Preliminary Evaluation of Applicants to Master's Programs in Speech-Language

Pathology Using Vignettes and Criteria from a Holistic Review Process

Teresa M. Girolamo, Stephen Politzer-Ahles, Samantha Ghali, Brittany Theresa Williams

University of Kansas, The Hong Kong Polytechnic University, University of Kansas,

Pennsylvania State University

Key words: speech-language pathology, graduate education, holistic admissions

Author Note

Teresa M. Girolamo, University of Kansas. Stephen-Politzer Ahles, Hong Kong

Polytechnic University. Samantha Ghali, University of Kansas. Brittany Theresa Williams,

Pennsylvania State University.

Correspondence concerning this article should be addressed to Teresa M. Girolamo,

Child Language Doctoral Program, 1000 Sunnyside Avenue, Dole 3031, University of Kansas,

Lawrence, KS, 66045. Email: girolamot@ku.edu

24   **Abstract**

25   **Purpose:** <u>Little is known about how others evaluate applicants to master's programs in speech-</u>

26   <u>language pathology along criteria used during holistic review, despite more programs adopting</u>

27   <u>holistic review.</u> This knowledge gap limits our understanding of whether holistic admissions may

28   offer a more equitable pathway to entering speech-language pathology. This study investigated

29   how faculty and Ph.D. students evaluated applicants to master's speech-language pathology

30   programs <u>along criteria used during holistic review</u>.

31   **Method:** We administered a survey online through a Qualtrics platform. Respondents ($N = 66$)

32   were faculty and Ph.D. candidates in U.S. speech-language-hearing departments. Survey blocks

33   included demographics, professional background, and vignettes. Vignettes featured profiles of

34   applicants to master's programs in speech-language pathology. Vignettes systematically varied

35   in the indicators of applicant criteria, which were specified at low, moderate, or high levels, or

36   not specified. After reading each vignette, respondents rated the applicant and indicated their

37   admissions decision. Analysis included descriptives.

38   **Results:** Relative to an applicant who was at a high level for all indicators except cultural and

39   linguistic diversity, respondents ranked applicants who varied in their indicators of criteria levels

40   lower. Respondents were also less likely to make an explicit "accept" decision (versus "waitlist"

41   or "reject") for this latter group of applicants.

42   **Conclusion:** Even <u>when implementing criteria used during holistic review,</u> applicants who vary

43   from a "high-achieving" stereotype may still face barriers to entry. Future work is needed to

44   understand the precise nature of how holistic admissions review may play out in actual practice

45   and help increase diversity in the profession.

46   **Preliminary Evaluation of Applicants to Master's Programs in Speech-Language**

47   **Pathology Using Vignettes and Criteria from a Holistic Review Process**

48   In the United States (U.S.), some graduate speech-language pathology graduate programs

49   are adopting holistic review and moving beyond traditional indicators to evaluate applicants

50   (Guiberson & Vigil, 2020). From an intersectional perspective, holistic review removes barriers

51   to entry that disproportionately impact racial/ethnic minorities (Crenshaw, 1989). However, it is

52   unknown how criteria used during holistic review function in speech-language pathology. Of

53   particular interest is how indicators of applicant quality (e.g., recommendation letters) relate to

54   evaluation of personal characteristics (i.e., criteria used during holistic review) and admissions

55   decisions. These criteria are often social constructs, such that applicant ratings rely on individual

56   interpretation of what a strong profile looks like. For example, a faculty member who uses a

57   personal statement to evaluate academic ability might actually be judging the applicant's

58   adherence to stylistic conventions in academic writing, which is something that applicants from

59   more privileged backgrounds are more able to emulate (McGlynn, 2016).

60   More broadly, there is a need to understand how holistic review in speech-language

61   pathology may help diversify the profession. The American Speech-Language-Hearing

62   Association (ASHA; 2020a, 2020b) reports that less than 10% of its members are members of

63   color, and even fewer are bilingual service providers. These shortages may be tied to

64   underrepresentation of culturally and linguistically diverse (CLD) master's students in speech-

65   language pathology (Horton-Ikard & Munoz, 2010). In 2018 to 2019, 34.6% of applicants to

66   master's programs in speech-language pathology received an offer of admission, among a total

67   of 60,784 applications to master's degree programs (Council of Academic Programs in

68   Communication Sciences and Disorders [CAPCSD] & ASHA, 2020). Of 19,185 master's

69   students overall in speech-language pathology, 20.3% of first-year students were racial/ethnic

70   minorities (CAPCSD & ASHA, 2020). However, it is unknown how many applications came

71   from unique, minority applicants (CAPCSD & ASHA, 2020). Considering that minorities are

72   persistently underrepresented in ASHA, it may be that few minorities ultimately become speech-

73   language pathologists (SLP), because admissions is *the* point of access for entry to the profession

74   (Association of American Medical Colleges [AAMC], 2013; Boske et al., 2018). In all,

75   understanding how applicants are evaluated through holistic review is essential for understanding

76   pathways forward for intersectional excellence – and excellence overall – in the profession. This

77   report describes how faculty and doctoral students evaluate applicants to master's programs in

78   speech-language pathology along criteria used during holistic review.

79   **Holistic Review**

80   Holistic review is a selection process that considers the whole applicant, including what

81   they would bring to the program (AAMC, 2010, 2021). Its purpose is to create a flexible,

82   individualized evaluation of applicant abilities relevant to success (AAMC, 2010; Kent &

83   McCarthy, 2016). The tenets of holistic review are: (a) criteria are broad, mission-aligned, and

84   consider diversity as integral to excellence; (b) using applicant experiences, personal

85   characteristics, and academics to inform applicant review in an equitable and evidence-based

86   manner; (c) consideration of applicants' contributions to the class, institution, and profession; (d)

87   consideration of applicant race/ethnicity to achieve institutional goals related to institutional

88   mission (AAMC, 2010, 2013, 2021; Glazer et al., 2014). As such, diversity is not the goal, but a

89   means to achieving educational goals and institutional missions (AAMC, 2010, 2014).

90   *Practices and Procedures*

91   To ensure fidelity of holistic review, programs must have practices and procedures in

92   place for each stage of <u>holistic admissions</u>: screening, interviewing, and selection of applicants

93   for admission (Glazer et al., 2014). The Holistic Review Scoring Model provides guidance on

94   specific practices and procedures (AAMC, 2013; Glazer et al., 2014). Under this model, schools

95   may adopt the following: (a) evaluation of applicant criteria related to specific missions or goals

96   of the school (e.g., research mission), (b) using an admissions missions statement that includes

97   diversity, (c) consideration of non-academic criteria in addition to academic metrics in screening,

98   (d) evaluation of non-academic criteria related to applicant background or experiences in

99   screening (e.g., socioeconomic status), (e) selection of students from the waitlist using the

100   school's missions or goals as guidance, and (f) providing training for the admissions committee

101   related to school mission and diversity (Glazer et al., 2014).

102   In addition to the above, other review practices include: (a) using rubrics, the same

103   interview questions, and multiple interviewers for all applicants (Posselt, 2016), (b) considering

104   interrater reliability in screening and interviewing (AAMC, 2010), (c) reviewing admissions data

105   to identify if there is bias in who is admitted or rejected, (d) training faculty on how to evaluate

106   applicants of diverse backgrounds (e.g., provide opportunities to learn about the quality of

107   education at minority-serving institutions), and (e) providing transparency about admissions

108   (Kent & McCarthy, 2016). <u>Ultimately, programs should select applicants who best fit a</u>

109   <u>program's goals, mission, and values (Mandulak, 2021). This process entails pivoting from</u>

110   <u>solely selecting applicants on the basis of Graduate Record Examinations (GRE) scores,</u>

111   selectivity of undergraduate institution, and undergraduate grade point average (GPA; Urban

112   Universities for Health, 2016).

113   *Holistic Review in Speech-Language Pathology and the Health Professions*

114   **Speech-Language Pathology.** A survey explored holistic review in accredited graduate

115   speech-language pathology programs nationwide (Guiberson & Vigil, 2020). We report the key

116   findings here. First, although a majority of programs reported using holistic review, their exact

117   usage varied: 14% reported using holistic review, 46% reported using some holistic review

118   practices, and 40% reported not using holistic review. Of programs using at least some holistic

119   review practices, 72% reported a positive impact, with more diversity in the program, more well-

120   rounded students, and better identification of clinically competent applicants. Further, while

121   diversity increased, applicant GPA and GRE scores and graduate outcomes (i.e., graduation rate,

122   employment rate, Praxis outcomes) did not change. Of the programs not using holistic review,

123   51% indicated concerns that admitted students would not be as academically prepared. Further,

124   only 29% of respondents believed CLD students faced barriers to entry to master's programs,

125   including academic ability and preparation and proficiency in mainstream American English.

126   Second, programs varied in the aspects they implemented at each stage. In screening,

127   85% of programs reported using a GPA cutoff (range: 2.75 – >3.3), and 73% of respondents

128   ranked GPA as the most important criterion. Few (26%) programs reported using a GRE cutoff

129   score. In applicant review and selection, 61% of respondents ranked GPA and 30% GRE scores

130   as an important or the most important criterion, respectively. Nearly half the respondents

131   reported considering bilingualism/multilingualism during these stages. Other common practices

132   across programs included consideration of non-academic criteria (e.g., interpersonal skills, oral

133   communication skills, professionalism, critical thinking) and diversity essay responses.

134   Overall, these findings suggest holistic review is on the rise in speech-language

135   pathology, although many programs do not fully follow the AAMC (2013) model. If only some

136   practices are in place, holistic review may not increase diversity (Boske et al., 2018; Cahn,

137   2015). Further, it is unknown how admissions committees evaluate criteria across applicants.

138   **Health Professions.** A nationwide survey of health professions schools in nursing,

139   medicine, dentistry, public health, and pharmacy found that nearly 50% of nursing schools and

140   over 75% of the remaining schools had implemented holistic review (Glazer et al., 2014). Like

141   speech-language pathology, individual schools varied in what holistic review practices they

142   adopted (Glazer et al., 2014). Schools – particularly those which had adopted many holistic

143   review practices – reported that implementing holistic review increased diversity and had the

144   same or improved student outcomes (Glazer et al., 2014). Yet individual practices alone, such as

145   eliminating the GREs as an admissions requirement, may be insufficient for increasing diversity

146   (Cahn, 2015). Importantly, schools implementing holistic review reported two to three times

147   more student engagement in the community, teamwork and cooperation, and openness to

148   different perspectives than schools that did not (Glazer et al., 2014).

149   *Conceptualizations of Holistic Review*

150   While AAMC (2013) has provided an established definition of holistic review, other

151   conceptualizations of holistic review have emerged that are also relevant to understanding

152   holistic review in practice. For example, as seen in Figure 1, different interpretations are: whole

153   file, whole person, and whole context (Bastedo et al., 2018). Although Bastedo and colleagues

154   (2018) developed this framework to study holistic review practices of undergraduate admissions

155   officers, it is well-suited to exploring graduate admissions in speech-language pathology.

156   **Whole File.** Under this approach, committee members consider the application file.

157   Although committee members may consider both academic variables (e.g., GPA and GRE

158   scores) and nonacademic variables (e.g., extracurricular activities), how these factors inform

159   admissions decisions depend on individual committee members. Because evaluation of the

160   application file at face value does not necessarily include consideration of personal

161   characteristics, nor academic or family background, committee members may miss relevant

162   information to contextualize the application file materials of CLD applicants.

163   **Whole Person.** In addition to the application file, committee members consider the

164   applicant as a unique individual with achievements in terms of involvement, leadership,

165   background, and what they will contribute to their cohort and program (i.e., applicant fit). This

166   approach may pose barriers to CLD applicants, because it does not take into account the context,

167   environment, or lived experiences of applicants. Academic and family background afford

168   individuals with different opportunities, such that some experiences may be a function of

169   privilege and not ability. Further, it is unclear how committee members perceive applicant fit for

170   those who are not of the dominant majority in CSD.

171   **Whole Context.** In addition to whole person characteristics, this approach takes into

172   account the context, environment, and lived experiences of applicants. Committee members

173   consider the applicant as a unique individual from educational and family circumstances that

174   shaped who they are. This approach is the most inclusive yet requires the most interpretation. If

175   committee members are skilled at interpreting application materials beyond what is explicitly

176   stated or present, such that they understand the potential barriers that an applicant faced in their

177   pursuit of a master's in speech-language pathology, they may credit them for their

178   accomplishments. If committee members are less skilled, they may underestimate their abilities.

179   **Admissions Application Materials**

180   As seen in Figure 1, common application materials to master's programs are GPA, GRE

181   scores, letters of recommendation, a personal statement, and a resume or curriculum vita (CV;

182   Baggs et al., 2015; Kent & McCarthy, 2016; Michel et al., 2019; Okahana et al., 2018). These

183   components vary in their predictive value of graduate school outcomes, and interpretation of

184   them may be subject to bias.

