

# Further development of the reflective practice questionnaire

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**Background.** This paper provides an update of the Reflective Practice Questionnaire (RPQ). The original RPQ consisted of 40-items with 10-sub-scales. In this paper, the RPQ is streamlined into a 10-item single reflective practice construct, and a 30-item extended version that includes additional sub-scales of confidence, uncertainty/stress, and work satisfaction.

**Methods.** 501 university students filled out an online questionnaire that contained the original Reflective Practice Questionnaire, and two general measures of reflection: The Self-Reflection and Insight Scale, and the Rumination-Reflection Questionnaire.

**Results.** Based on factor analysis, the RPQ was streamlined into a brief 10-item version, and an extended 30-item version. Small positive correlations were found between the RPQ reflective practice measure and the two measures of general reflection, providing discriminant validity evidence for the RPQ. The RPQ was found to be sensitive to differences among industries, whereas the general measures of reflection were not. Average reflective practice scores were higher for health and education industries compared to retail and food/accommodation industries.

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21

## 22 Abstract

23

24 **Background.** This paper provides an update of the Reflective Practice Questionnaire (RPQ). The  
25 original RPQ consisted of 40-items with 10-sub-scales. In this paper, the RPQ is streamlined into  
26 a 10-item single reflective practice construct, and a 30-item extended version that includes  
27 additional sub-scales of confidence, uncertainty/stress, and work satisfaction.

28 **Methods.** 501 university students filled out an online questionnaire that contained the original  
29 Reflective Practice Questionnaire, and two general measures of reflection: The Self-Reflection  
30 and Insight Scale, and the Rumination-Reflection Questionnaire.

31 **Results.** Based on factor analysis, the RPQ was streamlined into a brief 10-item version, and an  
32 extended 30-item version. Small positive correlations were found between the RPQ reflective  
33 practice measure and the two measures of general reflection, providing discriminant validity  
34 evidence for the RPQ. The RPQ was found to be sensitive to differences among industries,  
35 whereas the general measures of reflection were not. Average reflective practice scores were  
36 higher for health and education industries compared to retail and food/accommodation industries.

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39

## 40 Introduction

41

42 The reflective practice questionnaire (RPQ) was first introduced to the research community as a  
43 40-item questionnaire that contains several sub-scales for assessing self-reported reflective  
44 practice and confidence, stress, and work satisfaction (Priddis & Rogers 2018). Following  
45 publication, it became apparent from emails of inquiry that many people interested in the  
46 measure were practitioners seeking to make use of the RPQ as part of reflective practice  
47 initiatives within the workplace. With 40-items across 10 subscales, the original RPQ provides a  
48 broad range of information that can be useful for research studies, however in applied settings  
49 people have time and resource constraints that can make such a lengthy questionnaire unwieldy.  
50

51 Therefore, the primary aim of the current study is to conduct further refinement of the RPQ to  
52 reconceptualise the questionnaire as a brief 10-item measure of reflective practice, while also  
53 maintaining a longer version of the questionnaire which we re-label as the Reflective Practice  
54 Questionnaire - Extended version (RPQ-E). A secondary aim of the study is to examine  
55 associations between the RPQ and other general reflection measures to provide evidence that the  
56 RPQ provides measurement of reflective practice rather than more generalised reflective  
57 tendencies.  
58

### 59 *Measuring self-reported reflective practice*

60

61 The notion of reflective practice is broad, and conceptualisations can vary based on the focus of  
62 reflection (e.g., task-focused and/or relational-focused), the context of reflection (e.g., work  
63 context versus learning context), when it occurs (e.g., during action versus after action), with  
64 who it occurs (e.g., self-reflection versus reflection with others), and how it occurs (e.g.,  
65 meditative versus critical reflection) (Greenberger 2020; Hebert 2015; Mezirow 1991; Ooi et al.  
66 2021; Schon 1995; Thompson & Pascal 2012; Tsingos et al. 2014). In this paper our  
67 conceptualisation of reflective practice as measured by the reflective practice questionnaire can  
68 be described as the tendency to actively reflect upon the thoughts and actions that occur when  
69 working with clients. These reflections might be about relational aspects of working with clients  
70 (e.g., Are they or I frustrated?), or more task focused (e.g., Are we making good progress?).  
71 Reflections can potentially occur in-the-moment during interaction (i.e., reflection-in-action) or  
72 sometime after the interaction has occurred (i.e., reflection-on-action). Reflections can be about  
73 one's own thoughts/actions and/or those of the client/s. The reflections can be either more  
74 meditative in nature (i.e., wondering with simple curiosity) or more critical (i.e., critically  
75 questioning ways of thinking/doing).  
76

### 77 *The Reflective Practice Questionnaire (RPQ)*

78

79 The RPQ was originally designed as an instrument to measure self-reported reflective practice  
80 alongside several other variables that have relevance for reflective practice: desire for  
81 improvement, general confidence, communication confidence, uncertainty, stress, and work  
82 satisfaction (Priddis & Rogers 2018). The RPQ sets itself apart from other self-report reflection  
83 measures by predominately focusing on working with clients, and by utilising broad phrasing so  
84 that the measure can be used across a wide range of professions where reflective practice is  
85 relevant (For a discussion, see: Priddis & Rogers 2018).

