly review the peer-reviewed literature on remote administration of norm-referenced achievement and intelligence testing as it presently exists.

Remote Administration: A Brief Review of Current Research

Remote administration of standardized achievement and intelligence tests is a relatively recent adaptation of telepsychology (Brearly et al., 2017) with potential to increase the accessibility of psychological services in rural settings and for underserved populations (Barak, 1999; Luxton et al., 2014; Zimlich, 2019). Moreover, the research on psychological service provision via telehealth methods has explicitly addressed the applicability of this approach to diverse populations, including individuals from racial/ethnically diverse backgrounds, with neurodevelopmental disabilities, and physical disabilities (Carroll et al., 2011; Khubchandani & Thew, 2016).

Much of what is known about the impact of remote administration is based on research with adults. There is a growing literature base supporting the use of cognitive and other neuropsychological measures for adults (e.g., Brearly et al., 2017; Galusha-Glasscock et al., 2016; Harrell et al., 2014; Loh et al., 2007; Parmanto et al., 2013; Temple et al., 2010; Wadsworth et al., 2018; Wright, 2018a). Brearly and colleagues (2017) found that performance tends to be consistent across remote and on-site testing conditions, and thus the use of existing norms is supported when adults are administered verbally-mediated tasks by qualified professionals. Some support also was found for remote administration of visually dependent tasks. Results for motor dependent tasks were mixed, and thus remote administration of these tasks should be avoided pending future research.

However, future research is needed to establish if results found for these populations and instruments generalize to children and adolescents. Across the three studies examining the equivalence of common achievement and intelligence tests for children and adolescents (Daniel & Wahlstrom, 2019; Wright, 2018a; Wright, 2018b), the authors conclude that the observation of negligible differences support the conclusion of raw score equivalence and the use of existing norms. For instance, Wright (2018a) evaluated the equivalency of the Woodcock Johnson, Fourth Edition and found very small effect sizes from $d = -0.165$ to 0.194 , which suggests negligible effect (using the criteria of $d \leq |.20|$) of administration method. In each of these studies, the authors' use of an equivalent-groups designs reduced the potential for practice effects and fatigue; however, the conclusions from these designs are limited to statements about condition equivalency, and cannot address whether raw scores obtained by an individual are equivalent across formats. More specifically, equivalent-groups designs assess whether the mean score of group 1 is equivalent to the mean score of group 2. While an important and necessary question to ask, it is secondary to the question of whether individual 1 would obtain the same score in format 1 and format 2, which is more keenly examined by a within-persons design, especially when format assignment is counterbalanced to minimize the risk of practice effects. We contend this latter

question is more germane to applied practice (see Brearly et al., 2017). In addition to design choices, the authors were careful to control the examinee's environment, provide a high definition camera, a high definition document camera, and other appropriate hardware setup; this is consistent with other peer-reviewed research evaluating equivalency and adequacy of remote administration (e.g., Cullum et al., 2006; Daniel & Wahlstrom, 2019; Galusha-Glasscock et al., 2016; Smith et al., 2017; Wadsworth et al., 2018; Wright, 2018b). Deviation from the recommended hardware setup (e.g., low quality cameras; limited number of cameras; inadequate internet connection speed; computer with a slow processor) may limit what the examiner can observe, the quality of the stimuli exposed to the examinee, and sensitivity to examinee responses (Wright et al., 2020). Any one of these challenges may introduce construct-irrelevant influences. In the absence of research examining remote administration with children and with subpar hardware or internet, it is possible that use of existing norms may yield inaccurate test scores.

Equivalence alone between two versions of a test (e.g., traditional & remote administration) is necessary but insufficient to argue that the second test is reliable, valid, and useful for educational decision making (McGill et al., 2020). The need to drastically change how items are presented and, in some cases, remove some tasks altogether (e.g., removal of fine motor tasks) warrant significant changes to existing index scores or the use of novel index scores. Varying the type and number of subtests used to create an index score may drastically impact its reliability and construct validity (Farmer et al., 2020). For these reasons, we cannot assume that significantly adapted or novel versions of a test score inherit the validity evidence of the original test score (International Test Commission [ITC], 2016, p. 22). Publishers must document construct validity and reliability data for any new versions (AERA et al., 2014; ITC, 2016; NASP, 2020).