185   *GPA*

186   **Predictive Value.** The predictive value of GPA in identifying qualified candidates is

187   uncertain, despite an emphasis on these metrics in reviewal of applicants to master's programs in

188   speech-language pathology (Guiberson & Vigil, 2020). Some studies have found undergraduate

189   GPA in speech-language pathology (Baggs et al., 2015; Boles, 2018; Halberstam & Redstone,

190   2005; Ryan et al., 1998) and undergraduate GPA (Forrest & Naremore, 1998; Halberstam &

191   Redstone, 2005; Troche & Towson, 2018) to be predictive of graduate school outcomes, as

192   defined by Praxis outcomes, graduate GPA, and comprehensive exam performance. Elsewhere,

193   undergraduate GPA and GPA in speech-language pathology have not predicted graduate school

194   outcomes (Anderson et al., 2017; Richardson et al., 2020).

195   **Potential for Bias.** Utilizing GPA as an indicator of applicant quality may give rise to

196   bias. Despite emphasis on a near-perfect GPA, the GPA of admitted students to speech-language

197   pathology master's programs is variable (Polovoy, 2014; Sylvan et al., 2020), in terms of average

198   GPA of accepted students to U.S. master's programs (range: 3.14-3.97; CAPCSD & ASHA,

199   2020; Koay et al., 2016) and international grading systems (Michel et al., 2019).

200   Findings beyond speech-language pathology also suggest there are issues with using

201   GPA as an indicator, including heavy reliance on GPA in screening and final admissions

202   decisions (Kent & McCarthy, 2016). In psychology, Black/African American and

203   Hispanic/Latinx students are underrepresented in doctoral programs relative to white peers,

204   despite having the same GPA (Callahan et al., 2018). Such underrepresentation is not limited to

205   graduate programs. Black/African American and Hispanic/Latinx students who had guaranteed

206   admission to top undergraduate institutions by earning a top GPA were less likely than white

207 peers to apply and more likely to apply to lower-ranked schools (Black et al., 2015). When there

208 are racial/ethnic differences in GPA, they may be due to educational resource availability

209 (Michel et al., 2019) and instructor mindset (Canning et al., 2019; Gershenson & Papageorge,

210 2018). Across all students at a large public university, Black/African American, Hispanic/Latinx,

211 and Native American students had lower grades in STEM courses than white or Asian students;

212 this gap was twice as large in classes where faculty believed academic ability was a fixed ability

213 (Canning et al., 2019).

214 ***GRE Scores***

215   **Predictive Value.** GRE scores have limited predictive value of graduate outcomes. In

216 speech-language pathology, some studies have found GRE scores to be predictive of Praxis

217 outcomes, graduate GPA, and comprehensive exam performance (Anderson et al., 2017; Baggs

218 et al., 2015; Boles, 2018; Kjelgaard & Guarino, 2012; Ryan et al., 1998; Troche & Towson,

219 2018). Elsewhere, GRE scores have not predicted graduate outcomes (Anderson et al., 2017;

220 Richardson et al., 2020). Despite this mixed evidence, over a quarter of 110 speech-language

221 pathology faculty reported their programs use a GRE cutoff and rated GRE scores as an

222 important or the most important in both screening decisions and application selection (Guiberson

223 & Vigil, 2020). In the adjacent field of psychology, analysis of doctoral student enrollment

224 revealed that Black and Hispanic/Latinx students were underrepresented relative to white

225 students, despite having equally high GRE scores (Callahan et al., 2018). More broadly, as per

226 Miller & Stassun (2014), the GRE is a more accurate indicator of skin color and sex than of

227 ability and long-term success.

228   **Potential for Bias.** Across all GRE takers, American Indian, Black, and Hispanic/Latinx

229 examinees have performed lower than white and Asian students (Bleske-Recheck & Browne,

230   2014; Educational Testing Service [ETS], 2019). Of all GRE takers between July 2018 and June

231   2019, those who were Asian scored higher on GRE-quantitative than all other racial/ethnic

232   groups, those who were white and non-Hispanic scored higher on GRE-verbal than all other

233   groups, and those who were white and non-Hispanic or Asian scored higher on the analytical

234   writing than all other groups (ETS, 2019).

235   This finding has several implications. The first involves how admissions committees

236   interpret test scores (Messick, 1989). Although GRE scores are clearly not lower for every

237   racial/ethnic minority applicant, structural racism systematically denies underrepresented

238   minority groups of low SES access to resources (e.g., educational opportunity; Kendi, 2020).

239   Thus, if minorities have lower GRE scores, it may be due to structural racism in terms of

240   economic success, educational opportunity, and bias in the educational environment (Lucey &

241   Saguil, 2020). The second implication involves how admissions committees use GRE scores

242   (Messick, 1989). If programs use GRE scores as a singular benchmark instead of integrating

243   multiple sources of information, they risk misusing the test (ETS, 2019) and of effecting

244   racialized outcomes, in that admissions systems may not mention race but systematically exclude

245   racial/ethnic groups (Powell, 2012). Indeed, when GRE scores were used as a cutoff in the

246   biomedical sciences, nearly two-thirds of Black/African American, Native, and Hispanic/Latinx

247   applicants were triaged, but only 26% of white male applicants were triaged (Wilson et al.,

248   2019). In all, interpretation and use of the GRE must account for inequity.

249   ***Personal Statements***

250   **Predictive Value.** Personal statements may not reliably reflect the abilities of students.

251   When measured using idea density, the quality of personal statements did not predict graduate

252   GPA or comprehensive exam outcomes (Anderson et al., 2017). However, when evaluating

253   personal statements using grammar, content, and apparent knowledge of and commitment to the

254   field of speech-language pathology, statement quality has correlated with graduate GPA

255   (Halberstone & Redstone, 2005). These last two criteria are subjective and depend on personal

256   judgment (Halberstone & Redstone, 2005). Further, assessing grammar as an indicator of

257   personal statement quality may give rise to linguistic bias (Politzer-Ahles et al., 2020).

258   **Potential for Bias.** Some of the criteria that admissions committee members evaluate

259   through personal statements, such as apparent knowledge of and commitment to speech-language

260   pathology, are subjective and depend on personal judgment (Halberstone & Redstone, 2005).

261   CLD applicants to master's programs in speech-language pathology may be at a disadvantage

262   relative to white peers in developing personal statements, especially with respect to writing skills

263   (Fuse, 2018). Findings from medicine support this possibility. Nearly half the students across

264   three cohorts reported receiving help from others in developing their personal statement for

265   medical school (Albanese et al., 2003). CLD applicants may not have the same access to help

266   developing a personal statement as do their white peers, who are likely to know previous

267   applicants willing to share materials or to have the financial wherewithal to utilize paid services

268   (Albanese et al., 2003). Hence, the personal statements of CLD applicants could vary in their

269   quality because of differences in resource availability and not ability (Kendi, 2020).

270   *Letters of Recommendation*

271   **Predictive Value.** Letters of recommendation may have limited predictive utility in

272   admissions. On one hand, letter of recommendation quality – as measured by recommender

273   prestige, apparent depth of knowledge of the applicant, reasons for recommending the applicant,

274   and level of enthusiasm of recommendation – has predicted graduate GPA in speech-language

275   pathology (Halberstam & Redstone, 2005). However, a large-scale meta-analysis found that

276   letters only weakly predicted graduate GPA, performance rating from faculty, and degree

277   attainment (Kuncel, 2014). Further, letters of recommendation only accounted for a negligible

278   proportion of unique variance in graduate GPA and faculty ratings of graduate school

279   performance (Kuncel et al., 2014). Although not specific to CSD, these findings suggest letters

280   of recommendation have limited power in identifying qualified applicants to graduate programs.

281   **Potential for Bias.** Using letters of recommendation to select applicants may introduce

282   bias. First, some applicants may be at a disadvantage in obtaining the experiences requisite

283   for strong letters of recommendation. Amid general student concerns about having to work

284   outside of school and obtaining letters of recommendation, Black/African American and

285   Hispanic/Latinx master's students in speech-language pathology have reported being of lower

286   SES than their white peers (Fuse, 2018; Fuse & Bergen, 2018). Thus, if CLD applicants of lower

287   SES must work outside of school, they have less time for coursework, research, and extra-

288   curricular activities, all of which may help them develop relationships with letter writers and

289   demonstrate the characteristics for a strong letter (Fuse, 2018).

290   Second, some applicants may be at a disadvantage in receiving strong letters of

291   recommendation, even when they are as equally qualified as peers of dominant backgrounds. Of

292   all undergraduate students applying to a research experience program, minority applicants versus

293   white applicants and applicants from institutions that were not research-intensive (R2) versus

294   research-intensive (R1) institutions received different letters of recommendation, despite having

295   the same GPA (Houser & Lemmon, 2018). While letters for white students tended to describe

296   them in terms of cognitive ability, productivity, and insight, letters for Black/African American

297   and Hispanic/Latinx students tended to describe them in terms of affect and emotion (Houser &

298   Lemmon, 2018). Further, graduate programs nationwide have reported knowing the author of

299   letters of recommendation as an influence on the admissions process (Okahana et al., 2018). In

300   all, these findings warrant caution in using letters of recommendation to assess applicant quality.

301   ***Resumes or CVs***

302   **Predictive Value.** The resume or CV includes many of the other components: GPA,

303   GRE scores, accomplishments, and experiences that are referred to in a personal statement and

304   letters of recommendation. Because the resume or CV is essentially an organized listing of a

305   subset of what is in other application materials, then the criticisms about the predictive utility of

306   other application materials likely apply here. For example, research experience on the resume or

307   CV is also probably mentioned in the personal statement, and undergraduate institution and

308   performance are probably also mentioned in recommendation letters.

309   **Potential for Bias.** Interpreting the resume or CV without considering the full array of

310   factors that shaped the applicant may lead to lower ratings for CLD applicants, particularly those

311   who are from less privileged backgrounds (Bastedo et al., 2018). Master's students in speech-

312   language pathology have reported feeling overwhelmed by the application process, such that

313   application materials may not fully align to program expectations (Sylvan et al., 2020). At the

314   same time, many applicants to the health professions report receiving external help in preparing

315   their applications (Albanese et al., 2003). Hence, interpreting resumes or CVs at face value may

316   effect bias against applicants without access to outside help (Albanese et al., 2003).

317   ***Summary***

318   Altogether, previous findings on application materials highlight the importance of

319   evidence-based holistic review. There is no singular set of reliable predictors of applicant

320   quality. An additional concern is that previous studies did not include rejected applicants, which

321   limits the ability to predict later outcomes; thus, the predictive value of application materials may

322   be even lower than what it appears (Michel et al., 2019; Ryan et al., 1998). Given under-

323   representation in speech-language pathology, confounds relevant to cultural and linguistic

324   diversity may exist in the prediction of graduate outcomes, as such evidence informs admissions

325   committees on what to consider. This problem is circular in nature; if programs fail to diversify,

326   it is impossible to know what predicts graduate success across diverse backgrounds.

327   **Holistic Review Criteria**

328   As seen in Figure 1, admissions committees evaluate application materials for personal

329   characteristics, or criteria. However, the evaluation of criteria may be subject to bias, such that

330   applicants who do not fit the stereotype of a speech-language pathology student may face

331   additional obstacles in entering the profession (Rogus-Pulia et al., 2018; Shapiro et al., 2002).

332   *A Framework for Noncognitive Variables in Holistic Review*

333   A framework for noncognitive variables in holistic review for all students comes from

334   Sedlacek (1993), who argued for the importance of noncognitive variables in holistic review.

335   Noncognitive variables, which are qualitative metrics indicative of personal characteristics, entail

336   experiential and contextual factors "relating to adjustment, motivation, and student perceptions"

337   (Sadlacek, 2011, p. 180). Importantly, these variables may best predict success in nontraditional

338   students: (a) positive self-concept, (b) realistic self-appraisal, (c) ability to successfully handle a

339   system that was not designed for them (i.e., graduate admissions), (d) preference for long-term

340   goals over short-term ones, (e) availability of a strong support person, (f) successful leadership

341   experience, (g) demonstrated community service, and (h) knowledge acquired in or about a field

342   (Sedlacek, 2004). These variables are an indicator for success in higher education for all students

343   and must be considered in order to truly generate diverse and socially just admissions decisions

344   (Sedlacek, 1993, 2004, 2005, 2011). For reference, programs in the Council for Graduate Studies

345   most commonly identified past academic performance, critical thinking, program fit, and writing

346   ability as qualities relevant to master's admissions (Kent & McCarthy, 2016)

347   ***An Instantiated Example of Holistic Review Criteria in Speech-Language Pathology***

348   An example of holistic review criteria comes from the University of Kansas master's

349   Intercampus Program in Communicative Disorders (2018). The admissions committee evaluates

350   applicants for criteria, which are social constructs whose evaluation depends on the indicators

351   used and the interpretation of admissions committee members (Boske et al., 2018). While a

352   detailed analysis is beyond the present scope, it is not always clear how the criteria below align

353   to the noncognitive variables as proposed by Sedlacek (1993). For example, the criteria do not

354   mention or allude to an applicant's ability to handle a system that <u>may not be designed for them.</u>

355   **Academic Ability and Preparation.** Academic ability and preparation refer to the need

356   to have a firm foundation in speech-language-hearing and broader knowledge of related areas,

357   with the goal of being able to apply this knowledge in clinical practice. Indicators of this

358   criterion include overall and GPA in speech-language-hearing, letters of reference, and resume.

