Running Head: Keeping Girls in Sport

Keeping Girls in Sport: A two-part evaluation of an e-learning module for coaches and activity leaders

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1 **Abstract**

2 The purpose of this study was two-fold: first, to identify who engaged with the Keeping

3 Girls in Sport e-learning program and, second, to evaluate coach and activity leaders'

4 perceptions of the program and their perceived learnings gained from completing the program.

5 An explanatory sequential mixed-method design was adopted. First, an online survey was

6 distributed to all individuals who had participated in the program. In total, 511 (33% response

7 rate) completed the survey. Quantitative survey data were analysed using descriptive statistics.

8 Subsequently, interviews were conducted with 20 survey respondents. A realist logic of

9 analysis was applied to the qualitative data and context-mechanism-outcome configurations

10 were formed (Pawson & Tilley, 1997). Overall, survey findings indicated that most participants

11 identified as women (56%), were coaches (69%), and aged between 40-49 years (37%). In

12 general, participants had positive perceptions of the program. Participants perceived that the

13 accessibility and flexibility of the program increased opportunities to engage with content and

14 thus their learning. They described improvements in knowledge and perspective regarding

15 working with female athletes. This increase in knowledge provided participants with

16 confidence to establish trusting and positive relationships with others, specifically parents.

17 Nevertheless, participants highlighted a need for more tailored but also more expansive

18 programs.

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21 Keywords: Coach education; evaluation; youth sport; girls sport.

22   In 2018, the Coaching Association of Canada (CAC), alongside Canadian

23 organizations including Jumpstart Charities, Canadian Women and Sport (formerly

24 CAAWS), Respect Group launched the Keeping Girls in Sport (KGIS) e-learning program.

25 The KGIS program (https://jumpstart-kgis.respectgroupinc.com/koala_final/start.jsp) was

26 developed for organizations, coaches, and leaders who coach or mentor girls and women in

27 sport. However, all individuals with a desire to provide quality sport experiences among these

28 populations can complete the program. The resource employs an asynchronous online

29 learning format to deliver material, including information about the history of girls and

30 women in sport, injury prevention, and athlete engagement (see supplementary resources for

31 complete module breakdown). With the exception of narratives shared by renowned

32 Canadian women athletes, the program is automated and requires approximately 90 minutes

33 to complete in its entirety. Learners can access the program for $18.00 CAD and receive a

34 certificate upon completion. To our knowledge, the only organization requiring mandatory

35 completion of the Keeping Girls in Sport program among their leadership is the Ontario

36 Soccer Association.

37   Despite the widespread possibilities of learners who can access the program, KGIS

38 was designed specifically as an online coach education tool to help sport leaders create safe

39 and respectful environments for girls. It is known that sport coaches play a key role with

40 regards to sport dropout, since support from coaches has been identified as a factor impacting

41 retention of girls in sport (Staurowsky et al., 2020). Research demonstrates that the quality of

42 the coaching experience influences participation, where positive coaching is associated with

43 increased enjoyment and leads to continued involvement (Litchfield & Elliott, 2021), while

44 negative experiences can lead to disengagement and increased drop-out rates among girls

45 (Staurowsky et al., 2020). Moreover, if coaches understand the emotional, psychosocial, and

46 physical changes girls experience it can be particularly helpful for retaining girls in sport

47   (Culver & Kraft, 2020), with girls themselves suggesting a preference for a coach that is

48   patient, able to provide emotional support, and reinforce enjoyment (Litchfield & Elliott,

49   2021). By developing the KGIS program, the Canadian sport organizations recognised both

50   the need to address issues of sport dropout among adolescent girls and the positive impact

51   that coaches and leaders with knowledge about particular experiences of girls may have.

52   However, the effectiveness of this program is yet to be determined.

53   Among coaches, specifically, learning new information has been cited as "an

54   instrumental factor in achieving specific behavioural change" (Ribbers & Waringa, 2015, p.

55   4), so it is only logical that the goal of online learning, such as the "Keeping Girls in Sport"

56   program, is to gain new knowledge and insights that can be applied in practice. However,

57   coach education research suggests that further investigation, and more quality evidence, is

58   necessary to discover what coaches gain and apply from their learning experiences (Stodter &

59   Cushion, 2019). If programs like KGIS are to impact on coaches' practice and subsequently,

60   with respect to this program, the sport participation rates and sport experiences of girls, it is

61   important that they undergo thorough evaluations (Dohme et al., 2021). The value of

62   evaluating coach education programs or learning approaches is shown by evaluations

63   conducted in recent years (e.g., Camire et al., 2018; Dohme et al., 2021; Driska, 2018;

64   Storszowaki & Collins, 2021). For instance, the evaluation of the Canadian developed

65   Concussion-U educational program demonstrated the effectiveness of the program in

66   enhancing participant knowledge of concussion (Eagles et al., 2016), while Redgate and

67   colleagues' (2020) realist evaluation of the football association's post graduate diploma in

68   coach development identified how, why, and in which contexts the program influenced

69   coaches' professional practice. Yet, there has been limited investigation of programs targeted

70   specifically at working with girls, illustrating a critical knowledge gap and need for the

71   present study.