86

87 Studies have been conducted utilising the RPQ with medical students (Bari et al. 2021; Horst et  
88 al. 2019; Khoshgoftar & Barkhordari-Sharifabad 2023a; Khoshgoftar & Barkhordari-Sharifabad  
89 2023b; Lee et al. 2023; Rogers et al. 2019; Schwartz et al. 2020; Van Winkle et al. 2021; Van  
90 Winkle et al. 2022), surgeons/physicians (Aitken et al. 2021; Whelehan et al. 2021), nurses  
91 (Aitken et al. 2021; Al-Osaimi 2022; Gabriellsson et al. 2022; Gustafsson et al. 2020; Khalil &  
92 Hashish 2022), psychologists (Sadusky & Spinks 2022), allied health professionals (Aurora et al.  
93 2023; Or & Golba 2023; Parrott et al. 2023), pre-service teachers (Day et al. 2022; Fuertes-  
94 Camacho et al. 2021), qualified teachers (Chen & Chen 2022; Gross 2020; Moeder-Chandler  
95 2020), and sport coaches (Da Silva et al. 2022). In these studies the RPQ has been used for a  
96 range of purposes, such as assessment of the reliability of the RPQ scales (e.g., Gustafsson et al.  
97 2020), comparison between different sub-groups of participants (e.g., Day et al. 2022), and  
98 comparison across different time points to explore student development (e.g., Van Winkle et al.  
99 2021).

100

101 Van Winkle and colleagues have published work that demonstrates how the RPQ can be used as  
102 part of an evaluation of teaching methods (Horst et al. 2019; Schwartz et al. 2020; Van Winkle et  
103 al. 2021; Van Winkle et al. 2022). For example, Van Winkle et al. (2021) found that self-  
104 reported reflective practice and a self-report empathy measure significantly increased for most  
105 medical students enrolled in a 4-month online course that included activities designed to  
106 facilitate the development of reflective practice. In another example, Van Winkle et al. (2022)  
107 found that the magnitude of increase in self-reported reflective practice and empathy was higher  
108 for prospective medical students who completed a course that included reflection specifically on  
109 their service-learning activities compared to students that completed a similar course with  
110 reflection only conflict interactions outside of their work environment.

111

112 Several other scholars have also made use of the RPQ when evaluating learning activities (Da  
113 Silva et al. 2022; Khalil & Hashish 2022). Da Silva et al. (2022) found that self-reported  
114 reflective practice was higher for a group of sport coaches that underwent a reflective journalling  
115 intervention compared with a control group. Khalil and Hashish (2022) found that average self-  
116 reported reflective practice increased after reflective practice training, and that self-reported  
117 reflective practice was positively associated with self-reported critical thinking tendencies.

118

119 *The present study - Considerations for further development of the reflective practice*  
120 *questionnaire*

121

122 Since the initial publication of the RPQ in 2018, correspondence received from researchers and  
123 practitioners has informed our reflections on how the RPQ might best serve the community that  
124 uses it. In our initial development of the RPQ we were interested in developing a comprehensive  
125 questionnaire. The RPQ was published with ten sub-scales, five that were focused on elements of  
126 reflective practice (i.e., reflection in action, reflection on action, self-appraisal, and reflection  
127 with others) with the remaining six sub-scales focused on other constructs of relevance to  
128 reflective practice (i.e., desire for improvement, general confidence, confidence in  
129 communication, uncertainty, stress interacting with clients, and job satisfaction).

130

131 Something that became apparent to us was that perhaps the RPQ contained too many sub-scales.  
132 Both researchers and practitioners were most interested in a simple and clear measure of self-  
133 reported reflective practice. In response to this we published a follow up paper in 2019 proposing  
134 a single reflective practice score by averaging across the four reflective practice sub-scales of the  
135 RPQ (Rogers et al. 2019). We were not surprised to see most of the subsequent studies utilising  
136 the RPQ made use of this more simplified conceptualisation of the reflective practice measure  
137 (Al-Osaimi 2022; Bari et al. 2021; Da Silva et al. 2022; Day et al. 2022; Gabrielsson et al. 2022;  
138 Gross 2020; Gustafsson et al. 2020; Horst et al. 2019; Khalil & Hashish 2022; Or & Golba 2023;  
139 Schwartz et al. 2020; Van Winkle et al. 2021; Van Winkle et al. 2022; Whelehan et al. 2021).

140  
141 Considering that the use of an overall single reflective practice score has emerged as the most  
142 popular usage for the RPQ, we felt that it would be worthwhile investigating the scope for a  
143 shorter version of the combined RPQ reflective sub-scales. We also felt it was desirable to revisit  
144 the other sub-scales within the original RPQ to explore if some aggregation across the sub-scales  
145 might be statistically justifiable. Therefore, a primary aim of the present study was to explore if  
146 the RPQ structure could be simplified. We utilised factor analytic techniques to achieve this aim.