359   **Communication Skills.** Communication skills refers to the need of SLPs to

360   communicate with clients, families, and other professionals using oral and written language.

361   Indicators of this criterion include personal statement, letters of recommendation, and resume.

362   **Interpersonal Skills.** Interpersonal skills refers to the need of SLPs to work

363   collaboratively and effectively with clients, families, and other professionals. Indicators of

364   this criterion include teamwork experience and clinical experience on the resume.

365   **Analytical Skills**. Analytical skills refers to the need of SLPs to critically read, analyze,

366   interpret, and apply research to evidence-based clinical practice, thus requiring a foundation in

367   research, critical thinking, and clinical application. Indicators of this criterion include an essay,

368   research and clinical experience on the resume, and letters of reference.

369   **Potential for Professionalism.** Potential for professionalism refers to the need for SLPs

370   to be organized, reliable, respectful, and able to grow from constructive feedback. Indicators of

371   this criterion include letters of reference and personal statement.

372   **Potential for Leadership.** Potential for leadership, refers to the need of SLPs to advocate

373   for their clients and for the profession. Indicators of this criterion include leadership experience

374   on the resume and letters of reference.

375   **Cultural and Linguistic Diversity.** Cultural and linguistic diversity refers to the need for

376   SLPs to work effectively with diverse and multilingual clients from a variety of backgrounds that

377   differ from their own. Indicators of this criterion include personal or academic cultural

378   experiences on the resume and letters of reference.

379   *Indicators of Criteria*

380   In addition to the application materials, indicators of criteria from the example are

381   teamwork experience, clinical experience, and research experience. As with the application

382   materials, these indicators may have limited predictive ability and potential for bias.

383   **Teamwork Experience.** Teamwork may not reliably indicate applicant quality, because

384   effective teamwork may be something that CLD applicants do not highlight in their application

385   materials as an individual accomplishment. For example, Native American academics from tribal

386   communities have reported a gap between their cultural norms and those of predominantly white

387   academia (Dvorakova, 2019). While relationality and communal cooperation were central to

388   their respective cultures, academia emphasized individualism (Dvorakova, 2019). Similarly,

389   Korean undergraduates demonstrated a greater sense of "oneness" with members of a whole

390   (e.g., family and friend networks), while their white peers demonstrated a greater sense of

391   individualism (Lim et al., 2011). Thus, sense of self – and of one's strengths, including

392   teamwork <u>as a type of accomplishment or skill</u> – are culturally situated; CLD applicants may not

393   consider positive teamwork experiences as an individualistic skill to explicitly mention.

394   Students may also face inequity in gaining teamwork experience. Undergraduate students

395   in CSD have reported relying on cohort mates for social support (Roos & Schreck, 2019).

396   Further, younger SLPs who recently graduated from master's programs have demonstrated

397   significant bias against speakers with a nonnative accent (Chakraborty et al., 2019). Together

398   with the potential for homophily, one possibility is that CLD students are less able to access

399   social support from peers in a predominantly white profession (Rogus-Pulia et al., 2018). Those

400   with intersecting identities in multiple marginalized groups (i.e., racial/ethnic minority plus being

401   perceived as a nonnative speaker of English) may face more barriers (Crenshaw, 1989).

402   **Research Experience.** Prior research experience may not predict academic performance,

403   degree attainment, and clinical performance in the health sciences and professions (Miller et al.,

404   2020). Research experience is oftentimes unpaid, such that it may be accessible only to those

405   who can afford to provide unpaid labor (Miller et al., 2020). Consequently, using research

406   experience as an indicator of analytical skills may reflect access to opportunity and disadvantage

407   CLD applicants (Houser & Lemmons, 2018; Miller et al., 2020). In speech-language pathology,

408   family financial support is predictive of admissions outcomes to master's programs, with

409   Black/African American and Hispanic/Latinx students reporting being of lower SES than their

410   white peers (Fuse, 2018; Fuse & Bergen, 2018). Therefore, students who work outside of school

411   (who are disproportionately minority students) may be less likely to have research experience

412   and appear to have less strong analytical skills due to inequity.

413   In addition, undergraduate research experience may only be available at some schools

414   (Houser & Lemmons, 2018; Miller et al., 2020). Even when paid research opportunities are

415   available, students from R2 institutions and community colleges have been underrepresented in

416   the applicant pool compared to their peers from R1 institutions, with 40% of 389 students

417   applying versus 70% expected (Houser & Lemmons, 2018). Thus, using prior research

418   experience as an indicator may favor applicants at institutions with research opportunities (Miller

419   et al., 2020). By the same token, committees may perceive applicants to have weaker analytical

420   skills, simply because research opportunities were unavailable at their institutions.

421   **Clinical Experience.** Little is known about prior clinical experience as a reliable

422   predictor of graduate outcomes in speech-language pathology. Findings from the allied health

423   professions suggest clinical experience may not reliably predict graduate success. In nursing,

424   prior clinical experience did not predict graduate GPA (El-Banna et al., 2015; Patzer et al., 2017)

425   or program completion (Niemczyk et al., 2018). Similarly, in medicine, prior clinical experience

426   did not predict medical school GPA, medical licensing exam outcomes, or later assessment of

427   expertise and professionalism (Artino et al., 2012; in contrast, see Shah et al., 2018). In all, these

428   findings highlight the importance of caution in using clinical experience as an indicator.

429   Using clinical experience as an indicator also gives rise to potential bias. As with

430   research experience, undergraduate clinical experience is often unpaid. Therefore, the same

431   concerns with accessibility of research experience also apply to clinical experience. In addition,

432   CLD students may face more hurdles than their white peers in clinical settings. For example,

433   minority supervisors in psychology have reported spending the most time discussing

434   multicultural issues if their supervisee was a minority; in contrast, white supervisors spent the

435   least amount of time discussing multicultural issues if their supervisee was white and more time

436   if their supervisee was a minority (Hird et al., 2004). One conclusion is that minorities must

437   navigate multicultural issues as an everyday reality, thus adding to the burden of gaining clinical

438   experience (Hird et al., 2004). Explicitly, minorities may be perceived as having more

439   difficulties in clinical settings, even though the underlying issue is underrepresentation, such that

440   clinical supervision methods and perceptions of clinical competency are based on the dominant

441   majority alone (Buchanan & Wiklund, 2020). While these findings are from psychology, they

442   highlight one way in which clinical experience may create bias.

443   *Summary*

444   In all, teamwork experience, clinical experience, and research experience may have

445   limited utility in admissions if they are used as gatekeeping mechanisms and considered in the

446   absence of applicant background. As Figure 1 shows, there are many steps in the application

447   process, such that application materials may or may not truly reflect applicant characteristics and

448   criteria ratings may or may not correspond to explicit admissions decisions. How do admissions

449   committees interpret applicants of diverse backgrounds using holistic review criteria? In the

450   section that follows, we propose a methodology for exploring this question.

451   **Vignettes as a Research Methodology**

452   Vignettes, or information in a narrative paragraph format, are an emerging method for

453   probing real-world decision-making. Medicine, speech-language pathology, academic reviewing,

454   and admissions have used vignettes to examine the decision-making practices of gatekeepers as

455   related to quality of care (i.e., the series of decisions that lead to improved outcomes) and

456   evaluation in higher education contexts. We suggest that the admissions decisions brought about

457   by holistic review are akin to quality of care, in that they may to lead to improved program

458   outcomes (AAMC, 2010, 2014).

459   *Quality of Care*

460   In Peabody et al. (2000), physicians read eight vignettes and made decisions, with the

461   outcome being quality of care. The study manipulated vignettes for clinical symptomatology and

462   presented them in a simple or complex clinical scenario. In measuring quality of care, or the

463   "goodness" of decision-making, versus patient outcomes, this study removed the potential

464   confounds of characteristics beyond the control of individual practitioners (e.g., underlying

465   conditions), to isolate the role of practitioner knowledge. Importantly, findings showed that

466   quality of care as measured by the vignettes was closer to the quality of care as measured by

467   standardized patients (i.e., the gold standard in medicine) than chart abstraction (i.e., a report of

468   diagnostic information).

469   Selin and colleagues (2019) expanded upon this methodology to explore quality of care

470   in the context of SLP clinical decision-making practices for children with specific language

471   impairment (SLI). As in Peabody et al. (2000), the study manipulated clinical symptomatology

472   across vignettes and removed confounds of characteristics beyond the control of individual SLPs

473   (e.g., workplace policies for eligibility) by instructing respondents to use only best professional

474   judgment and to assume neutral workplace conditions. While all children in the vignettes had

475   SLI, their characteristics were specified at impaired, borderline, or typical levels or not specified.

476   This structure allowed for the examination of both child and SLP characteristics. Findings

477   revealed SLPs identified children with SLI for services at higher rates than reported in the

478   literature, thus indicating a higher quality of care than in actuality. In all, vignettes may be an

479   effective method for understanding the role of individuals in decision-making practices.

480   *Evaluation in Higher Education Contexts*

481   Politzer-Ahles and colleagues (2020) used vignettes to explore how faculty and Ph.D.

482   students in communication sciences and disorders evaluate academic writing. The study

483   manipulated conference abstracts to vary along one parameter: whether they conformed or not to

484   international academic English. Respondents rated the vignettes using criteria, such as scientific

485   quality and clarity of writing. Results showed that the abstract written in language that

486   conformed less to international academic English received lower ratings of scientific quality than

487   the abstract written in language that conformed to international academic English, despite having

488   identical substantive content. Hence, vignettes may be useful for evaluating how those in

489   communication sciences and disorders interpret and evaluate criteria across diverse contexts.

490   Turning to admissions, Bastedo and colleagues (2018) used vignettes to explore

491   explore the decision-making practices of undergraduate admissions officers. Respondents made

492   admissions decisions using full hypothetical admissions files for applicants who were of the

493   same race, ethnicity, gender, college, and major, but varied in their coursework, educational

494   background, and academic metrics (i.e., grades and test scores). Two came from an upper

495   middle-class high school with a strong or less strong academic background. The third came from

496   a lower-SES high school with the least strong academic background and had fewer opportunities

497   in their academic environment. Respondents made decisions under one of two conditions:

498   limited information or detailed information to contextualize their performance. Findings revealed

499   that providing context on applicant background resulted in a higher admissions rate and that

500   respondents who considered not only academic performance, but also personal characteristics

501   and applicant background were more likely to admit the applicant from the low-SES background.

502   Thus, utilizing hypothetical profiles of applicants as vignettes may be informative for

503   understanding evaluation of applicants using holistic review criteria.

504   **The Current Study**

505   Taking together what is known about holistic review and vignettes as a methodology,

506   the present study explored the evaluation of applicants <u>along criteria used during holistic review</u>.

507   To isolate the role of individual interpretation in evaluation, respondents completed vignette

508   items under neutral conditions (i.e., using only best professional judgment, assuming the

509   application was complete, and evaluating the applicant as is). Thus, the research questions were:

510   1. <u>Considering criteria used during holistic review</u>, are applicants from culturally and

511   linguistically diverse backgrounds less likely to be accepted into master's speech-

512   language pathology programs than peers from dominant backgrounds?

513   2. Do applicant ratings predict admissions decisions?

Method

515   **Ethics**

516   The Institutional Review Board at the Hong Kong Polytechnic University approved

517   this study. Methods for the experiment were pre-registered at https://osf.io/5ygzw. We report any

518   analyses that deviate from the primary analyses of the pre-registration as exploratory.

519   **Sampling Procedures**

520   To recruit a broadly representative respondent base, recruitment included posting

521   information inviting study participation online in national professional groups: ASHA Students

522   to Empowered Professionals Board; ASHA Special Interest Groups 1 (Language Learning &

523   Education), 10 (Academic Affairs), and 14 (Multiculturalism) discussion boards, and social

524   media groups, such as Clinical Research for SLPs on Facebook. Data collection took place

525   online from mid-July 2020 to mid-September 2020 on Qualtrics (http://www.qualtrics.com).