72   Recognising the importance of evaluating their program, the lead and third author

73   proposed to the KGIS partners (Canadian Tire Jumpstart Charities, Respect Group, Coaching

74   Association of Canada, and Canadian Women and Sport) to conduct an evaluation. They

75   agreed and subsequently grant funding to carry out a two-fold evaluation was secured from

76   Sport Information Research Centre of Canada. Specifically, the purpose of the evaluation was

77   first, to identify who engaged with the KGIS e-learning program and, second to evaluate

78   coach and activity leaders' perceptions of the program and their perceived learnings gained

79   from completing the program. To achieve this, we used a two-phase mixed methods

80   approach. Since the KGIS program is accessible to many learners, including non-coach

81   participants (i.e., sport volunteers, parents, athletes, teachers), we aimed to first understand

82   who was engaging with the KGIS program. Insights about the background and geographical

83   location of participants can inform who is engaging with the program and subsequently

84   indicate where or if more targeted advertising approaches may be required. Subsequently, we

85   sought insights from coaches – through quantitative and qualitative methods – to understand

86   their overall perceptions of the KGIS e-learning program and to help target future initiatives

87   and programs seeking to enhance knowledge for coaches working with girls in sport.

88   **Method**

89   **Study Design and Philosophical Underpinnings**

90   This study was informed by a realist approach, underpinned by the philosophy of

91   scientific realism (Pawson & Tilley, 1997; Pawson, 2006). A key principle of scientific

92   realism is the ontological belief that there exists a mind-independent reality, whilst also

93   acknowledging that our knowledge of reality is shaped according to our ideas, experiences,

94   and constructions (Sayer, 2000). Thus, scientific realist ontology states that a real world

95   exists independent of how an individual perceives or constructs it (Maxwell, 2012; Sayer,

96   2000), whereas scientific realist epistemology recognises that how an individual perceives

97   and makes sense of reality will inevitably be a construction from their own beliefs,

98   experiences, and perspectives (Maxwell, 2012). As such, our knowledge of reality will

99   always remain partial, fallible, and incomplete as there is more to reality than what

100   individuals are capable of processing (Kemp, 2017; Maxwell, 2012). The aim of scientific

101   realism is to move towards a closer understanding of an individual's version of reality

102   through configurations of contexts, mechanisms, and outcomes (Manzano, 2016).

103   To provide such insights, we employed a mixed-methods program evaluation to

104   ensure that we could address both the research aims (who was completing it and what they

105   were learning from the program) and gain both a breadth of insights from a broad range of

106   participations as well as more detailed perspectives from a smaller number of participants

107   who were representative of the larger sample. Specifically, a mixed-methods approach was

108   adopted primarily for expansive purposes (Greene et al., 1989), where-in the quantitative

109   survey was conducted to identify who was engaging with the program and key ideas they

110   were taking from the program while the qualitative data sought to expand on the quantitative

111   by illustrating the process through learning occurred. As such, we adopted an explanatory

112   sequential design in which we implemented two data collection approaches in sequence, with

113   the quantitative methods occurring first followed by the qualitative methods (Cresswell &

114   Plano Clark, 2018). Although it must be noted that open-ended questions were present on the

115   final page of the survey and thus some qualitative data were collected in the first phase.

116   Despite the quantitative methods occurring first, we placed the emphasis of the study on the

117   qualitative methods (i.e., quan -> QUAL), as the qualitative data provided rich descriptions of

118   participants engagement with the program (Cresswell & Plano Clark, 2018).

119   Specifically, we collected the qualitative data in both phases with a specific desire to

120   identify why and how any learning occurred as a result of engaging with the program. To do

121   this, data were collected and analyzed to identify key information relating to context,

122   mechanisms, and outcomes as they pertained to the engagement and learning from this

123   program. Context refers to the 'backdrop' and conditions of programs that are necessary to

124   trigger mechanisms (Jagosh et al., 2013). Mechanism refers to underlying causal forces

125   which determine the overall effectiveness of programs (Jagosh et al., 2013). Outcomes refer

126   to the desirable, undesirable, anticipated, and unanticipated consequences of programs

127   resulting from the generation of mechanisms in various contexts. Using this approach, and

128   subsequently generating context-mechanism-outcome (CMO) configurations, provided a

129   beneficial framework to allow us to explicitly identify not just what people learnt from

130   participating in the program, but what facilitated (or prevented) such learning.

131   **Phase 1**

132   *Procedure*

133   The purpose of this phase of the study was to collect demographic data and initial

134   content feedback from participants who completed the KGIS e-learning program to examine

135   who took part in the program, their general perceptions of the program content, and the key

136   ideas and concepts they took from the program. Following receipt of institutional ethics

137   approval, in June of 2020, the lead and third author created an online questionnaire using

138   SurveyMonkey (Momentive Software Company, California, USA). Jumpstart Charities, one

139   of the partner organisations, reviewed the survey material at this point. They were

140   particularly keen to ensure that the voices and experiences of "grassroots coaches" either

141   working in recreational or development programs were sought, as the tool was intended to

142   help curb the decline in participation among teenage girls.