147  
148 A secondary aim of the present study was to examine if the measure of self-reported reflective  
149 practice obtained by the RPQ is best conceptualised as a distinct and separate construct from a  
150 broader notion of self-reflection. The RPQ was designed as a measure specifically targeted on  
151 the act of reflection in work practice with clients. However, the RPQ has not previously been  
152 compared to more general trait-based measures of self-reflection. In the present study we  
153 compare the RPQ with two well-cited general measures of self-reflection, the Self-Reflection  
154 and Insight Scale (Grant et al. 2002), and the Rumination-Reflection Questionnaire (Trapnell &  
155 Campbell 1999).

156

## 157 **Materials & Methods**

158

### 159 *Participants*

160

161 Prior to conducting this research ethical approval was obtained from the Edith Cowan University  
162 ethics review board. Ethics reference number: 2019-00741-ROGERS. Five hundred and one  
163 undergraduate psychology students participated in this study for 0.5 credit points for a research  
164 participation component in a statistics unit. A requirement for participation was that the person  
165 must be currently employed in paid work in addition to their university studies. Research consent  
166 was obtained in a check box as part of the online survey. The main industries that participants  
167 indicated they worked in were Retail (25%), health care and social assistance (19%), education  
168 and training (13%), and accommodation and food services (13%). The remaining 30% worked in  
169 other miscellaneous industries. All participants indicated that they interact with clients at least  
170 once a month, with a specific breakdown: Every day (81%), every few days (14%), about once a  
171 week (3%), about once a fortnight (1%), and about once a month (1%).

172

### 173 *Measures*

174

175 Each participant answered the 40-item *Reflective Practice Questionnaire* (Priddis & Rogers  
176 2018). In this study we changed the response scale from the original 6-point Not at all –

177 Extremely scale to be a 6-point Very rarely – Almost always scale (scoring: 1. Very rarely 2.  
178 Rarely 3. Sometimes 4. Often 5. Very often 6. Almost always). Some minor modifications were  
179 made to the individual items of the questionnaire to account for the change in response scale.  
180 After sub-scales were determined via the factor analysis, sub-scale scores were calculated via  
181 averaging across relevant items. A brief evaluation study examining the change of response scale  
182 from the original RPQ can be found as document titled ‘RPQ response scale evaluation’  
183 alongside the raw data for this article at: <https://doi.org/10.6084/m9.figshare.22776251.v1>.

184

185 Two other questionnaires were used in this study: The 20-item *Self-Reflection and Insight Scale*  
186 (SRIS) (Grant et al. 2002), and the 24-item *Rumination-Reflection Questionnaire* (RRQ)  
187 (Trapnell & Campbell 1999). Prior studies have consistently reported good reliability values for  
188 both questionnaires (DaSilveira et al. 2015; Grant et al. 2002; Harrington & Loffredo 2010;  
189 Trapnell & Campbell 1999).

190

191 The SRIS contains two sub-scales, Self-reflection sub-scale (Note, this sub-scale is comprised of  
192 two strongly correlated sub-facets: Engagement in self-reflection, for example: “I frequently take  
193 time to reflect on my thoughts”, and need for self-reflection, for example “It is important for me  
194 to evaluate the things that I do”), and Insight sub-scale, for example “I usually have a very clear  
195 idea about why I’ve behaved in a certain way” (Grant et al. 2002). When answering the SRIS  
196 participants were asked “Please rate your level of disagreement/agreement for each statement on  
197 a scale that ranges from (1) Strongly disagree to (6) Strongly agree”. In between the two poles  
198 (i.e., 1 and 6) the numbers (2), (3), (4), and (5) were presented as options. Sub-scale scores were  
199 calculated by averaging across relevant items.

200

201 The RRQ contains two sub-scales, Rumination, for example “I often reflect on episodes of my  
202 life that I should no longer concern myself with”, and Reflection, for example “I love analysing  
203 why I do things” (Trapnell & Campbell 1999). When answering the RRQ participants were  
204 asked “Please rate your level of disagreement/agreement for each statement”. The response scale  
205 used was (1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly agree. Sub-scale  
206 scores were calculated by averaging across relevant items.

207

## 208 **Results**

209

### 210 *Factor analysis of the updated RPQ – The reflective practice scale*

211

212 The raw data for this manuscript is available at: <https://doi.org/10.6084/m9.figshare.22776251.v1>.  
213 An exploratory factor analysis was conducted on the 16-items of the RPQ that prior studies have  
214 previously combined to provide a ‘reflective capacity’ measure. These items consisted of the  
215 reflection-in-action, reflection-on-action, reflection-with-others and self-appraisal sub-scales  
216 from the original RPQ. The exploratory factor analysis was conducted using the statistical  
217 software Stata, using the principal factors method, applying an oblique Promax rotation. Two  
218 factors had an eigenvalue greater than 1 (i.e., factor 1 = 6.19, factor 2 = 1.32). The factor  
219 loadings from this analysis are presented in Table 1.

220

221 <Insert Table 1 here>

222

223 The reflection-with-others (RO) items loaded onto the second factor. There are two reasons we  
224 suggest this might be the case. First, a point of difference between the RO items and all others is  
225 that the wording of the RO items lacks specific reference to working with clients, and instead  
226 refers simply to ‘work’. This may lead some participants to interpret these items in a broader  
227 sense in comparison to other items. Second, the RO items are specific to the notion of reflecting  
228 with others, whereas all other items make no explicit mention of others. Based on the factor  
229 analysis result, we made the decision to cut-down the RPQ reflection measure by removal of the  
230 RO items.