526   Respondents elected whether to participate by reading an information statement, indicating

527   consent, and completing the survey with the ability to stop and return to it over a two-week

528   period. There was no compensation for participation.

529   The target sample size was 100 to 200 participants. This sample size was based on

530   previous research in speech-language-hearing (Selin et al., 2019) using similar methodologies.

531   The stopping rule was to collect data until the survey had 100 completed observations. If data

532   collection yielded over 10 responses per week, the survey would stay open until 200 responses

533   were collected. However, if data collection yielded less than 10 responses per week across a two-

534   week period, the survey would close. Here, responses decreased to six responses in the

535   penultimate week of data collection and one response in the ultimate week of data collection.

536   Given that data collection took place during the Covid-19 pandemic and participants did not

537   receive compensation, the authors determined reaching the target sample size was unlikely and

538   ceased data collection when the survey had 66 responses. Of those 66 participants, 53 completed

539   the first block (demographics), and 35 completed the survey. Inspection of the data did not

540   suggest that any particular variables influenced attrition.

541   **Participant Characteristics**

542   To participate in this study, respondents had to be a faculty member, Ph.D. student, or

543   Ph.D. candidate at an accredited program for speech-language pathology or equivalent (e.g.,

544   communication science and disorders) in the United States. The study included Ph.D. students

545   and candidates, because they are likely to become faculty and serve on admissions committees.

546   There were no restrictions based on demographic characteristics. As seen in Table 1, participant

547   demographics were consistent with ASHA demographics. Participants were mostly Caucasian,

548   non-Hispanic, and women. About half held a research doctoral degree, and about half held a

549   master's degree. There was diversity in current positions, with the most common being a Ph.D.

550   student or candidate, an associate professor or equivalent, and an assistant professor or

551   equivalent. Over two-thirds served on a master's admissions board.

552   **Instrument**

553   The authors developed and piloted the survey with Ph.D. candidates and faculty in

554   speech-language pathology. Pilot testers provided feedback that informed survey revision, with

555   key considerations being survey length and providing definitions for holistic admissions criteria.

556   Participants completed an online survey (see Appendix) implemented in Qualtrics. To respect

557   privacy, respondents did not provide institution-specific information.

558   In the main portion of the survey, participants read six vignettes describing hypothetical

559   applicants. Prior to the vignettes, the survey instructed respondents to use their best professional

560   judgment to evaluate each applicant as is, under the assumption that each applicant had a

561   complete application and that there was no applicant interview or other available information.

562   The survey included definitions of each criterion for use in applicant ratings from the University

563   of Kansas Department Intercampus Program in Communicative Disorders (2018). After reading

564   this information, the survey presented six vignettes.

565   To avoid bias, the vignettes used initials and did not specify gender, race, or ethnicity

566   (Bertrand & Mullainathan, 2004; Milkman et al., 2015; Simonsohn, 2015). Further, to control for

567   order effects, respondents read and rated vignettes in a randomized order. As seen in Table 2,

568   indicators of seven criteria from a holistic review framework were conceptualized at a low,

569   moderate, or high level. GPA scores for each level were based on findings about GPA for

570   master's programs in communication science and disorders from the research literature (Koay et

571   al., 2016; Polovoy, 2014; Sylvan et al., 2020). As seen in Table 3, the authors systematically

572   manipulated indicators of these criteria across vignettes, such that applicants varied by level and

573   specification (i.e., specified or not specified, meaning that information was not provided). Not

574   specifying information allowed for the opportunity to examine default judgments.

575   For example, applicant A.B. graduated from a private college with a 3.8 GPA. Their

576   resume showed that they worked as a Teaching Assistant for one semester and had an internship

577   with the general counsel of General Electric Corporate. Thus, indicators of their academic ability

578   and preparation (i.e., GPA and previous professional experience) were high. Further, in their

579   essay, A.B. wrote about growing up in an ethnic enclave. Because they did not specify whether

580   this experience entailed working with people from backgrounds different from their own,

581   indicators of their cultural and linguistic diversity were low. Their letters of recommendation

582   came from three professors, one of whom supervised the student in their work as a teaching

583   assistant. The professors reported that the student wrote well for assignments and produced

584   comprehensive reports and client plans in clinic. Therefore, indicators of their analytical skills

585   (i.e., academic writing) were high. Yet, the professor also reported they rarely participated in

586   groupwork in class. Thus, indicators of their interpersonal skills (i.e., teamwork) were low.

587   Further, the supervising professor wrote that the student could be hard to reach and received

588   below average student ratings, indicating their communication skills and potential for leadership

589   were low. Given the mixed findings (i.e., produced comprehensive plans, worked as a teaching

590   assistant, and difficult to reach), indicators of their potential for professionalism were moderate.

591   After reading each vignette, respondents rated the applicant on criteria using a five-point

592   Likert scale from weak to very strong: (a) academic ability and preparation; (b) communication

593   skills; (c) interpersonal skills; (d) analytical skills; (e) potential for professionalism; (f) potential

594   for leadership, and; (g) cultural and linguistic diversity. Respondents also selected an explicit

595   admissions decision as admit, waitlist, or reject. To maximize the likelihood of capturing first

596   impressions, respondents could not return to previous vignettes and post-hoc change answers.

597   In addition to the vignettes, participants also answered questions about their own

598   demographic background and professional background. Demographic items included race and

599   ethnicity using categories from the National Institutes of Health, as well as gender. Professional

600   background items included education level, current position, current experience on a master's

601   admissions board for speech-language pathology or related programs, current experience on

602   other admissions boards for speech-language pathology or related programs, and factors in

603   applicant reviewal. Respondents could select multiple options from a list of factors in applicant

604   reviewal. To prevent bias in responses, as the survey never explicitly stated the questions under

605   review, professional background items (c)-(e) came after the vignettes. The demographic items

606   and professional background items (a) and (b) came before the vignettes.

607   **Measures**

608   The key dependent variable was whether or not the applicant is accepted (i.e., whether

609   they are in the top 50% of applicants) by a given respondent. This was calculated on a per-

610   respondent basis. In other words, for each respondent, the five-point Likert scale ratings across

611   seven criteria were averaged into one number for each applicant, and then within that respondent,

612   the six applicants were ranked. The top three applicants were considered "accepted" by that

613   respondent, and the bottom three as "not accepted." Thus, each applicant-respondent pair has an

614   "accept" or "not accept" decision. This cutoff was determined by information from an actual

615   accredited program in speech-language pathology which accepts the top 40% to 50% of

616   applicants. Because it is a highly ranked program, the current study adopted a 50% cutoff.

617   **Analytic Strategy**

618   Incomplete surveys were excluded from analysis. To compare the likelihood of

619   acceptance for the applicant from the dominant background to that of the applicants from other

620   backgrounds, the analytic plan was to dummy-code applicants (with "0" for students from non-

621   dominant backgrounds and "1" for the student from a dominant background) and regress

622   acceptance on applicant background using the following generalized (logistic) mixed effects

623   model: glmer(Acceptance ~ 0+Background|Rater), data, family="binomial"). The random

624   effects in this model fit a different effect of Background (i.e., difference between the dominant

625   background applicant and the others) for each rater, but do not fit different intercepts for each

626   rater. Secondary analyses included comparison of the likelihood of acceptance for the applicant

627   from the dominant background to that for each other applicant. Exploratory analyses included

628   descriptive analysis of likelihood of acceptance between respondent groups, which were

629   determined by self-reported consideration of factors in admissions. Following Bastedo and

630   colleagues (2018), respondents who selected "application file," "unique characteristics," "family

631   background," and "educational background" were coded as "whole context," and those who did

632   not were coded as "not whole context." In addition, exploratory analyses also included

633   descriptive analysis of likelihood of acceptance by criteria.

634   **Results**

635   We report preliminary findings of how respondents, or faculty and doctoral students in

636   communication sciences and disorders, ranked and made explicit admissions decisions (i.e.,

637   admit, waitlist, reject) for hypothetical applicants presented in vignettes. Again, respondents

638   rated hypothetical applicants along seven criteria used during holistic review from an actual

639   program.

640   **Applicants of Varying Indicator Levels for Criteria Were Lower Ranked**

641   Figure 2 shows, for each applicant, the proportion of respondents who ranked this

642   applicant among their top three, alongside the proportion of respondents who gave the applicant

643   an explicit "accept" decision. Applicant F.G. was far more likely to be accepted than the others.

644   In fact, every rater ranked this applicant among their top three. This situation rendered our

645   planned statistical analysis moot, as logistic regression is not possible when one condition has

646   100% of one kind of response, since the logit function is undefined for proportions of 0% or

647   100%. Nevertheless, the results support the conclusion that the applicant from the stereotypically

648   "successful" background, who had a high indicator level for all criteria except for cultural and

649   linguistic diversity, was more likely to be accepted than the applicants of varying backgrounds –

650   who also had moderate or high indicator levels for cultural and linguistic diversity. Although our

651   results do not prove cultural and linguistic diversity influenced the likelihood of acceptance

652   across vignettes, they do suggest that likelihood of acceptance varied *by* it. This is because CLD

653   background is confounded with other factors in this dataset. While applicant F.G. had the highest

654   GPA, which is an important criterion in admissions decisions for master's programs in speech-

655   language pathology (Guiberson & Vigil, 2020), and high indicator levels for other criteria, all

656   other applicants varied significantly more in their indicator levels (see Table 2 for details).

657   **Holistic Review Approaches and Criteria**

658   As an additional exploration, we examined whether respondents who reported using

659   a whole context approach (i.e., considered applicant file, personal characteristics and educational

660   and family background) yielded different admission outcomes (as a function of ratings that

661   translated into individual rankings) than respondents who reported using a whole file (i.e.,

662   considered applicant file) or whole person (i.e., considered applicant file plus personal

663   characteristics) approach. As shown in Figure 3, the three candidates who generally received

664   lower rankings (A.B., B.C., and C.D.) were slightly more likely to be accepted by whole-context

665   raters than by raters who did not take a whole-context approach. This effect was more

666   pronounced in candidate E.F. Recall from Figure 2 that candidate E.F. received a fairly good

667   ranking (and thus high likelihood of acceptance when acceptance was determined by ranking)

668   but did not receive many explicit "accept" decisions. It appears that high rankings for E.F. were

669   especially driven by raters who embodied a whole-context approach. The only candidate who

670   received a worse ranking from whole-context raters than other raters was D.E.

671   Finally, we examined the relationship between the other properties of the candidate

672   described in each vignette (see Table 2) and the candidate's likelihood of acceptance. It was not

673   possible to analyze these data with regression, given the abovementioned problem (i.e., cells

674   with 100% or 0% acceptance), the small amount of data overall, and the repeated-measures

675   nature of the data (which preclude using a simple logistic regression and necessitate a mixed-

676   effects logistic regression, which is difficult to get to converge without a large amount of data in

677   each cell). Without regression, it is impossible to attribute increases or decreases in acceptance

678   likelihood to any particular factor, since many of these factors are confounded. Nevertheless,

679   some tentative trends can be noted from Figure 4. This figure shows, for each factor, how likely

680   applicants were to be accepted as a function of how much of that factor they had. For example,

681   the solid red line for "academic ability" shows that applicants whose academic ability was not

682   specified (i.e., not described) in their vignette had a very low probability of being accepted. In

683   contrast, applicants whose indicators of academic ability were "low" or "high" had about a 60%

684   chance of being accepted, and applicants whose indicators of academic ability were "medium"

685   had about a 40% chance of being accepted. It can be seen from the figure that indicator levels of

686   communication skills were fairly strongly associated with the outcomes; applicants whose

687   communication skills were not described had a very low chance of acceptance, and applicants

688   whose indicators of communication skills were "high" had a very high chance of acceptance.

689   The biggest predictors of acceptance appear to be having indicators of communication and

690   potential for professionalism at a high level. As shown in Table 2, these are precisely the

691   indicator levels that the applicant F.G. had for these two criteria and the other applicants did not.

692   **Discussion**

693   This study explored how faculty and doctoral candidates rated vignettes of applicants to

694   master's programs in speech-language pathology. Respondents were likely to rank applicants

695   varying in levels of indicators of criteria lower than the applicant who was "high" across all

696   indicators except for cultural and linguistic diversity. Respondents were also more likely to make

697   an explicit "accept" decision for the latter applicant.

698   **Equity in Admissions**

699   Overall, the applicants in the vignettes reflected the real-world complexity of applicants.

700   We manipulated vignettes to vary in the indicators of holistic review criteria that admissions

701   committees use to evaluate applicants: academic ability and preparation, communication skills,

702   cultural and linguistic diversity, interpersonal skills, analytical skills, potential for

703   professionalism, and potential for leadership. Cultural and linguistic diversity was not

704   manipulated independently from other factors; we did not compare applicants who were

705   maximally similar other than their cultural and linguistic background.