Construct-Irrelevant Influences on Standardized Testing

Construct validity is of the utmost importance when evaluating the psychometric quality of an instrument or approach. Construct validity can be thought of as the extent to which a psychological instrument measures what it is intended to measure (AERA et al., 2014; Borsboom et al., 2004), but is more often conceptualized—especially in clinical and practical application—as the extent to which data supports our use and interpretation of test scores from an instrument (AERA et al., 2014; Cronbach & Meehl, 1955; Kane, 2013; Messick, 1989; Messick, 1995). Kane (2013) suggests that “to validate an interpretation or use of test scores is to evaluate the plausibility of the claims based on the test scores.” (p. 1). Depending upon the claim to be made based on the test score (e.g., diagnosis, treatment selection), the methods for establishing validity will differ and may include evidence from factor analysis, ontological relations, outcome prediction, evidence from response processes, and analysis of content to name only a few (AERA et al., 2014; Borsboom et al., 2004; Cronbach & Meehl, 1955; Kane, 2013). However, core elements of construct validity remain the same. Namely, we expect that an individual’s attribute is the primary causal influence on test scores (Borsboom et al., 2004).

When administering any psychological test, it is anticipated that the stimuli presented to the child will affect their responses. In general, this type of influence (i.e., test stimuli → response) is construct relevant. An example may be a child’s response to math problems during a math fact accuracy subtest; the stimuli ‘5 + 4 =’ evokes a response from the child and that response is interpreted as accurate or inaccurate; by sampling a number of responses to similar stimuli, an aggregate score is derived and psychologists infer that it reflects the child’s knowledge of math facts. However, the stimuli from the test may not be the only source of influence on a child’s responses. For simplicity, consider a child with visual acuity deficits who is not wearing corrective lenses; the stimuli ‘5 + 4 =’ may be less salient than expected by the examiner, and so more weakly evokes the desired response. Visual acuity was not the construct of interest but has a clear impact on how the child responds to the test item (i.e., test stimuli + visual acuity → response)—these types of influences are construct irrelevant. AERA et al.

(2014) define construct-irrelevant variance as “the degree to which test scores are affected by processes that are extraneous to the test’s intended purpose. The test score may be systematically influenced to some extent by processes that are not part of the construct” (p. 12). It is necessary to consider that sources of variance on tests, such as poor visual acuity or math fact knowledge, may or may not be construct-relevant. For instance, an optometrist using a Snellen chart uses letters and shapes as stimuli while a school psychologist may have letter or picture recognition tasks. In the first situation, visual acuity is the construct-relevant influence and letter or shape familiarity is the construct-irrelevant influence; the reverse is true in the latter scenario.

Psychologists should be aware that no test situation is so pristine as to only have one intended stimulus or set of stimuli affecting behavior. Any number of stimuli are present in a testing situation that have some impact on an examinee’s responses and it is our responsibility to assess for what would be overwhelming sources of construct-irrelevant influences. Construct-irrelevant influences may be transient (e.g., fatigue) or relatively constant (e.g., visual acuity), and may stem from a variety of sources including the examinee (e.g., emotional distress, fatigue, noncompliance), examiner (e.g., administration error, unfamiliarity with a test or administration method, inattention), environment (e.g., noisy testing environment, interruptions on timed subtests), and instrument (e.g., inappropriate or outdated norm group, cultural content [McGrew & Flanagan, 1998], unreliability). For a more thorough discussion of construct-irrelevant influences, see the Standards for Educational and Psychological Testing (AERA et al., 2014), Bracken (2004), and Luxton et al., (2014). In sum, given the current circumstances, relevant discussions should commence regarding the potential influence of third-party proctors in the testing process.