231

232 The removal of the RO items reduces the item count from 16 to 12. We noticed an item from the  
233 self-appraisal scale had a lower than ideal factor loading of 0.31 (i.e., “I think about my strengths  
234 for working with clients”). Therefore, we decided that removal of that item was justifiable, and  
235 we also decided on removal of the other self-appraisal item about weaknesses (i.e., “I think about  
236 my weaknesses for working with clients”) so that the remaining two self-appraisal items contain  
237 consistent general phrasing (i.e., “I think about how I might improve my ability to work with  
238 clients” and “I critically evaluate the strategies and techniques I use in my work with clients”).  
239 This results in 10 items for our proposed ‘reflective practice’ scale to represent the core scale of  
240 the reenvisaged RPQ.

241

#### 242 *Factor analysis of the updated RPQ – The extended version of the RPQ*

243

244 A follow up exploratory factor analysis was conducted to further examine consolidation of the  
245 extended form of the RPQ. In this analysis we included the 10 reflective practice items from the  
246 prior analysis alongside all other items from the original RPQ. An exception was the desire for  
247 improvement items that we left out of the analysis. This was left out because after careful  
248 consideration we determined that the original RPQ sub-scale does not provide a measure that is  
249 nuanced enough to adequately cover this complex motivational construct (Breckenridge et al.  
250 2019; Leach & Iyer 2023).

251

252 The same type of exploratory factor analysis was conducted as the prior analysis, using the  
253 principal factors method, applying an oblique Promax rotation. Four factors had an eigenvalue  
254 greater than 1 (i.e., factor 1 = 5.93, factor 2 = 5.48, factor 3 = 2.53, factor 4 = 1.15). The rotated  
255 factor loadings from this analysis are presented in Table 2. These factors represent reflective  
256 practice, confidence, uncertainty/stress, and work satisfaction.

257

258 <Insert Table 2 here>

259

#### 260 *Comparisons among industry means.*

261

262 For all measures we compared across the different industry groups by running a series of one-  
263 way ANOVAs with Follow up Bonferroni adjusted comparisons. We excluded the ‘other’  
264 category when running the analyses. An overall difference among reflective practice means was  
265 found,  $F(4,405) = 6.60, p < .001, \eta_p^2 = .06$ , see Table 3. Follow up comparisons revealed that this  
266 result was due to the Health and Education profession means being significantly higher than the  
267 retail and accommodation & food means ( $ps < .05$ , although note education & retail comparison

268  $p = .08$ ). There was no difference among the administration, retail, and accommodation & food  
269 groups ( $ps > .05$ ). Nor was there any difference between the health and education groups ( $p >$   
270  $.05$ ).

271

272 There was an overall difference found among RPQ confidence means,  $F(4,405) = 2.88, p = .02,$   
273  $\eta_p^2 = .03$ , however this was due to a marginally significant difference only between the retail and  
274 accommodation/food mean ( $p = .04$ ). There was no significant difference among RPQ  
275 uncertainty/stress means,  $F(4,405) = 1.20, p = .31$ . There was an overall difference found among  
276 RPQ work satisfaction means,  $F(4,405) = 23.13, p < .001, \eta_p^2 = .19$ , with follow up comparisons  
277 revealing statistical differences among means followed the pattern: Health = Education >  
278 Administration > Retail = Accommodation/food.

279

280 For SRIS self-reflection there was no difference among the industry means,  $F(4,405) = 0.99, p =$   
281  $.41$ . There was an overall difference among means for SRIS insight,  $F(4,405) = 6.01, p < .001,$   
282  $\eta_p^2 = .06$ , with follow up comparisons revealing that this result was due to the Administration  
283 industry mean higher than the retail and accommodation & food means ( $ps < .001$ ), with all other  
284 comparisons non-significant. There was no difference among profession means for RRQ self-  
285 reflection ( $F(4,405) = 0.10, p = .98$ ), or rumination,  $F(4,405) = 0.32, p = .87$ .

286

287 <Insert Table 3 here>

288

289 *Correlations between the RPQ, SRIS, and RRQ.*

290

291 Correlations among all measures are presented in Table 4. Of particular interest are the  
292 correlations between the RPQ reflective practice measure with the SRIS self-reflection ( $r = .32, p$   
293  $< .05$ ) and RRQ self-reflection ( $r = .23, p < .05$ ) measures. Both associations are of relatively  
294 weak magnitude. To double check that these associations are not the result of analysing a sample  
295 where people from different industries are lumped together, we checked the correlations after  
296 splitting the datafile by industry group. This did not change the overall result, with the  
297 correlation between RPQ reflective practice and SRIS self-reflection ranging from  $.12 - .48$ , and  
298 the correlation between RPQ reflective practice and RRQ self-reflection ranging from  $.09 - .45$ ,  
299 across the industry groups.