706   A potential criticism of this study could be that if A.B. through E.F. received lower

707   ratings than F.G., that could have occurred because of other factors (e.g., they had "weaker"

708   applications) rather than because of their CLD background. That argument, however,

709   presupposes that the goal of admissions should be for committees to ensure applicants with an

710   *equal* demonstration of indicators of academic ability get equal admissions outcomes. We are

711   approaching the problem, however, from an anti-deficit and systemic perspective (AAMC, 2013;

712   Urban Universities for Health, 2016). In holistic review, committees should take on the

713   responsibility of creating an environment that honors and respects applicants' backgrounds,

714   including potential for growth, in their evaluation systems. This necessarily includes admissions

715   and extends to ongoing evaluation of students in the program (AAMC, 2013).

716   In practice, being of a CLD background is often confounded with many of the indicators

717   that committees evaluate – not because students from CLD backgrounds are weaker, but because

718   of structural inequities which often set up students from dominant backgrounds with more

719   chances to show their academic ability, leadership potential, and other characteristics that

720   graduate admissions committees tend to recognize (Kendi, 2020; McGlynn, 2017). Thus, if one

721   makes the assumption that students from CLD backgrounds often face structural barriers that

722   students from non-CLD backgrounds do not, and thus that a CLD student who is just as qualified

723   as a comparable non-CLD student may nevertheless appear weaker along certain indicators

724   (Bleske-Recheck & Browne, 2014; Fuse, 2018; Michel, 2019), then a goal of admissions

725   committees should *not* be to achieve admissions outcomes that are blind to an applicants'

726   background. Rather, the goal should be to create equitable admissions policies that work against

727   inequitable outcomes (Powell, 2012). This may mean ranking an applicant of a CLD background

728   higher than a non-CLD applicant with comparable or slightly higher ratings on personal

729   characteristics, such as academic achievement or potential for leadership. which structurally

730   favor applicants from dominant backgrounds. As per Bastedo and colleagues (2018), such a

731   ranking would reflect an appreciation of applicant academic and family background. Under such

732   a view, demonstrating that holistic admissions is effective would not require showing that a CLD

733   applicant gets the same (i.e., equal) outcome as a maximally similar non-CLD applicant; that is

734   why we did not manipulate CLD status independently of other personal characteristics.

735   To be clear, this study does not assume that all CLD applicants are lower on criteria than

736   their peers from dominant backgrounds, nor does it argue that all reviewers are not culturally

737   responsive. Our argument is that, in light of empirical evidence documenting the systemic

738   barriers that CLD students are likely to face, admissions committees risk evaluating them as

739   lower on criteria if they do not proactively plan for <u>just</u> interpretation and use of application

740   materials and indicators of applicant quality (Messick, 1989). At the same time, admissions

741   committee members are diverse themselves with respect to their evaluation of applicants

742   (Bastedo et al., 2018). Here, the fact that the highest likelihood of acceptance occurred when

743   indicators of all applicant characteristics except for cultural and linguistic diversity were high,

744   which only F.G. had, may or may not be coincidental. As individuals who have succeeded in the

745   field of speech-language-hearing, respondents may have been predisposed to favor those who

746   were similar (Rogus-Pulia et al., 2018; Wilson et al., 2019). Respondents may have more

747   positively ranked applicants where they felt they could identify "success", which may be tied to

748   how well indicators of applicant characteristics conformed to their own backgrounds.

749   **<u>Recommendations for Graduate Admissions Processes Using Holistic Review</u>**

750   In full holistic review, the time commitment required for evaluation of all application

751   components is significant. <u>The preliminary results of this study suggest that at least one step of a</u>

752   <u>holistic review process (i.e., ratings of criteria in applicants and subsequent ranking) may face</u>

753   <u>challenges, to recognizing excellence across diverse applicant profiles. Nevertheless, with</u>

754   <u>careful development and implementation, holistic review processes may increase diversity – and</u>

755   <u>ultimately, educational excellence – without a substantial workload increase for admissions</u>

756   <u>committees (Wilson et al., 2019). General recommendations from holistic admissions in the</u>

757   <u>health professions include creating an admissions mission statement that includes diversity and</u>

758   <u>balancing academic and non-academic criteria in initial screening of applicants (Artinian et al.,</u>

759   2017). Here we offer CSD-specific recommendations for programs seeking to develop effective

760   holistic review processes in graduate admissions.

761   First, considering that applicant ratings in this study favored the applicant many

762   committees would consider to be the most traditionally successful, admissions committees may

763   have to pursue training to learn about diversity, how to assess characteristics and barriers across

764   diverse cultures, and about their own biases (AAMC, 2020; Michel et al., 2019; Zerwic et al.,

765   2018). However, learning about bias alone is insufficient. To actually counter bias, effective

766   steps include having faculty panels which include faculty of diverse backgrounds (or faculty who

767   recognize excellence across diverse backgrounds) review materials, proactively planning an

768   order in which application materials will be reviewed, and implementing candidate interviews

769   (Okahana et al., 2018).

770   Second, given the broader issue of underrepresentation among CSD faculty, programs

771   might consider bringing in CLD alumni to serve as interviewers or advisory board members

772   coaching admissions committees on how to mitigate bias in their decision-making structures and

773   processes (Okahana et al., 2018). Just as CLD faculty may be effective in mentoring CLD

774   students in speech-language pathology (Saenz, 2000), CLD alumni may be effective in

775   interviewing applicants, while also helping to not over-burden minority faculty, who are

776   oftentimes very few and asked to represent all minority groups (Addams et al., 2010). Further,

777   CLD interviewers may be more likely to recognize the barriers that CLD students often face

778   through their own experiences. For example, a CLD mentee shared with one of the authors that

779   they received a low grade in a clinical course. Knowing the student was insightful with cross-

780   cultural perspectives, the mentor probed for more information. It became evident that their

781   training did not include information on the cultural norms or expectations for clinical

782   interactions. Thus, the CLD student had to: (a) figure out that there were cultural norms that

783   differed from their own background, (b) what those norms were, and (c) how to acquire this

784   additional set of norms before even approaching clinical training itself. In contrast, their peers of

785   dominant backgrounds were able to bypass (a) through (c) and focus on clinical training. This

786   instantiated example runs counter to narratives, such as that of Ebert and Kohnert (2010), which

787   proposes personality traits drive clinical competence. Such a narrative suggests clinical

788   competence is, to some extent, fixed and may yield racialized outcomes (Canning et al., 2019;

789   Powell, 2012).

790   Third, programs aiming to implement holistic review must consider not only their

791   admissions processes, but their overall structure to ensure students graduate and advance in the

792   field of speech-language pathology. If the aim is to truly diversify the profession in an

793   intersectional way (Buchanan & Wiklund, 2020; Crenshaw, 1989), programs must also re-

794   evaluate and revise their ideas of excellence, outcomes, and supports from pre-admissions to

795   post-graduation. For example, if a program outcome, such as passing the Praxis, stands alone

796   without supports in place to ensure students of all backgrounds have a fair opportunity at passing

797   the Praxis, then CLD students and students of marginalized backgrounds may face additional

798   challenges in entering the profession even if they receive admissions offers. Similarly, programs

799   must proactively plan for how they will meaningfully support students throughout their time in

800   the program (Girolamo & Ghali, in press). One example of a support relevant to re-envisioning

801   excellence is inclusive teaching, such that students of all backgrounds have opportunities to

802   acquire and demonstrate academic and clinical excellence.

803   **Limitations**

804   The present study had several limitations. First, the sample size was well below the target

805   sample size. Since data collection took place during the Covid-19 pandemic and a period of

806   civil unrest in the United States, potential participants may have had less availability for study

807   participation or received an influx of invitations to participate in such studies. While the small

808   sample size limits the precision of the estimates of the effect sizes we examined, we believe the

809   findings are still useful as a preliminary demonstration of how evaluators use holistic review

810   criteria, and we hope future studies will contribute more data to further clarify these patterns.

811   Second, presenting applicant characteristics in vignettes may differ from what admissions

812   committee members view in reality. Clearly, admissions committees complete many more steps

813   of holistic review, and thus, evaluate applicants at each step of the process: screening, interviews,

814   and selection of applicants for offers of admission. However, we pursued this methodology given

815   the aim of conducting an exploratory investigation of holistic review criteria in master's speech-

816   language pathology programs, evidence of vignettes as a valid measure of real-world decision-

817   making behavior, and constraints on survey length to encourage completion.

818   **Future Directions**

819   This study highlights the need for future research on holistic review in speech-language

820   pathology. One direction entails evaluating breakdown in holistic review in terms of diversity. A

821   future study might implement the approach of Bastedo et al. (2018), which employed a survey

822   questionnaire with full hypothetical application files plus interviews. If holistic review fails to

823   diversify accepted applicants, it would be useful to examine which steps of the process do or do

824   not work. In a situation like the one our study mimicked, in which respondents reviewed brief

825   profiles, problems may occur not in the way the committee evaluates the vignettes, but in how

826   committee members construct profiles based on the application materials in the first place. One

827   aim of holistic review is to consider the whole context, such that strengths in some areas may

828   offset weaknesses in other areas (Wilson et al., 2019). Further work is needed to understand how

829   interpretation of applicant criteria plays out at each step, and evaluating holistic review models,

830   perhaps using the model from AAMC (2010), may inform this area (Okahana et al., 2018).

831   Future research could also explore what practices support admissions committees in considering

832   an applicant's personal characteristics plus background. Evidence from biosciences and nursing

833   suggests that training members for admissions committees on holistic review, as well as on the

834   interpretation and use of master's application materials, is effective at increasing diversity

835   (Addams et al., 2010; Okahana et al., 2018; Urban Universities for Health, 2016; Wilson et al.,

836   2019; Zerwic et al., 2018). However, training efficacy has yet to be tested in speech-language

837   pathology.

838   **A Final Note: Measurement and Merit**

839   This study underlined the need to critically question admissions processes, even if they

840   sound promising. Following AAMC (2013), we must consider the fundamental principles of

841   holistic review in the context of speech-language pathology. What constructs, or personal

842   characteristics, should admissions committees measure? How should committees measure these

843   characteristics? If committees use an evaluation system where characteristics are treated as fixed

844   (e.g., Canning et al., 2019; Ebert & Kohnert, 2010), rather than ones which are socially situated,

845   may or may not indicate excellence, or which could be cultivated through academic and clinical

846   training, does this create or hinder excellence in the profession? Finally, who are our admissions

847   systems built for and not built for? As Mandulak (2021) noted, "the resistance and difficulty with

848   change, with respect to…assumptions about merit and achievement may be so well-entrenched

849   in our processes within our programs" (p. 4). To achieve excellence for our profession, we must

850   reshape not only our notions of merit, but also restructure our systems to be for all students.

855   **References**

856   Albanese, M. A., Snow, M. H., Skochelak, S. E., Huggett, K. N., & Farrell, P. M. (2003).

857   Assessing personal qualities in medical school admissions. *Academic Medicine*, *78*(3),

858   313-321.

859   American Speech-Language-Hearing Association. (2020a). *Demographic profile of ASHA*

860   *members providing bilingual services, year-end 2019*.

861   https://www.asha.org/siteassets/uploadedfiles/Demographic-Profile-Bilingual-Spanish-

862   Service-Members.pdf

863   American Speech-Language-Hearing Association. (2020b). *Profile of ASHA members and*

864   *affiliates with PhDs, year-end 2019*. https://www.asha.org/siteassets/uploadedfiles/2019-

865   Year-End-Counts-PhD-Tables.pdf

866   Anderson, H. S., Hayes, S. L., Massey, N. M., & Brownell, J. R. (2017). Potential predictors of

867   success in a speech-language pathology graduate program. *American Association of*

868   *University Administrators*, *32*(1), 101-114.

869   Artinian, N. T., Drees, B. M., Glazer, G., Harris, K., Kaufman, L. S., Lopez, N., Danek, J. C., &

870   Michaels, J. (2017). Holistic admissions in the health professions: Strategies for

871   leaders. *College and University: The Journal of the American Association of Collegiate*

872   *Registrars*, *92*(2), 65. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5708588/

873   Artino Jr, A. R., Gilliland, W. R., Waechter, D. M., Cruess, D., Calloway, M., & Durning, S. J.

874   (2012). Does self- reported clinical experience predict performance in medical school

875   and

876   internship?. *Medical Education*, *46*(2), 172-178. https://doi.org/10.1111/j.1365-

877   2923.2011.04080.x

878   Association of American Medical Colleges. (2010). *Roadmap to diversity: Integrating holistic*

879   *review practices into medical school admission processes*.