Construct-irrelevant influences are always present; as such, it is most reasonable to consider decisions about the validity of test scores as a continuum rather than a dichotomy. When construct-relevant influences have substantially more impact on the test scores than construct-irrelevant

influences, it is assumed that the scores are adequately valid. Of course, the more prominent construct-relevant influences, the better. That said, psychologists should be cognizant that several construct-irrelevant influences have an aggregate effect on test data. That is, a distraction or two during the administration of a test introduces construct-irrelevant influences, though they may be contained and have minimal impact on the child's performance. It may be reasonable in such a situation to conclude that the test data are adequately valid. However, when distractions are repeated, no matter how small, or combined with other construct-irrelevant influences such as waning energy, poor motivation, blurry visual stimuli, or intermittent internet connection, the aggregate impact of these construct-irrelevant influences is likely that the test data should not be trusted for significant decisions. That is, while the presence of a single construct-irrelevant influence may not be invalidating, the sum of all construct-irrelevant influences may begin to rival the construct-relevant influence, and ultimately lead to test results with inadequate validity.

Examinee

The COVID-19 pandemic introduces a litany of stressors that may result in transient anxiety or mood disorders (Alisic et al., 2014; Brooks, Webster, Smith, et al., 2020; Hilger, 2016; Liu et al., 2020; Melhem et al., 2011; Mertens et al., 2020; Schaller & Zerpa, 2019; Sprang & Silman, 2013; Wang et al., 2020) in children, caregivers, and psychologists. While an individual's response to stressors may vary, it logically follows that the universal increase in stressors will result in an increased prevalence of adverse reactions. Emotional distress, such as anxiety or depression, may alter performance on standardized tests (e.g., Bracken, 2004; Hopko, et al., 2005; Tesiny, et al., 1980; Wagner et al., 2015). Taken together, it is reasonable to infer that pandemic-related stressors could function as construct-irrelevant influences and may affect test scores for as long as transient emotional distress is present. In addition to these pandemic-related stressors and influences, psychologists are reminded that the children most in need of standardized achievement and intelligence tests are likely those that present with signs and symptoms

of disability. Mental health, medical, and physical disabilities may uniquely influence a child's ability to engage with remote assessment. Some children with disabilities may exhibit challenging behaviors (e.g., non-compliance/refusal, aggressive behaviors, attention difficulties) which may make the assessment process more challenging to complete in a traditional face-to-face environment with trained professionals. These children will likely require additional accommodations and modifications. Children with medical and physical disabilities may also require additional accommodations and modifications. An understanding of the child and family's needs as they relate to disability and how that influences the teleassessment process is critical.

In their 2013 textbook, Kranzler and Floyd offered the Screening Tool for Assessment (STA) which was designed to identify common examinee-sources of construct-irrelevant influence such as poor visual acuity, noncompliance, color blindness, fatigue, and so forth. The STA can be administered immediately before testing and consists of simple questions (e.g., "how did you sleep last night?") and short tasks (e.g., listening games) designed to detect issues that may interfere with the validity of standardized achievement and intelligence tests. Psychologists may consider adapting an evidence-based assessment (Hunsley & Mash, 2007; Youngstrom et al., 2017) approach to accomplish similar goals to the STA by (1) modifying their pre-testing rapport building to include questions about their experiences during the pandemic, how the child is managing their emotions, and the child's use of coping strategies. When pandemic-specific prompts suggest that the child is experiencing signs or symptoms of emotional distress, (2) additional assessment may be warranted in the form of a screener or (3) more comprehensive assessment. When possible, psychologists may seek to reduce the influence of construct-irrelevant influences by providing resources or engaging in preventative care (see Wang et al., 2020). While it may not be possible to mitigate the impact of some construct-irrelevant influences on standardized achievement and intelligence testing, this process may help examiners to identify examinees who are experiencing such difficulties; this information may inform how standardized

achievement and intelligence testing can be interpreted and—more importantly—lead to appropriate mental health supports for the child.