300

301 <Insert Table 4 here>

302

## 303 Discussion

304

305 In this study we propose a revision of the Reflective Practice Questionnaire (RPQ) that was  
306 originally published by Priddis and Rogers (2018). Guided by factor analysis results, we propose  
307 a revised 10-item version of the RPQ that provides a self-report measure of reflective practice,  
308 see Table 5. We also propose a 30-item version of the questionnaire that we call the RPQ  
309 extended (RPQ-E), see Table 6. This version contains the 10-item reflective practice scale along  
310 with additional sub-scales for confidence, uncertainty/stress, and work satisfaction. A secondary  
311 aim was to compare the RPQ with two general measures of self-reflection to test if the RPQ can  
312 be considered as providing a measure of reflective practice that is distinct from general reflection

313 measures. We found low correlations between the RPQ and the general self-reflection measures  
314 that provides support for this assertion.

315

### 316 *Modification of the RPQ*

317

318 An initial overall change from the original RPQ is to change the response scale from a 6-point  
319 ‘Not at all – Extremely’ to a 6-point ‘Very rarely – Almost always’ Likert-type scale. The  
320 reasoning behind this decision is that asking participants the extent that they engage in reflective  
321 practice might be confusing for some participants. For example, a participant might not fully  
322 understand the difference between being reflective ‘moderately’ versus ‘very much’. It should be  
323 easier for a participant to decide upon how often they reflect on their thought and behaviours.  
324 We concede there might still be some uncertainty, for example deciding between ‘sometimes’  
325 versus ‘often’, however we believe this still constitutes an improvement over the original  
326 response scale.

327

328 Most research studies to date using the RPQ have averaged across the original RPQ sub-scales  
329 ‘reflection-in-action’, ‘reflection-on-action’, ‘reflection with others’, and ‘self-appraisal’ for a  
330 16-item measure of reflective practice (Al-Osaimi 2022; Bari et al. 2021; Da Silva et al. 2022;  
331 Day et al. 2022; Gabrielsson et al. 2022; Gross 2020; Gustafsson et al. 2020; Horst et al. 2019;  
332 Khalil & Hashish 2022; Schwartz et al. 2020; Van Winkle et al. 2021; Van Winkle et al. 2022;  
333 Whelehan et al. 2021). In the present study, an exploratory factor analysis revealed that the  
334 ‘reflection with others’ items loaded onto a separate factor, so these were dropped. We also made  
335 the decision to drop an item from the ‘self-appraisal’ items with a low loading on the reflective  
336 practice primary factor. We also dropped one more of the ‘self-appraisal’ items to bring the  
337 measure down to 10 items to make it easier for averaging items to create the overall score. We  
338 expect these changes will make using the RPQ more user friendly, especially in applied settings.

339

340 We also used factor analysis results to inform decision making to simplify the sub-scales of the  
341 extended version of the RPQ to include ‘confidence’, ‘uncertainty/stress’, and ‘work  
342 satisfaction’, alongside the 10-item ‘reflective practice’ component. The full extended version of  
343 the RPQ has therefore changed from the original 40-item questionnaire with 10 sub-scales to a  
344 30-item questionnaire with 4 sub-scales. We expect these changes will make the extended  
345 version of the RPQ more user friendly.

346

### 347 *Comparing the RPQ with general measures of reflection*

348

349 Testing for discriminant validity (also called divergent validity) is an important part of  
350 questionnaire evaluation (Fiske 1982; Lucas et al. 1996). Evidence for discriminant validity is  
351 obtained when one measure has only weak association with another measure that is theoretically  
352 not expected to overlap with the main measure of interest. For example, in an evaluation study of  
353 the Self-Reflection and Insight Scale (SRIS), Banner et al. (2023) tested for discriminant validity  
354 by comparing the SRIS with the perceived knowledge subscale from the short form of the Career  
355 Futures Inventory (McIlveen et al. 2013). Banner et al. (2023) reported no statistically significant  
356 correlation between these measures, concluding this represented some discriminant validity  
357 evidence for the SRIS.

358

359 An additional aim of the present study was to contrast the RPQ, a measure designed to  
360 specifically measure self-reflection upon one's work, with more general measures of self-  
361 reflection. The goal was to provide some evidence that the RPQ reflective practice measure  
362 provides a measure that can be differentiated from more general self-reflective tendencies of an  
363 individual (i.e., discriminant validity evidence). We therefore included two well-cited general  
364 measures of self-reflection in our study, the Self-Reflection and Insight Scale (SRIS) (Grant et al.  
365 2002), and the Rumination-Reflection Questionnaire (RRQ) (Trapnell & Campbell 1999). As  
366 expected, the RPQ reflective practice score was found to only have weak positive associations  
367 with these measures, suggesting that it does measure a different construct.

368  
369 Additionally, the RPQ reflective practice mean was found to be significantly higher for  
370 participants in the healthcare and education industries compared with other industries such as  
371 retail and food/accommodation. This is consistent with Priddis and Rogers (2018) original  
372 findings and is consistent with the intuitive notion that reflective practice would be higher in  
373 workplaces where reflective practice is encouraged and/or explicitly taught as part of  
374 qualifications. The SRIS and RRQ general self-reflection measures did not differ across the  
375 industry groups. This provides some further evidence for the validity of the RPQ as a measure of  
376 reflective practice.