880   https://store.aamc.org/downloadable/download/sample/sample_id/195/

881   Association of American Medical Colleges. (2013). *Roadmap to excellence: Key concepts for*

882   *evaluating the impact of medical school holistic admissions*.

883   https://store.aamc.org/downloadable/download/sample/sample_id/198/

884   Association of American Medical Colleges. (2014). *Roadmap to diversity and educational*

885   *excellence: Key legal and educational policy foundations for medical schools*.

886   https://store.aamc.org/downloadable/download/sample/sample_id/192/

887   Association of American Medical Colleges. (2020). *Holistic considerations in light of the*

888   *intersections of Covid-19, racism, and inequality*.

889   https://www.aamc.org/services/member-capacity-building/holistic-review#covid-19

890   Association of American Medical Colleges. (2021). *Holistic review*.

891   https://www.aamc.org/services/member-capacity-building/holistic-review

892   Baggs, T., Barnett, D., & McCullough, K. (2015). The value of traditional cognitive variables for

893   predicting performance in graduate speech-language pathology programs. *Journal of*

894   *Allied Health*, *44*(1), 10-16.

895   Bastedo, M. N., Bowman, N. A., Glasener, K. M., & Kelly, J. L. (2018). What are we talking

896   about when we talk about holistic review? Selective college admissions and its effects on

897   low-SES students. *The Journal of Higher Education*, *89*(5), 782-805.

898   https://doi.org/10.1080/00221546.2018.1442633

899   Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha

900   and Jamal? A field experiment on labor market discrimination. *American Economic*

901   *Review*, *94*(4), 991-1013. https://doi.org/10.1257/0002828042002561

902   Black, S. E., Cortes, K. E., & Lincove, J. A. (2015). Academic undermatching of high-achieving

903   minority students: Evidence from race-neutral and holistic admissions policies. *American*

904   *Economic Review*, *105*(5), 604-10. http://dx.doi.org/10.1257/aer.p20151114

905   Bleske-Rechek, A., & Browne, K. (2014). Trends in GRE scores and graduate enrollments by

906   gender and ethnicity. *Intelligence*, *46*, 25–34. https://doi.org/10.1016/j.intell.2014.05.005

907   Boles, L. (2018). Predicting graduate school success in a speech-language pathology program.

908   *Teaching and Learning in Communication Sciences & Disorders*, *2*(2), 1.

909   https://doi.org/10.30707/TLCSD2.2Boles

910   Boske, C., Elue, C., Osanloo, A. F., & Newcomb, W. S. (2018). Promoting inclusive holistic

911   graduate admissions in educational leadership preparation programs. *Frontiers in*

912   *Education*, *3*. https://doi.org/10.3389/feduc.2018.00017

913   Bowman, N. A., & Bastedo, M. N. (2018). What role may admissions office diversity and

914   practices play in equitable decisions? *Research in Higher Education*, *59*(4), 430-447.

915   https://doi.org/10.1007/s11162-017-9468-9

916   Buchanan, N. T., & Wiklund, L. O. (2020). Why Clinical Science Must Change or Die:

917   Integrating Intersectionality and Social Justice. *Women & Therapy*, *43*(3-4), 309-329,

918   https://doi.org/10.1080/02703149.2020.1729470

919   Cahn, P. S. (2015). Do health professions graduate programs increase diversity by not requiring

920   the graduate record examination for admission?. *Journal of Allied Health*, *44*(1), 51-56.

921 Callahan, J. L., Smotherman, J. M., Dziurzynski, K. E., Love, P. K., Kilmer, E. D., Niemann, Y.

922   F., & Ruggero, C. J. (2018). Diversity in the professional psychology training-to-

923   workforce pipeline: Results from doctoral psychology student population data. *Training*

924   *and Education in Professional Psychology*, *12*(4), 273.

925   https://psycnet.apa.org/doi/10.1037/tep0000203

926 Canning, E. A., Muenks, K., Green, D. J., & Murphy, M. C. (2019). STEM faculty who believe

927   ability is fixed have larger racial achievement gaps and inspire less student motivation in

928   their classes. *Science Advances*, *5*(2), eaau4734. https://doi.org/10.1126/sciadv.aau4734

929 Chakraborty, R., Schwarz, A. L., & Vaughan, P. (2019). Speech-Language Pathologists'

930   Perceptions of Nonnative Accent: A Pilot Study. *Perspectives of the ASHA Special*

931   *Interest Groups*, *4*(6), 1601-1611. https://doi.org/10.1044/2019_PERS-SIG17-2019-

932   0030

933 Council of Academic Programs in Communication Sciences and Disorders & American Speech-

934   Language-Hearing Association (2020). *Communication sciences and disorders (CSD)*

935   *education survey: National aggregate data report, 2018-2019 academic year*.

936   https://www.asha.org/uploadedFiles/CSD-Education-Survey-National-Aggregate-Data-

937   Report.pdf

938 Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique

939   of antidiscrimination doctrine, feminist theory and antiracist politics. *University of*

940   *Chicago Legal Forum*, *1*, 139-167.

941 Dvorakova, A. (2019). Relational individuality among Native American academics: Popular

942   dichotomies reconsidered. *Culture & Psychology*, *25*(1), 75-98.

943   https://doi.org/10.1177/1354067X18763799

944   Ebert, K. D., & Kohnert, K. (2010). Common factors in speech-language treatment: An

945   exploratory study of effective clinicians. *Journal of Communication Disorders*, *43*(2),

946   133-147. https://doi.org/10.1016/j.jcomdis.2009.12.002

947   Educational Testing Service. (2019). *A snapshot of the individuals who took the GRE General*

948   *Test: July 2014-June 2019*. https://www.ets.org/gre/snapshot

949   El-Banna, M. M., Briggs, L. A., Leslie, M. S., Athey, E. K., Pericak, A., Falk, N. L., & Greene,

950   J. (2015). Does Prior RN Clinical Experience Predict Academic Success in Graduate

951   Nurse Practitioner Programs?. *Journal of Nursing Education*, *54*(5), 276-280.

952   https://doi.org/10.3928/01484834-20150417-05

953   Forrest, K., & Naremore, R. C. (1998). Analysis of criteria for graduate admissions in speech-

954   language pathology: Predictive utility of application materials. *American Journal of*

955   *Speech-Language Pathology*, *7*(4), 57-61. https://doi.org/10.1044/1058-0360.0704.57

956   Fuse, A. (2018). Needs of students seeking careers in communication sciences and disorders and

957   barriers to their success. *Journal of Communication Disorders*, *72*, 40-53.

958   https://doi.org/10.1016/j.jcomdis.2018.02.003

959   Fuse, A., & Bergen, M. (2018). The Role of Support Systems for Success of Underrepresented

960   Students in Communication Sciences and Disorders. *Teaching and Learning in*

961   *Communication Sciences & Disorders*, *2*(3), 3. https://doi.org/10.30707/TLCSD2.3Fuse

962   Gershenson, S., & Papageorge, N. (2018). The power of teacher expectations: How racial bias

963   hinders student attainment. *Education Next*, *18*(1), 64-71.

964   https://www.educationnext.org/power-of-teacher-expectations-racial-bias-hinders-

965   student-attainment/

966   Girolamo, T., & Ghali, S. (in press). Developing, implementing, and learning from a student-led

967   initiative to support minority students in communication sciences and disorders.

968   *Perspectives of the ASHA Special Interest Groups.*

969   Glazer, G., Danek, J., Michaels, J., Bankston, K., Fair, M., Johnson, S., & Nivet, M. (2014).

970   *Holistic admissions in the health professions: Findings from a national survey*. Urban

971   Universities for HEALTH. https://urbanuniversitiesforhealth.org/media/documents/

972   Holistic_Admissions_in_the_Health_Professions_final.pdf

973   Guffey, J. S., Farris, J. W., Aldridge, R., & Thomas, T. (2002). An evaluation of the usefulness

974   of noncognitive variables as predictors of scores on the national physical therapy

975   licensing examination. *Journal of Allied Health*, *31*(2), 78-86.

976   Guiberson, M., & Vigil, D. (2020). Speech-Language Pathology Graduate Admissions:

977   Implications to Diversify the Workforce. *Communication Disorders Quarterly*.

978   https://doi.org/10.1177%2F1525740120961049

979   Halberstam, B., & Redstone, F. (2005). The predictive value of admissions materials on

980   objective and subjective measures of graduate school performance in speech- language

981   pathology. *Journal of Higher Education Policy and Management*, *27*(2), 261-272.

982   https://doi.org/10.1080/13600800500120183

983   Hird, J. S., Tao, K. W., & Gloria, A. M. (2004). Examining supervisors' multicultural

984   competence in racially similar and different supervision dyads. *The Clinical

985   Supervisor*, *23*(2), 107-122. https://doi.org/10.1300/J001v23n02_07

986   Horton-Ikard, R., Muñoz, S. B., & Maria, L. (2010). Addressing multicultural issues in

987   communication sciences and disorders. *Contemporary Issues in Communication Science

988   and Disorders*, *37*(Fall), 167-173. https://doi.org/10.1044/cicsd_36_F_167

989   Houser, C., & Lemmons, K. (2018). Implicit bias in letters of recommendation for an

990   undergraduate research internship. *Journal of Further and Higher Education*, *42*(5), 585-

991   595. https://doi.org/10.1080/0309877X.2017.1301410

992   Kendi, I. X. (2020, October 21). *Public Statement by Ibram X. Kendi*. Boston Coalition for

993   Education Equity. https://www.bosedequity.org/blog/read-ibram-x-kendis-testimony-in-

994   support-of-the-working-group-recommendation-to-suspendthetest

995   Kent, J. D. and McCarthy, M. T. (2016). *Holistic review in graduate admissions: A report from*

996   *the Council of Graduate Schools*. Council of Graduate Schools.

997   https://louisville.edu/graduate/faculty-staff/directors-of-graduate-studies/spring-

998   2017/3a_3_HolisticReviewinGraduateAdmissions.pdf

999   Kjelgaard, M. M., & Guarino, A. J. (2012). Assessing clinical and academic performance in a

1000   master's level speech language pathology program: A path analysis. *Creative Education*,

1001   *3*(1), 145-148. https://doi.org/10.4236/ce.2012.31023

1002   Koay, M. E. T., Lass, N. J., Parrill, M., Naeser, D., Babin, K., Bayer, O., Cook, M., Elmore, M.,

1003   Frye, R., & Kerwood, S. (2016). Availability of pre-admission information to prospective

1004   graduate students in speech-language pathology. *Journal of Higher Education Policy and*

1005   *Management*, *38*(4), 465-476. https://doi.org/10.1080/1360080X.2016.1182671

1006   Kuncel, N. R., Kochevar, R. J., & Ones, D. S. (2014). A meta- analysis of letters of

1007   recommendation in college and graduate admissions: Reasons for hope. *International*

1008   *Journal of Selection and Assessment*, *22*(1), 101-107. https://doi.org/10.1111/ijsa.12060

1009   Leslie, S. J., Cimpian, A., Meyer, M., & Freeland, E. (2015). Expectations of brilliance underlie

1010   gender distributions across academic disciplines. *Science*, *347*(6219), 262-265.

1011   https://doi.org/10.1126/science.1261375

1012   Lim, T. S., Kim, S. Y., & Kim, J. (2011). Holism: A missing link in individualism-collectivism

1013   research. *Journal of Intercultural Communication Research*, *40*(1), 21-38.

1014   https://doi.org/10.1080/17475759.2011.558317

1015   Lucey, C. R., & Saguil, A. (2020). The consequences of structural racism on MCAT scores and

1016   medical school admissions: The past is prologue. *Academic Medicine*, *95*(3), 351-356.

1017   https://doi.org/10.1097/ACM.0000000000002939

1018   Mandulak, K. C. (2021). The case for holistic review in communication sciences and disorders

1019   admissions. *Perspectives of the ASHA Special Interest Groups*.

1020   https://doi.org/10.1044/2020_PERSP-20-00137

1021   McGlynn, T. (2016, September 5). *Recruiting underrepresented minority students*. Small Pond

1022   Science. https://smallpondscience.com/2016/09/05/recruiting-underrepresented-minority-

1023   students/

1024   McGlynn, T. (2017, May 5). *The deficit model of STEM recruitment*. Small Pond Science.

1025   https://smallpondscience.com/2017/05/01/the-deficit-model-of-stem-recruitment/

1026   Messick, S. (1989). Meaning and values in test validation: The science and ethics of assessment.

1027   *Educational Researcher*, *18*(2), 5-11. https://doi.org/10.3102%2F0013189X018002005

1028   Michel, R. S., Belur, V., Naemi, B., & Kell, H. J. (2019). Graduate admissions practices: A

1029   targeted review of the literature. *ETS Research Report Series*, *2019*(1), 1-18.