Examiner

As suggested, psychologists are not immune from pandemic-related stressors and may also experience difficulties with adjustment. A psychologist experiencing emotional distress may be less capable than usual to establish a working relationship, organize the administration of the psychological test, or attend to relevant stimuli. As a result, examiner-sources of variance may lead to construct-irrelevant influences on test performance and data (Bracken, 2004). Another potential construct-irrelevant influence is examiner psychometric skill related to the administration of a particular psychological test. Psychologists are well trained in the administration of psychological tests (e.g., Lockwood & Farmer, 2019; Mihura et al., 2017). While many psychologists are well-trained in teleassessment and the remote administration of achievement and intelligence tests, many are not accustomed to the unique challenges associated with these modes of service delivery (Glueckauf et al., 2018). Adopting new testing procedures requires ample preparation, training, and practice; this is also true when moving from traditional to remote administration (Wright et al., 2020; APA, 2013). Examiners' lack of fluency with remote administration technology, working with facilitators, or directing examinees on the use of camera position are all examples of unique challenges that may function as construct-irrelevant influences. In addition to these issues, remote administration may require the use of alternative composites from familiar batteries and possibly introduce examiner error from lack of familiarity with the instrument.

Addressing sources of construct-irrelevant influences may be more direct than doing so for examinees. Seeking preventative, primary treatment for emotional distress may be warranted, and several organizations have provided mental health care resources for medical professionals that would

be appropriate for psychologists as well (see Centers for Disease Control and Prevention, 2020; National Institute of Mental Health, 2020). With regard to examiner psychometric skills, we strongly advise examiners to engage in significant self-study of remote administration procedures, then consult APA and NASP guidelines on remote administration, and to practice administering tests in this medium with other professionals or confederates before providing clinical services (APA, 2013; NASP, 2017; NASP, 2020; Sharp, 2020a; Sharp, 2020b; Wright et al., 2020).

Environment

Remote testing situations, such as videoconferencing, may introduce unacceptable levels of construct-irrelevant variance. Most notably, quality of network connection has been found to have an impact on test performance. In their systematic review of relevant counterbalanced crossover studies, Brearly and colleagues (2017) found that high speed connections are needed to ensure consistent performance across remote and on-site testing conditions and it remains unclear whether *all* potential examinees have access to the networking resources required for adequate psychological testing.

In traditional testing situations, examiners have some degree of control over the testing environment. Examiners may select quiet locations, arrange or even select furniture, hang 'do not disturb' signs, and remove distracting items (see Bracken, 2004). However, remote administration may mean that children will be in their home during the administration session. Depending upon the home environment, the computer being used may be in a central location in the home that family members cannot avoid; may be in a space with substantial distractions such as television, noise from other rooms (e.g., siblings playing), noise from neighbors, or within view of family members. Additionally, the presence of nearby siblings playing and sources of entertainment (e.g., television, toys, video games, the device you are using to complete testing) may serve to reduce the value of participating in the testing administration by positioning the standardized achievement and intelligence test as a barrier to

preferred activities (i.e., preferred stimuli may serve as a transitive conditioned motivating operation; see Langthorne & McGill, 2009). As a result, children may be more likely to engage in behaviors to escape the testing situation in this environment than they would in a more controlled environment. While it is true that this is possible any time a child is completing a remote administration, shelter-in-place and other such protocols may require more family members to be present in the home which may amplify these challenges. An additional environmental challenge that many psychologists may need to manage is that their own children and family may be in the home with them while they are conducting teleassessment; this source of construct-irrelevant influence may be much more likely during the pandemic than a typical period, and has the potential of distracting the examiner as well as the examinee.

Examiners are strongly encouraged to evaluate the environment as best they can to ensure that it is appropriate for testing. Wright and his colleagues provide a number of recommendations for examiners to follow during tele-testing that may be especially helpful (Sharp, 2020b; Wright et al., 2020). During the assessment process, examiners should watch for signs that the child is not attending or otherwise distracted, such as staring off, frequently looking away, fidgeting, and repeatedly requesting breaks. The examiner may be able to see or hear potential distractions as well, and should be cognizant of their potential impact on testing even if the child's behavior is not noticeably altered. This is especially true if the distractions are repeating or particularly salient. Examiners may circumvent some of these issues by working closely with a caregiver. Some considerations might include selecting a time that the caregiver would be available to 'run interference' on distracting stimuli and to provide behavior management if necessary. Establishing rapport with and explaining testing requirements to the family will be crucial to overcome environmental sources of construct-irrelevant influences. Finally, examiners may need to make arrangements to manage distractions within their own home including ensuring that their children have supervision or establishing a workspace in which family will not enter.