377

#### 378 *Limitations and future research*

379

380 An inherent limitation associated with the RPQ is the self-report nature of the measure. Just  
381 because a person thinks they are very reflective, does not guarantee this to be true. Any self-  
382 report measures of reflection should be used with this in mind, and thus used with caution.  
383 However, this does not invalidate the use of such measures. As reviewed in our introduction to  
384 this paper, evidence does exist suggesting that the RPQ can be sensitive to changes in reflective  
385 practice tendencies of individuals (Aitken et al. 2021; Da Silva et al. 2022; Horst et al. 2019;  
386 Khalil & Hashish 2022; Schwartz et al. 2020; Van Winkle et al. 2021; Van Winkle et al. 2022).

387

388 Another limitation of the present study is the reliance on a convenience sample of university  
389 students. We were originally planning on having several participant groups, however the  
390 COVID-19 pandemic introduced challenges for that data collection. Regardless, the sample we  
391 obtained is serviceable for the purposes of the current paper. In future research we will continue  
392 validation work of the RPQ across different samples, and for different applications of the RPQ.  
393 Introducing the more user-friendly version of the RPQ in this current paper we expect will help  
394 facilitate that process.

395

396 While we believe the refinement of the RPQ as presented in this paper is a step forward in the  
397 development of the questionnaire, we also recognise that simplifying the questionnaire may not  
398 be beneficial for all potential applications of the questionnaire. For example, Sadusky and Spinks  
399 (2022) reported that burnout was associated with the stress sub-scale of the original RPQ, but not  
400 with the uncertainty sub-scale. Therefore, research questions that dig deeper into the sub-aspects  
401 contained with the RPQ may benefit from using the original version of the RPQ or breaking  
402 down the combined sub-scales of the updated RPQ (e.g., separating the uncertainty/stress subs-  
403 scale into separate uncertainty and stress scores).

404

## 405 Conclusions

406

407 The purpose of the current study was to further refine the reflective practice questionnaire with  
408 the intention of making it more streamlined. In this article we provide a slightly modified version  
409 of the RPQ (see Tables 5 and 6 below) that we believe will make it a more user-friendly  
410 questionnaire for both researchers and practitioners. The RPQ is free to use and there is no  
411 requirement to obtain permission from the authors for use. However, we do enjoy hearing from  
412 people about how they are using it and are always happy to receive emails letting us know what  
413 you are using it for, or any questions you may have.

414

415 &lt;Insert Table 5&gt;

416

417 &lt;Insert Table 6&gt;

418

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420

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538

**Table 1** (on next page)

Factor loadings from exploratory factor analysis on the reflective practice items from the original reflective practice questionnaire. Loadings less than 0.40 are omitted for clarity.

\*Note, sub-scale items from the original RPQ: RiA = Reflection-in-action, RoA = Reflection-on-action, RO = Reflection-with-others, SA = Self-appraisal.

1

Item	Factor 1.	Factor 2.	Uniqueness.
1 (RiA). During interactions with clients I recognize when my pre-existing beliefs are influencing the interaction.	0.59		0.69
2 (RiA). During interactions with clients I consider how my personal thoughts and feelings are influencing the interaction.	0.77		0.46
3 (RiA). During interactions with clients I recognize when my client's pre-existing beliefs are influencing the interaction.	0.60		0.60
4 (RiA). During interactions with clients I consider how their personal thoughts and feelings are influencing the interaction.	0.68		0.54
5 (RoA). After interacting with clients I spend time thinking about what was said and done.	0.65		0.57
6 (RoA). After interacting with clients I wonder about the client's experience of the interaction.	0.75		0.52
7 (RoA). After interacting with clients I wonder about my own experience of the interaction.	0.71		0.47
8 (RoA). After interacting with clients I think about how things went during the interaction.	0.80		0.37
9. (RO) When reflecting with others about my work I become aware of things I had not previously considered.		0.63	0.61
10. (RO) When reflecting with others about my work I develop new perspectives.		0.79	0.42
11. (RO) Reflecting with others about my work helps me to work out problems.		0.68	0.50
12. (RO) I gain new insights when reflecting with others about my work.		0.83	0.35
13. (SA) I think about my strengths for working with clients.	0.31		0.74
14. (SA) I think about my weaknesses for working with clients.	0.56		0.61
15. (SA) I think about how I might improve my ability to work with clients.	0.44		0.52
16. (SA) I critically evaluate the strategies and techniques I use in my work with clients.	0.58		0.51

2

**Table 2** (on next page)

Exploratory factor analysis of the Reflective Practice Questionnaire - Extended (RPQ-E). Loadings less than 0.40 are omitted for clarity.

\*Note, sub-scale items from the original RPQ: RiA = Reflection-in-action, RoA = Reflection-on-action, RO = Reflection-with-others, SA = Self-appraisal, CG = Confidence-General, CC = Confidence-Communication, UNC = Uncertainty, STR = Stress, JS = Job satisfaction.