1030   https://doi.org/10.1002/ets2.12271

1031   Miller, C., Stassun, K. A test that fails. *Nature*, *510***, 303–304 (2014).

1032   https://doi.org/10.1038/nj7504-303a

1033   Milkman, K. L., Akinola, M., & Chugh, D. (2015). What happens before? A field experiment

1034   exploring how pay and representation differentially shape bias on the pathway into

1035   organizations. *Journal of Applied Psychology*, *100*(6), 1678-1712.

1036   https://doi.org/10.1037%2Fapl0000022

1037   Miller, A., Crede, M., & Sotola, L. K. (2020). Should research experience be used for selection

1038   into graduate school: A discussion and meta- analytic synthesis of the available

1039   evidence. *International Journal of Selection and Assessment*.

1040   https://doi.org/10.1111/ijsa.12312

1041   Niemczyk, N. A., Cutts, A., & Perlman, D. B. (2018). Prior work and educational experience

1042   are not associated with successful completion of a master's- level, distance education

1043   midwifery program. *Journal of Midwifery & Women's Health*, *63*(2), 161-167.

1044   https://doi.org/10.1111/jmwh.12716

1045   Okahana, H., Augustine, R. M., & Zhou, E. (2018). *Master's admissions: Transparency,*

1046   *guidance, and training*. Council of Graduate Schools & Educational Testing Service.

1047   https://cgsnet.org/publication-pdf/5396/CGS_Masters_Web_Final.pdf

1048   Patzer, B., Lazzara, E. H., Keebler, J. R., Madi, M. H., Dwyer, P., Huckstadt, A. A., & Smith-

1049   Campbell, B. (2017). Predictors of nursing graduate school success. *Nursing Education*

1050   *Perspectives*, *38*(5), 272-274. https://doi.org/10.1097/01.NEP.0000000000000172

1051   Peabody, J. W., Luck, J., Glassman, P., Dresselhaus, T. R., & Lee, M. (2000). Comparison of

1052   vignettes, standardized patients, and chart abstraction: a prospective validation study of 3

1053   methods for measuring quality. *Jama*, *283*(13), 1715-1722.

1054   https://doi.org/10.1001/jama.283.13.1715

1055   Politzer-Ahles, S., Girolamo, T., & Ghali, S. (2020). Preliminary evidence of linguistic bias in

1056   academic reviewing. *Journal of English for Academic Purposes*, *47*, 100895.

1057   https://doi.org/10.1016/j.jeap.2020.100895

1058 Polovoy, C. (2014). Craft a stand-out application: With applications far outnumbering available

1059   spots in graduate speech-language pathology programs, how can you make sure yours has

1060   a fighting chance? Admissions officials offer advice. *The ASHA Leader*, *19*(1), 54-55.

1061   https://doi.org/10.1044/leader.SSAY.19012014.54

1062 Posselt, J. R. (2016). *Inside graduate admissions: Merit, diversity, and faculty gatekeeping.*

1063   Harvard University Press.

1064 Powell, J. A. (2012). *Racing to justice: Transforming our conceptions of self and other to build*

1065   *an inclusive society.* Indiana University Press.

1066 Richardson, L., Roberts, E., & Victor, S. (2020). Predicting Clinical Success in Speech-

1067   Language Pathology Graduate Students. *Perspectives of the ASHA Special Interest*

1068   *Groups*, *5*(2), 479-488. https://doi.org/10.1044/2020_PERSP-19-00075

1069 Rogus-Pulia, N., Humbert, I., Kolehmainen, C., & Carnes, M. (2018). How gender stereotypes

1070   may limit female faculty advancement in communication sciences and disorders.

1071   *American Journal of Speech-Language Pathology*, *27*(4), 1598-1611.

1072   https://doi.org/10.1044/2018_AJSLP-17-0140

1073 Roos, B. H., & Schreck, J. S. (2019). Stress in undergraduate students studying communication

1074   sciences and disorders. *Perspectives of the ASHA Special Interest Groups*, *4*(6), 1430-

1075   1444. https://doi.org/10.1044/2019_PERS-SIG10-2019-0003

1076 Ryan, W. J., Morgan, M., & Wacker-Mundy, R. (1998). Pre-admission criteria as predictors of

1077   selected outcome measures for speech-language pathology graduate students.

1078   *Contemporary Issues in Communication Science and Disorders*, *25*, 50-57.

1079   https://doi.org/10.1044/cicsd_25_S_50

1080 Saenz, T. I. (2000). Issues in recruitment and retention of graduate students. *Communication*
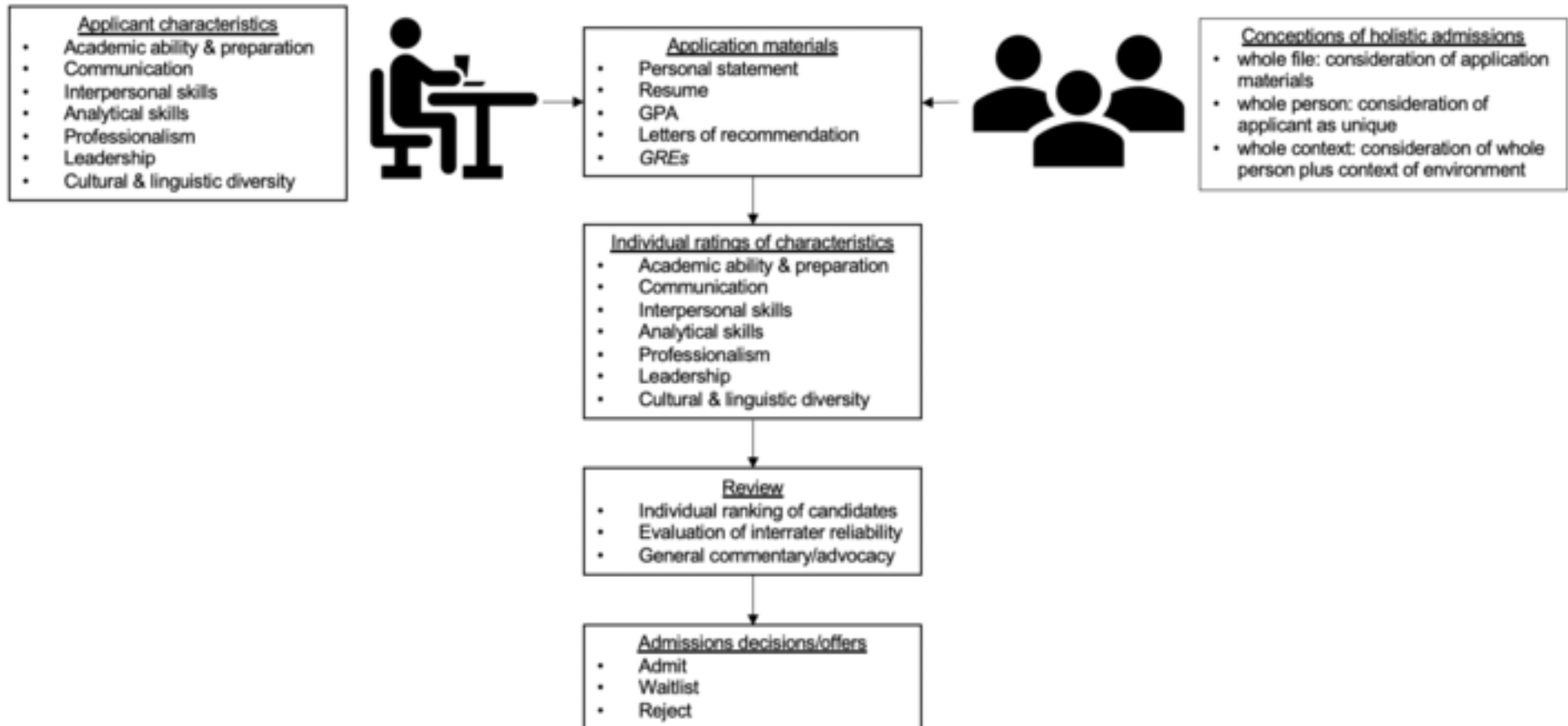
1081   *Disorders Quarterly*, *21*(4), 246-250. https://doi.org/10.1177%2F152574010002100407

1082   Scott, L. D., & Zerwic, J. (2015). Holistic review in admissions: A strategy to diversify the

1083   nursing workforce. *Nursing Outlook*, *63*(4), 488-495. https://doi.org/10.3928/01484834-

1084   20180618-06

1085   Sedlacek, W. E. (1993). Employing noncognitive variables in admissions and retention in higher

1086   education. *Achieving diversity: Issues in the recruitment and retention of*

1087   *underrepresented racial/ethnic students in higher education*, 33-39.

1088   http://williamsedlacek.info/publications/articles/employing1.html

1089   Sedlacek, W. E. (2004) Why we should use noncognitive variables with graduate and

1090   professional students. *The Advisor: The Journal of the National Association of Advisor*

1091   *for the Health Professions*. *24*(2), 32-39.

1092   http://williamsedlacek.info/publications/articles/why1.pdf

1093   Sedlacek, W. E. (2005). The case for noncognitive measures. In W. J. Camara & E. W. Kimmel

1094   (Eds.), *Choosing students: Higher education admission tools for the 21st century*, 177-

1095   193. Routledge.

1096   Sedlacek, W. E. (2011). Using noncognitive variables in assessing readiness for higher

1097   education. *Readings on Equal Education*, *25*(13), 187-205

1098   http://web.augsburg.edu/em/UsingNCV-Sedlacek.pdf

1099   Selin, C. M., Rice, M. L., Girolamo, T., & Wang, C. J. (2019). Speech-language pathologists'

1100   clinical decision making for children with specific language impairment. *Language*,

1101   *Speech, and Hearing Services in Schools*, *50*(2), 283-307.

1102   https://doi.org/10.1044/2018_LSHSS-18-0017

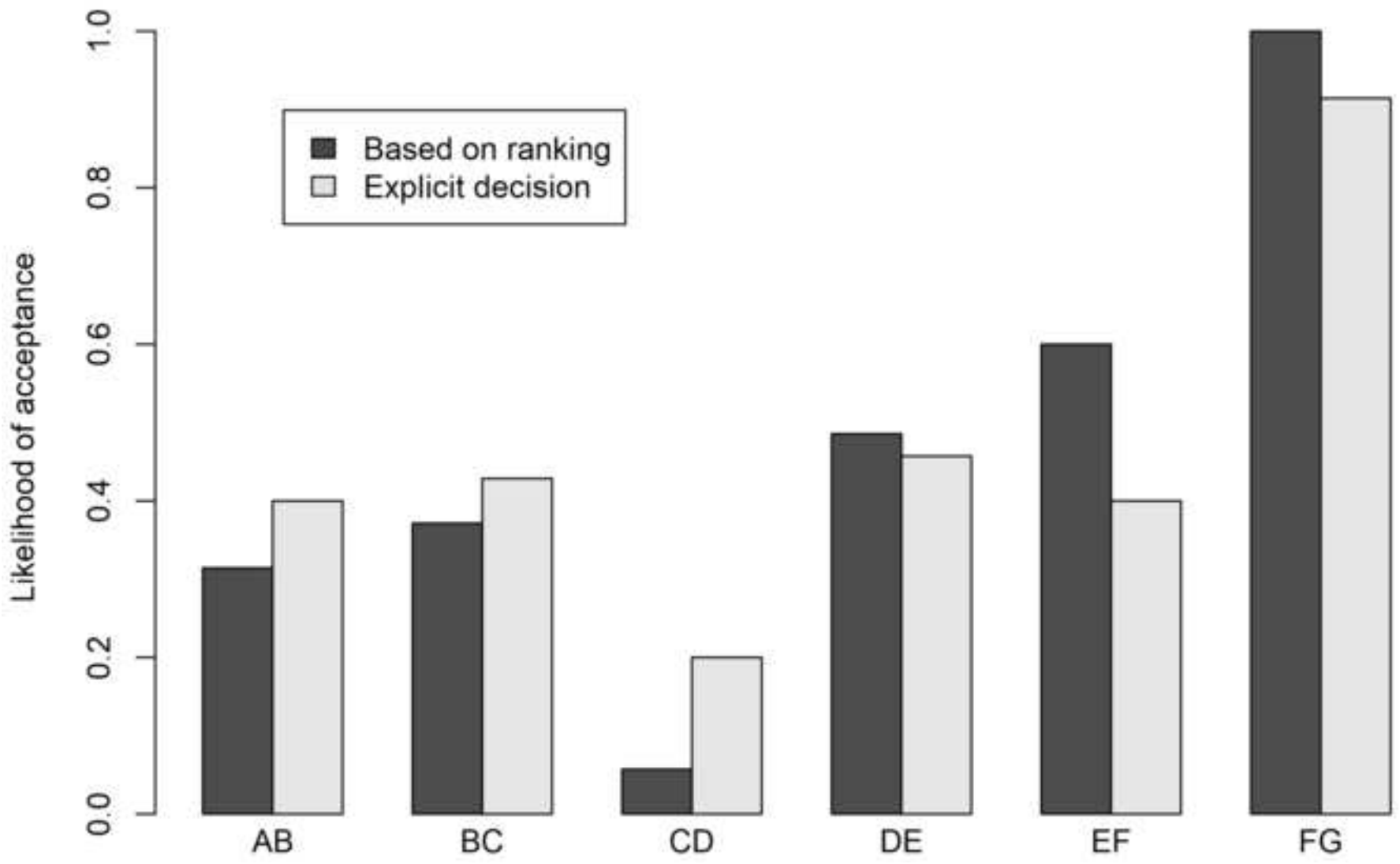1103   Shah, R., Johnstone, C., Rappaport, D., Bilello, L. A., & Adamas-Rappaport, W. (2018). Pre-

1104   matriculation clinical experience positively correlates with Step 1 and Step 2

1105   scores. *Advances in Medical Education and Practice*, *9*, 707-711.