Instrument

The instrument that a psychologist chooses to use may also introduce construct-irrelevant influence on test scores. Bracken (2004) discusses the necessity of considering the psychometric properties of the test in use including its reliability, whether the existing norms are representative of your current client, and other variables such as the presence of floor or ceiling effects, item gradients that are too steep, or stimuli that require response processes that examinees may be less capable of completing for reasons other than the construct of interest (e.g., a child with color blindness may struggle with pattern detection that relies on color discrimination). Many of these issues are crucial to the evaluation of any instrument and are covered in great detail in other sources (see AERA et al., 2014; Kranzler & Floyd, 2013). Psychologists should be aware of these issues with remote administration as the extant literature on a given test may not apply to the remotely administered version of that same test (see Luxton et al., 2014); as discussed previously, the presence of equivalency studies may be inadequate to assume that remote administered versions of common tests are reliable, valid, and useful in a given context (ITC, 2016; McGill et al., 2020).

As noted from review of this section, the potential for construct-irrelevant influences on test scores and interpretation is amplified by remote administration and by pandemic-specific variables. However, what should be addressed is that the potential for these influences is not equivalent across all children. Some children are less likely to be represented by available norms, but equivalency studies (e.g., see Wright, 2018a), and may be more likely to experience examinee- and environment-sources of construct irrelevant-influences than other children. Furthermore, examiners should be aware that evidence for “proof of concept” for the digital administration of select conventional measures is presently available.

Equity & Social Justice

Under normal conditions, psychologists have limited research-based guidance pertaining to potential influences of culture and language on psychological assessment performance. Professional recommendations for culturally and linguistically responsive assessment practices are outlined in several resources (e.g., APA, 2017, NASP, 2015) and should be considered regardless of method of test administration. Research related to remote administration in culturally and linguistically diverse populations is extremely limited and requires further research. For a more extensive review of telehealth and teleassessment ethics as they relate specifically to culturally and linguistically diverse populations, readers are encouraged to review both Fleming et al., (2009) and Luxton et al., (2004). The following sections will outline culturally and linguistically responsive remote administration considerations that are research-based as well as clinically aligned if psychologists must engage in teleassessment. We recognize that the limitations of such assessment are more significant for culturally and linguistically diverse populations and issues of culture, language, and equity must be considered prior to engaging in remote administration.

Individuals from diverse backgrounds may be at risk for negative outcomes within the standard assessment process if issues of culture, language, and equity are not foundational components of the assessment process. A close examination of how remote administration of standardized achievement and intelligence tests may influence the assessment process and subsequent outcomes is crucial in order to avoid exacerbating these outcomes. Considerations of cultural and linguistic variables that may not historically be considered during assessments have also emerged given the unique circumstance surrounding COVID-19. Although the research on this topic is extremely limited, we outline some cultural considerations regarding the remote administration of standardized achievement and intelligence tests for psychologists.

The Impact of Culture on Remote Administration

The child's unique cultural context may impact the quality of the assessment or the practitioner's ability to conduct the assessment remotely. Given the impact of COVID-19 on traditional face-to-face assessments, psychologists must consider cultural influences on the teleassessment process. Although not an exhaustive list, the following cultural variables may dramatically impact psychologists' use of teleassessment. These variables are not correlated or linked to specific cultural groups—children and families from numerous cultural backgrounds (SES, race/ethnicity, language, religion, disability) may identify with all, some, or none of these considerations.