1

Item	Factor loadings				Uniqueness
	1.	2.	3.	4.	
1 (RiA). During interactions with clients I recognize when my pre-existing beliefs are influencing the interaction.	0.48				0.71
2 (RiA). During interactions with clients I consider how my personal thoughts and feelings are influencing the interaction.	0.69				0.51
3 (RiA). During interactions with clients I recognize when my client's pre-existing beliefs are influencing the interaction.	0.63				0.59
4 (RiA). During interactions with clients I consider how their personal thoughts and feelings are influencing the interaction.	0.77				0.48
5 (RoA). After interacting with clients I spend time thinking about what was said and done.	0.63				0.58
6 (RoA). After interacting with clients I wonder about the client's experience of the interaction.	0.69				0.52
7 (RoA). After interacting with clients I wonder about my own experience of the interaction.	0.72				0.48
8 (RoA). After interacting with clients I think about how things went during the interaction.	0.80				0.38
9. (SA) I think about how I might improve my ability to work with clients.	0.53				0.52
10. (SA) I critically evaluate the strategies and techniques I use in my work with clients.	0.67				0.44
11. (CG) I feel like I have all the experience I require to effectively interact with clients.		0.78			0.46
12. (CG) I feel like I have all the practical skills I require to effectively interact with clients.		0.86			0.32
13. (CG) I feel like I have learnt everything I need to know in order to effectively interact with clients.		0.66			0.61
14. (CG) I feel like I have all the theoretical knowledge I require to effectively interact with clients.		0.72			0.53
15. (CC) I feel able to communicate so that a client can understand me easily.		0.60			0.52
16. (CC) I feel confident when communicating my ideas with a client.		0.46			0.49
17. (CC) I feel that I provide clear messages to my clients.		0.58			0.48
18. (CC) I feel capable in my ability to communicate with clients.		0.63			0.35
19. (UNC) I am uncertain that my planning for a client is the best possible way to proceed.			0.47		0.75
20. (UNC) I am uncertain that I am interpreting the needs of a client correctly.			0.50		0.61
21. (UNC) I am uncertain about how to handle the needs of a client.			0.61		0.48
22. (UNC) I am uncertain that I properly understand the needs of a client.			0.51		0.64
19. (STR) After interacting with clients I feel exhausted.			0.65		0.59
20. (STR) I find interacting with a client to be stressful.			0.75		0.42
21. (STR) I feel distressed after communicating with a client.			0.70		0.52

22. (STR) The pressure to meet needs of a client can feel overwhelming.			0.62		0.58
27. (JS) My work provides me with a sense of fulfilment.				0.87	0.23
28. (JS) I feel like my work means more to me than simply earning money.				0.79	0.33
29. (JS) I enjoy my work.				0.89	0.22
30. (JS) I find my work rewarding.				0.59	0.57

2

**Table 3** (on next page)

Means (with standard deviation in brackets) for the sub-scales of the RPQ-E, SRIS, and RRQ separated by industry groups.

1

	Health	Education	Admin.	Retail	Acomm./ Food	Other	Total	Cronbach's Alpha
RPQ. Reflective Practice	4.03 (0.78)	3.98 (0.74)	3.67 (0.90)	3.65 (0.86)	3.46 (0.89)	3.77 (0.82)	3.76 (0.85)	.89
RPQ. Confidence	4.08 (0.75)	4.19 (0.74)	4.25 (0.93)	4.37 (0.84)	4.01 (0.76)	4.26 (0.78)	4.21 (0.81)	.87
RPQ. Uncertainty/ Stress	2.67 (0.77)	2.77 (0.83)	2.52 (0.73)	2.75 (0.75)	2.71 (0.75)	2.66 (0.78)	2.69 (0.77)	.83
RPQ. Work Satisfaction	4.61 (1.00)	4.72 (0.94)	4.13 (1.11)	3.61 (1.14)	3.53 (0.93)	3.92 (1.18)	4.05 (1.15)	.86
SRIS. Self- reflection	4.85 (0.82)	4.73 (0.96)	4.92 (0.88)	4.68 (0.99)	4.68 (1.03)	4.92 (0.82)	4.79 (0.92)	.93
SRIS. Insight	4.28 (0.86)	4.30 (0.94)	4.64 (0.87)	4.02 (0.92)	4.01 (0.89)	4.44 (0.89)	4.25 (0.92)	.85
RRQ. Reflection	3.58 (0.68)	3.53 (0.79)	3.61 (0.90)	3.59 (0.76)	3.57 (0.67)	3.82 (0.79)	3.62 (0.77)	.93
RRQ. Rumination	3.59 (0.68)	3.65 (0.90)	3.69 (0.81)	3.69 (0.73)	3.70 (0.74)	3.57 (0.83)	3.65 (0.77)	.93

2

3

**Table 4**(on next page)

Pearson correlations among the sub-scales of the RPQ-E, SRIS, and RRQ.

Note: \* $p < .05$

	RPQ. Ref. Prac.	RPQ. Conf.	RPQ. Unc./ Stress	RPQ. Work Satisfaction	SRIS. Self- reflection	SRIS. Insight	RRQ. Reflection	RRQ. Rumination
RPQ. Ref. Prac.	1							
RPQ. Conf.	.17*	1						
RPQ. Unc./Stress	.26*	-.40*	1					
RPQ. Work Satisfaction	.30*	.21*	-.22*	1				
SRIS. Self- reflection	.32*	.13*	-.06	.09*	1			
SRIS. Insight	.06	.27*	-.40*	.20*	.32*	1		
RRQ. Reflection	.23*	.03	-.03	.10*	.71*	.26*	1	
RRQ. Rumination	.14*	-.19*	.38*	-.22*	.19*	-.36*	.11*	1

1

**Table 5** (on next page)

The Reflective Practice Questionnaire (RPQ).