1106   https://doi.org/10.2147/AMEP.S173470

1107   Shapiro, D. A., Ogletree, B. T., & Brotherton, W. D. (2002). Graduate students with marginal

1108   abilities in communication sciences and disorders: Prevalence, profiles, and solutions.

1109   *Journal of Communication Disorders*, *35*(5), 421-451. https://doi.org/10.1016/S0021-

1110   9924(02)00093-X

1111   Simonsohn, U. (2015, April 23). *How to study discrimination (or anything) with names; if you*

1112   *must*. Data Colada. http://datacolada.org/36

1113   Sylvan, L., Perkins, A., & Truglio, C. (2020). Student Experience Applying to Graduate School

1114   for Speech-Language Pathology. *Perspectives of the ASHA Special Interest Groups*, *5*(1),

1115   192-205. https://doi.org/10.1044/2019_PERSP-19-00102

1116   Troche, J., & Towson, J. (2018). Evaluating a metric to predict the academic and clinical success

1117   of master's students in speech-language pathology. *Teaching and Learning in*

1118   *Communication Sciences & Disorders*, *2*(2), 7.

1119   https://doi.org/10.30707/TLCSD2.2Troche

1120   University of Kansas Department of Hearing and Speech (2018, September 27). *Admissions*

1121   *Overview*. http://www.kumc.edu/school-of-health-professions/hearing-and-

1122   speech/admissions-overview.html

1123   Urban Universities for Health (2016). *Increasing diversity in the biomedical research workforce:*

1124   *Actions for improving evidence*. https://urbanuniversitiesforhealth.org/media/documents/

1125   Increasing_Diversity_in_the_Biomedical_Research_Workforce.pdf

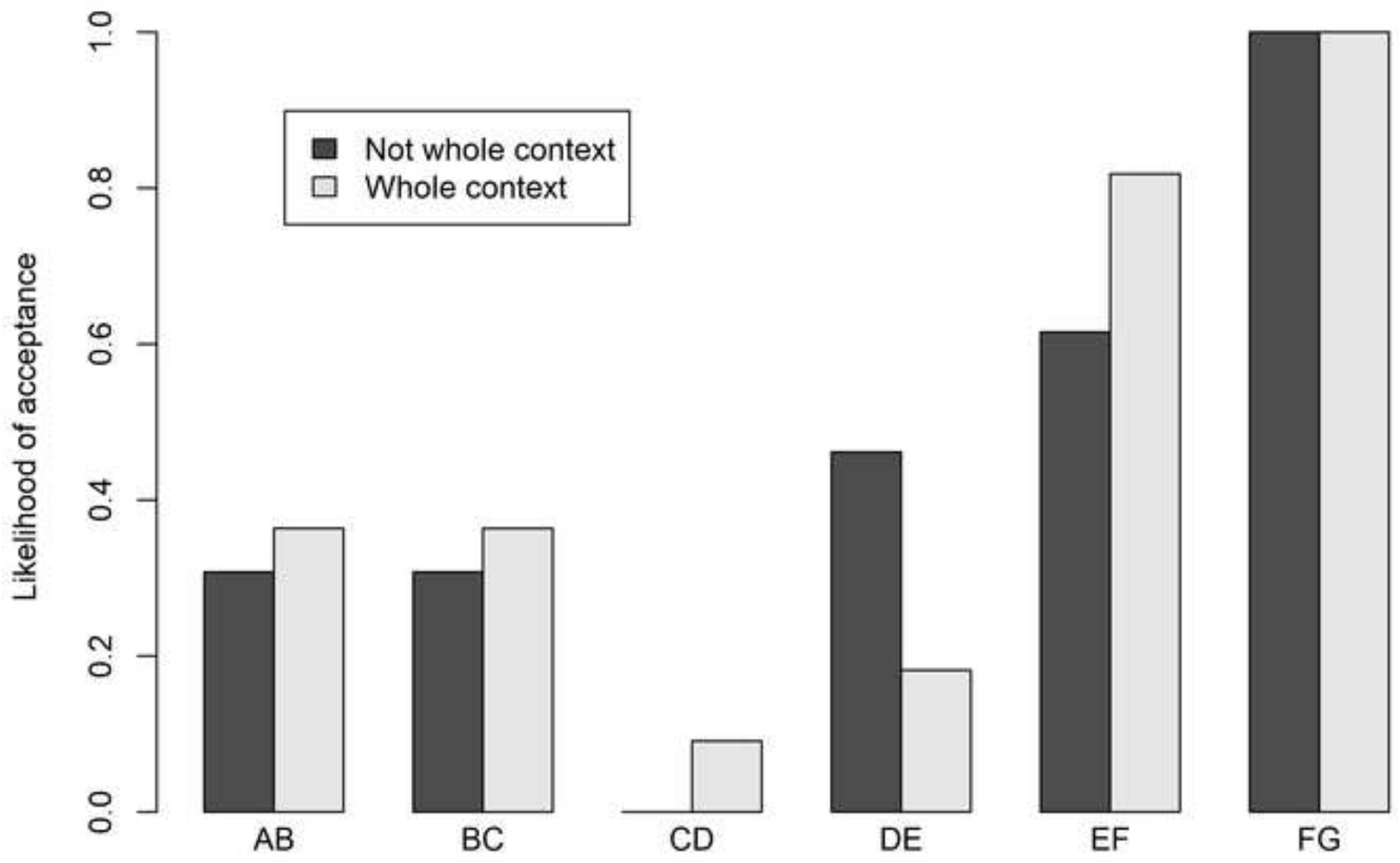1126   Walters, S. Y., & Geller, E. F. (2002). The evolution of an urban bilingual/multicultural graduate

1127   program in speech-language pathology. *Contemporary Issues in Communication Science*

1128   *and Disorders*, *29*, 185-193.

1129   Wilson, M. A., Odem, M. A., Walters, T., DePass, A. L., & Bean, A. J. (2019). A Model for

1130   Holistic Review in Graduate Admissions That Decouples the GRE from Race, Ethnicity,

1131   and Gender. *CBE—Life Sciences Education*, *18*(1), 7. https://doi.org/10.1187/cbe.18-06-

1132   0103

1133   Zerwic, J. J., Scott, L. D., McCreary, L. L., & Corte, C. (2018). Programmatic evaluation of

1134   holistic admissions: The influence on students. *Journal of Nursing Education*, *57*(7), 416-

1135   421. https://doi.org/10.3928/01484834-20180618-06

1136   Figures Legend

1137   Figure 1. Potential holistic review process

1138   Figure 2. Likelihood of acceptance when acceptance is based on scores from holistic review

1139   criteria ratings (dark bars) versus when acceptance is based on explicit decisions (light bars)

1140   Figure 3. Each candidate's likelihood of acceptance by raters who did not take a whole context

1141   approach (dark bars) versus by raters who did take a whole-context approach (light bars)

1142   Figure 4. Likelihood of acceptance as a function of indicators of seven different applicant criteria

Applicant characteristics
- Academic ability & preparation
- Communication
- Interpersonal skills
- Analytical skills
- Professionalism
- Leadership
- Cultural & linguistic diversity

Application materials
- Personal statement
- Resume
- GPA
- Letters of recommendation
- *GREs*

Conceptions of holistic admissions
- whole file: consideration of application materials
- whole person: consideration of applicant as unique
- whole context: consideration of whole person plus context of environment

Individual ratings of characteristics
- Academic ability & preparation
- Communication
- Interpersonal skills
- Analytical skills
- Professionalism
- Leadership
- Cultural & linguistic diversity

Review
- Individual ranking of candidates
- Evaluation of interrater reliability
- General commentary/advocacy

Admissions decisions/offers
- Admit
- Waitlist
- Reject

Table 1

Respondent Characteristics

Characteristic	n	%
Race		
American Indian, Eskimo, or Aleut	0	0
Asian or Pacific Islander	3	9
Black or African American	3	9
Caucasian or White	30	86
Ethnicity		
Hispanic	2	6
Gender		
Men	4	11
Women	31	89
Education level		
Au.D. or equivalent	1	3
Bachelor's or equivalent	0	0
Master's or equivalent	16	46
Ph.D. or equivalent	17	49
SLP.D. or equivalent	1	3
Current position		
Assistant professor or equivalent	6	17
Associate professor or equivalent	7	20
Clinical professor or equivalent	4	11
Full professor or equivalent	5	14
Lecturer or equivalent	2	6
Ph.D. student or candidate	11	31
Serving on admissions committees		
Master's admissions	24	69
Other	8	23

Note. Current positions adds up to more than

100%, because one person was both an

assistant professor and Ph.D. student.

Table 2

Conceptualization of indicator levels of criteria

Criterion	Low	Moderate	High
Academic ability & preparation	Evidence from 1 area (responsibilities or work during undergraduate, double major, research experience, or clinical experience) or GPA = 0.0 – 3.4	Evidence from some areas or GPA = 3.5 – 3.7	Evidence from all areas and high GPA = 3.8 – 4.0
Communication	Positive communication in 1 area (class, clinic, or workplace), with 1 communication partner (faculty, supervisor, or peers), in 1 modality (oral, written)	Positive communication in some areas, with some communication partners, in some modalities	Positive communication in all areas, with all communication partners, in all modalities
Interpersonal skills	Worked well with 1 person from 1 group (families, individuals with disabilities, peers, other professionals) in 1 context (work, clinic, classroom)	Worked well with some people, from some groups, in some contexts	Worked well with all people from all groups in all contexts
Analytical skills	Evidence of minimal analytical skills from 1 area (research, critical thinking, or clinical application)	Evidence of some analytical skills from some areas OR mixed evidence across areas (e.g., high in some, low in others)	Evidence of high analytical skills in all areas
Professionalism	Minimal evidence from 1 area (organization, reliability, respectfulness, response to constructive feedback)	Some evidence from some areas OR mixed evidence across areas (e.g., high in some, low in others)	Evidence of professionalism in all areas
Leadership	Evidence of leadership experience or leadership qualities in 1 context (research, clinic, class, organizational experience)	Evidence of leadership experience in some contexts OR mixed evidence of leadership (e.g., high in some, low in others)	Evidence of leadership in all contexts
Cultural and linguistic diversity	Evidence of minimal previous work with people from backgrounds different from their own in 1 area (personal or academic)	Evidence of semi-consistent previous work with people from backgrounds different from their own in some areas	Evidence of extensive previous work with people from backgrounds different from their own in all areas

Note. Although the process of evaluating criteria and determination of ratings is subjective, this framework offers one way of conceptualizing the levels of indicators that reviewers use to inform their evaluation of applicants.

Table 3

Vignette design of applicants to master's programs in speech-language pathology

Criteria	A.B.	B.C.	C.D.	D.E.	E.F.	F.G.
Academic ability & preparation	high	moderate	not specified	moderate	low	high
Communication	low	low	not specified	moderate	low	high
Interpersonal skills	low	moderate	moderate	high	not specified	high
Analytical skills	high	low	not specified	moderate	moderate	high
Professionalism	moderate	moderate	moderate	high	not specified	high
Leadership	low	moderate	moderate	not specified	low	high
CLD	low	moderate	high	high	high	low

Note. CLD = cultural and linguistic diversity. High = criterion specified and indicators of this criterion were highly positive, moderate = criterion specified and indicators of this criterion were moderately positive or ambiguous, low = criterion specified and indicators of this criterion were minimally positive; not specified = information not included in the vignette.

Appendix

Click here to access/download
Appendix
Appendix.pdf