Technology and Internet connection limitations. As discussed, adequate access to technology and the internet are required. Families that have no access or limited access to one or both of these may not be able to participate in teleassessment. Given the importance of fidelity in administering test stimuli, observing the child's responses, and communicating directions clearly, limited access may function to reduce the quality of the data obtained. Families may have access to some technological devices, such as a smart phone, although not others, such as tablets and computers. Access to technology may also influence how much experience and familiarity individuals have with these devices. Individual's experience and familiarity using these devices may influence how they navigate the testing environment, interact with others during the assessment, and ultimately how efficiently they complete tasks. Namely, a young child with less exposure to video chat technology may engage with the examiner as they would in a traditional face-to-face setting or they may display atypical social skills that are not consistent with typical interactions due to their unfamiliarity with these devices and process. Lack of experience with these devices may also impact how well someone attends to, or efficiently completes, the tasks presented.

Home demands. Home demands of caregivers, which may look quite different in the context of COVID-19, may also impact a child's behavior during teleassessment. Some caregivers may have several family members in the home (e.g., several children, elderly parents, extended family members), have

inflexible work from home schedules, or may not be at home during the day because they are essential employees. When conducting standardized achievement and intelligence tests remotely with children, caregivers may be expected to play a role in the process, such as setting up materials, transitioning between tasks, or managing behavior. Caregiver home demands may determine if telehealth can be conducted, when it can be conducted (e.g., not during the typical workday hours), or may alter the quality of the obtained test data.

Language barriers. The family's home language and English proficiency is another important cultural factor to consider when conducting teleassessment. In addition to the typical materials, materials specific to remote administration (such as tele-consent), instructions on how to set up specific telehealth platforms and instructions for caregiver to assist in strengthening the teleassessment session should also be in the family's preferred language. Sessions should also be conducted in the language that is most likely to yield accurate results, likely a barrier in many pluralistic environments. Collaboration with a bilingual practitioner, translators, and/or interpreters may be required even though not feasible. Finally, there are a limited number of assessments available in a telehealth-ready format. Although publishing companies are making many more readily available for the duration of the COVID-19 pandemic, not all may be appropriately validated for individuals who do not speak English as their first language. However, this is true for conventional achievement and intelligence tests as well. As always, careful consideration and evaluation of the specific tools selected for bilingual populations is critical.

As examiners consider whether the use of remote administration of standardized achievement and intelligence tests is appropriate for each child under their care, issues of equity must be forefront in the decision regarding selected evaluation processes. First, more research must be conducted on this topic and additional professional recommendations should be established and promoted. Research specifically focused on issues of equity in tele-assessment generally, and the remote administration of

standardized achievement and intelligence tests specifically, is also warranted. Although tele-assessment recommendations for culturally and linguistically diverse populations are currently limited, the issues of equity and access that were described above will have particular implications during the COVID-19 pandemic and after.

Legal & Ethical Implications

Perhaps creating the greatest uncertainty at the present time are the unresolved legal and ethical issues that examiners will have to confront in determining under what circumstances testing may proceed. In particular, if remote assessment is to be conducted via a telehealth platform, different regulations may apply to school-based practitioners and those in private practice and may even vary from state to state. Clearly from a public health perspective, it would be unethical and potentially illegal to proceed with in-person testing where physical distancing guidelines remain in force; *The Trust* specifically suggested that “...in-person services during this crisis will add significant risk to patients/clients, providers, and the broader community” (2020, p. 1). Whereas state school psychology organizations have issued guidance encouraging practitioners in school-based settings to delay testing (e.g., Hiramoto, 2020), federal educational authorities have issued more open ended guidance allowing for local educational agencies to proceed with testing if it is determined that in-person testing is not required (Office of Civil Rights, 2020).

Even so, it remains unclear whether remote testing is even an actual option that is presently available to school-based examiners working under a school psychology credential as no states presently have educational regulations that outline the scope and delivery of telehealth services (NASP, 2017). In most states the delivery of remote psychological services is governed explicitly through the regulations furnished by state-level boards of psychology (see APA, 2013). Private practice examiners also need to be mindful of the fact that the practice of telepsychology in general remains prohibited in some

jurisdictions entirely. While some states have relaxed existing regulations that may pertain to these matters and/or have so-called “good Samaritan” clauses protecting practitioners from legal scrutiny during times of crisis, it should not be assumed that such protections will automatically apply in any particular circumstance (Jacob et al., 2016).