Note: Scoring instructions, average across all items to obtain a score that can potentially range from 1 - 6.

1 Please rate how often each statement applies to you:

	(1). Very Rarely	(2). Rarely	(3). Sometimes	(4). Often	(5). Very Often	(6). Almost Always
1. During interactions with clients I recognize when my pre-existing beliefs are influencing the interaction.	<input type="checkbox"/>					
2. During interactions with clients I consider how my personal thoughts and feelings are influencing the interaction.	<input type="checkbox"/>					
3. During interactions with clients I recognize when my client's pre-existing beliefs are influencing the interaction.	<input type="checkbox"/>					
4. During interactions with clients I consider how their personal thoughts and feelings are influencing the interaction.	<input type="checkbox"/>					
5. After interacting with clients I spend time thinking about what was said and done	<input type="checkbox"/>					
6. After interacting with clients I wonder about the client's experience of the interaction.	<input type="checkbox"/>					
7. After interacting with clients I wonder about my own experience of the interaction.	<input type="checkbox"/>					
8. After interacting with clients I think about how things went during the interaction.	<input type="checkbox"/>					
9. I think about how I might improve my ability to work with clients.	<input type="checkbox"/>					
10. I critically evaluate the strategies and techniques I use in my work with clients.	<input type="checkbox"/>					

2

3

**Table 6**(on next page)

The Reflective Practice Questionnaire Extended (RPQ-E).

Note: Scoring, all measures provide a score that can range from 1 - 6. Reflective practice score = Average across items 1 - 10. Confidence score = Average across items 11 - 18. Uncertainty/Stress score = Average across items 19 - 26. Work satisfaction score = Average across items 27 - 30. \*Also note: There is scope for the confidence sub-scale to be further broken down into "general confidence" (items 11-14) and 'communication confidence' (items 15-18) sub-scales. There is scope for the uncertainty/stress sub-scale to be further broken down into 'stress' (items 19-22) and 'uncertainty' (items 23-26) sub-scales.

1 Please rate how often each statement applies to you:

	(1). Very Rarely	(2). Rarely	(3). Sometimes	(4). Often	(5). Very Often	(6). Almost Always
1. During interactions with clients I recognize when my pre-existing beliefs are influencing the interaction.	<input type="checkbox"/>					
2. During interactions with clients I consider how my personal thoughts and feelings are influencing the interaction.	<input type="checkbox"/>					
3. During interactions with clients I recognize when my client's pre-existing beliefs are influencing the interaction.	<input type="checkbox"/>					
4. During interactions with clients I consider how their personal thoughts and feelings are influencing the interaction.	<input type="checkbox"/>					
5. After interacting with clients I spend time thinking about what was said and done	<input type="checkbox"/>					
6. After interacting with clients I wonder about the client's experience of the interaction.	<input type="checkbox"/>					
7. After interacting with clients I wonder about my own experience of the interaction.	<input type="checkbox"/>					
8. After interacting with clients I think about how things went during the interaction.	<input type="checkbox"/>					
9. I think about how I might improve my ability to work with clients.	<input type="checkbox"/>					
10. I critically evaluate the strategies and techniques I use in my work with clients.	<input type="checkbox"/>					
11. I feel like I have all the experience I require to effectively interact with clients.	<input type="checkbox"/>					
12. I feel like I have all the practical skills I require to effectively interact with clients.	<input type="checkbox"/>					
13. I feel like I have learnt everything I need to know in order to effectively interact with clients.	<input type="checkbox"/>					
14. I feel like I have all the theoretical knowledge I require to effectively interact with clients.	<input type="checkbox"/>					
15. I feel able to communicate so that a client can understand me easily.	<input type="checkbox"/>					
16. I feel confident when communicating my ideas with a client.	<input type="checkbox"/>					
17. I feel that I provide clear messages to my clients.	<input type="checkbox"/>					
18. I feel capable in my ability to communicate with clients.	<input type="checkbox"/>					
19. After interacting with clients I feel exhausted.	<input type="checkbox"/>					
20. I find interacting with a client to be stressful.	<input type="checkbox"/>					
21. I feel distressed after communicating with a client.	<input type="checkbox"/>					
22. The pressure to meet needs of a client can feel overwhelming.	<input type="checkbox"/>					
23. I am uncertain that my planning for a client is the best possible way to proceed.	<input type="checkbox"/>					
24. I am uncertain that I am interpreting the needs of a client correctly.	<input type="checkbox"/>					
25. I am uncertain about how to handle the needs of a client.	<input type="checkbox"/>					
26. I am uncertain that I properly understand the needs of a client.	<input type="checkbox"/>					
27. My work provides me with a sense of fulfilment.	<input type="checkbox"/>					
28. I feel like my work means more to me than simply earning money.	<input type="checkbox"/>					
29. I enjoy my work.	<input type="checkbox"/>					
30. I find my work rewarding.	<input type="checkbox"/>					

2