Additionally, assessment professionals must be careful of working across state lines. It is advised that psychologist explicitly ask questions pertaining to the physical location of the child during the assessment process. If the child is located in a state where the psychologist is not licensed while the testing is taking place, the practitioner could potentially be violating state laws/statutes (Martin et al., 2020). This is especially pertinent for psychologists who practice close to state lines and because children may travel to stay with relatives during these difficult times.

From an ethical perspective, practitioners must keep in mind existing codes and guidelines governing the practice of psychology (i.e., APA, 2017; AERA et al., 2014) which require clinicians to utilize tests that are (a) reliable, (b) valid, and (c) designed for the purposes intended for each examinee and assessment context. Considering that no commercial standardized achievement and intelligence measures have been designed principally to be administered remotely, practitioners should proceed with caution until evidence is furnished to establish that psychometric equivalence can be assumed (Naglieri, 2004). Nevertheless, we stipulate that given the novelty of the present crisis practitioners who are hesitant to adopt remote testing parameters will likely have to reconsider this option if stay-at-home orders are not lifted in the immediate future. As these deliberations occur, we encourage private practice psychologists to be mindful of the potential conflict between adopting unproven technologies that allow them to continue in their practice or avoiding the use of such technology and risk lost income.

All practitioners, regardless of their clinical context, require specific guidance from relevant state authorities as to what assessment responsibilities remain in force and what options are actually

available to them to meet those requirements. Whereas documentation has begun to emerge pertaining to these matters from national organizations (e.g., Wright et al., 2020), such guidance does not carry the force of law and thus does not supersede local educational and psychology regulations that remain in force during the present crisis and beyond (APA, 2017).

Conclusion

Many psychologists may be struggling with whether to commence remote standardized achievement and intelligence testing or to wait for further research and policy guidance (Angus, 2020; March, 1991). Given the likelihood that physical distancing guidelines will remain in effect even after shelter-in-place orders have expired and the potential for delayed starts to the 2020—2021 school year, psychologists should be prepared to engage in critical, individual decision making about the function of and need for standardized achievement and intelligence testing. It is our contention that understanding the goals of an assessment (i.e., clarifying the clinical and educational questions to be answered), the assumptions of the available instruments and procedures, the individual client characteristics and their context, and the relationship between these concepts is crucial to making an informed clinical judgment. Our primary goal in this manuscript was to discuss a number of salient issues related to remote standardized achievement and intelligence testing with children; and some key individual characteristics and questions that may warrant consideration before the remote assessment process is undertaken by psychologists as they navigate the world moving forward.

Implications for Practice

Psychologists who are faced with referrals for evaluations have two options before them, neither of which may be optimal (Farmer, McGill et al., 2020). The first option is to delay standardized achievement and intelligence testing until such a time that it can be completed in person. Wright (2020), Wright et al. (2020), and Callum et al. (2020) have suggested that delaying testing is the best option

whenever possible. The second option is to administer norm-referenced standardized achievement and intelligence tests remotely. Some states and government agencies have required that psychological evaluations continue, removing the agency of professionals. We take a more nuanced approach and instead defer to the judgment of trained psychologists. Effectively, to determine whether such testing should continue, psychologists should determine whether the clinical or educational question to be answered is essential to the health or wellbeing of the child. The decisions to be made inherently rely on clinical expertise and judgement, which can be augmented by considering a number of variables.

Moving beyond more general, practical guidance, we now move to a discussion of specific guidance. Psychologists should consider the availability of the necessary hardware (e.g., computer, webcam, document camera, headphones, microphone) and reliable, fast internet connection (i.e., preferably broadband [Wright et al., 2020]). Psychologists should refer to guidance provided by the remote administration platform they intend to use. Furthermore, they are discouraged from using untested platforms or platforms that were not explicitly designed for remote administration of tests (Wright et al., 2020) as they may introduce technical difficulty or limitations (e.g., limiting the view to either the child or their document and not both).

Whether or not the psychologist decides to, or is required to, use remote administration, several considerations are warranted. The psychologist ought to discern whether additional unique construct-irrelevant influences as discussed previously, are potentially present, and take individual characteristics of the child and their context into consideration when interpreting the standardized achievement and intelligence test. Psychologists are encouraged to consider the social consequences of testing (e.g., the effects of false positives or false negatives on the child's services; see Messick, 1995) and to question whether the research evidence currently supports the intended use of the test data (Kane, 2013). Wright et al. (2020) encourages conservative interpretation of standardized achievement and intelligence tests given the current state of the research, with interpretation focusing only on highly

reliable scores with robust validity evidence, such as those representing general intelligence (see McGill et al., 2018).

Psychologists may wish to interpret confidence intervals rather than point-estimates and may also consider wider confidence intervals (e.g., 99%) than they normally would during this period of clinical development to increase the probability of capturing the child's true score. The goal here is to encourage a more conservative interpretation given the increased risk of error in testing data. Accordingly, psychologists may wish to consider increasing the use additional measures to triangulate and support findings from standardized testing (see Kane, 2013). Perhaps more importantly, psychologists should consider outcome monitoring for decisions influenced by data obtained remotely to ensure that the child's, caregivers', or teachers' concerns are addressed by the interventions or services provided (see Borotrager & Lyon, 2016). Finally, psychologists may wish to consider modifying their consent forms to reflect the increased experimental nature of remotely administered standardized achievement and intelligence tests as this information is warranted for informed consent.

Additionally, practitioners should consider the possible legal ramifications of their decisions. Psychologists should consult their local guidance (if any) pertaining to assessment practice during COVID-19 crisis and beyond. Consultation with fellow practitioners and legal counsel is also extremely important before engaging in any practice that is not typical. Finally, documentation regarding why testing practices were, or were not used, is highly suggested.

Implications for Policy Makers and Publishers

Given the state of the research evidence (or lack thereof) supporting remote standardized achievement and intelligence testing as well as the unique factors associated with the pandemic, policy makers should avoid requiring such tests be completed. Instead, more nuance is necessary. Additionally, policy makers should consider providing additional clarity regarding telehealth practice, especially as it

pertains to the practice parameters of telehealth and teleassessment by those other than health service providers (e.g., clinicians practicing under the auspices of their state department of education).

Furthermore, state policymakers should consider instituting temporary inter jurisdictional agreements so that when practitioners must engage in such assessment practices, it is lawful for them to provide services to the children they serve that are temporarily residing in another state. Finally, for hearings that rely in any part on data from standardized achievement and intelligence tests, psychologists should consider their main ethical mandate of “do no harm”, carefully consider the consequences associated with varying results of their tests, and act in the best interest of the child.

Moving beyond those with direct influence over the practice of psychologists, test publishers also have a role to play. Specifically, publishers should emphasize research that evaluates whether scores produced by remotely administered standardized tests are adequately reliable and whether they have adequate validity evidence. Short of the protracted data collection to demonstrate individual score equivalency, reliability estimates and construct validity studies could be completed with existing data, as appropriate. Should publishing companies lack the resources for such an undertaking at this time, partnering with researchers and the third-party platforms they appear to be contracting with may provide a viable option to increase research production and data efficacy (see Angus, 2020). Furthermore, publishers are encouraged to be more transparent in regard to timelines for norm-referenced teleassessment instruments, if any, they plan to release consistent with relevant regulatory guidelines. If they do not have any plans, this is valuable information as well as this may inform whether a practitioner should delay testing or proceed with available instruments. Additionally, if publishers are in the process of developing teleassessment instruments then information regarding the normative samples that are being obtained will also help psychologists determine if the soon-to-be-released measures will be appropriate for the populations they serve.

There are presently no clearly palatable solutions and only careful consideration of the individual and contextual variables are likely to guide psychologists to an appropriate, ethical decision regarding the use of remotely administered standardized achievement and intelligence tests. This manuscript contributes to that process by delineating client and contextual considerations, as well as limitations of the existing research literature.

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