143   *Participant Recruitment*

144   Survey participants were recruited from a total of 1548 individuals, all of whom had

145   completed the KGIS program since its launch in October 2018. Researchers obtained contact

146   information for potential survey participants from Jumpstart Charities, one of the

147   organizations who developed the program. The lead author sent out the recruitment letter and

148   link to the online survey by email to all individuals who completed the KGIS program. In

149   total, 511 individuals completed at least some of the survey (a response rate of 33%). Of

150   those, 511 respondents, 65% completed the survey in its entirety. Demographic results of

151   those who completed the entire survey are provided in the results section.

152   *Data Collection*

153   In total, the survey comprised 10 demographic questions, and 28 questions pertaining

154   to the KGIS program. Specifically, the survey inquired about the demographic details of the

155   respondents, such as, gender, age, location of residence, education, and their roles and

156   experience in sport. Respondents were then asked to rate certain attributes of the KGIS

157   program, and the effectiveness of the 'real-world' athlete narratives used throughout.

158   Subsequent pages of the survey contained a series of questions about each module of the

159   KGIS program (see supplementary materials for details on the KGIS program). Respondents

160   were asked if the information and/or activities presented in the given module was new,

161   useful, and/or impactful. Respondents were then asked to comment what, if any, key

162   takeaways they retained from the specific module in question. They were asked this same

163   series of questions for each module included in the KGIS program. Finally, respondents were

164   asked to provide their overall impressions and/or final comments regarding the KGIS

165   program. A copy of the survey is available from the lead author on request.

166   *Data Analysis*

167   The survey produced both quantitative and qualitative data, analyzed accordingly.

168   Pertinent descriptive data are reported as frequencies, percentages, ranges, and means with

169   standard deviation. Data were analyzed with SPSS 27.0 (IBM Corp, Armonk, NY). Open-

170   ended comments from participants revealed their insights about the program as well as their

171   key takeaways, these data were initially analyzed using the qualitative analysis techniques

172   recommended by Miles, Huberman, and Saldana (2019). This initial analysis underpinned the

173   focus of the interviews within phase two and were subsequently, integrated with the

174   interview data to support the created themes.

175   **Phase 2**

176   *Recruitment*

177   Following phase one data collection and analysis, the second stage of the study

178   commenced in March 2021. Within the initial survey, participants could specify if they would

179   be willing to participate in a follow-up interview. In total, 137 participants indicated interest

180   in participating. To ensure that we gained a range of insights from participants during this

181   stage, we identified 41 of the 137 participants, who covered the breadth of roles, genders,

182   education, experience levels, and perceptions of the KGIS program. An email was sent to

183   each potential participant, detailing the purpose of the study, and including a link through

184   which they could select an interview time and date (or indicate a date that worked for them if

185   none of those suggested were appropriate). Of the 41 participants who were contacted, 20 (8

186   who completed the program in 2018 and 12 in 2019), indicated they would complete an

187   interview.

188   *Participants*

189   The phase two participants ranged in age from 27 to 56 years, the majority were

190   female (65%), involved in a variety of roles (coach, athlete, teacher, volunteer, parent,

191   administrator, technical leader), represented nine sports (alpine skiing, soccer, water polo,

192   running, basketball, volleyball, lacrosse, ringette, and hockey), and had an average coaching

193   experience of 9.3 years ($SD = 12.0$).

194   *Data Collection*

195   Data collection occurred through individual interviews and followed a semi-structured

196   format comprising open-ended questions to understand participants perceptions of the KGIS

197   program. Particularly, aligned with the realist approach, the interviews sought to identify key

198   information relating to context, mechanisms, and outcomes as they pertained to perceived

199   learning, satisfaction, and engagement. Questions included: "Overall, what did you think of

200   KGIS?" "Looking at the KGIS program as a whole, what did you like most and least about it?

201   Specifically, what module did you like most and least? Did anything within the modules

202   particularly resonate with you? Why? Why not?" and "What changes in your

203   behaviors/teaching/coaching practices did you anticipate you would make during your

204   engagement with the program? And what, if any, changes have you made in practice?" A full

205   copy of the interview guide is available from the second author by request. To facilitate the

206   interview process, the interviewer completed the KGIS program before conducting the first

207   interview. Interviews ranged in length from 28 to 78 minutes ($M= 57.3$, $SD = 25.8$).

208   *Data Analysis*

209   Following transcription of the interviews, the second author who conducted the

210   interviews led the process of data analysis, applying a realist logic of analysis (Pawson &

211   Tilley, 1997). Specifically, the researchers examined data to understand the long-term

212   learning (outcomes) from completing the KGIS program, the resources of the program that

213   led to effects (mechanisms), and the type of circumstances in which these effects occurred

214   (contexts) (Pawson & Tilley, 1997). To conduct such analysis, the second author immersed

215   herself in the data while searching for instances where the participants spoke about important

216   contexts, mechanisms, and outcomes. The CMO heuristic was then applied to the data and

217   instances, highlighting contexts, mechanisms, and outcomes were coded.

218   Throughout the process of analysis, the fourth author acted as a critical friend (Smith

219   & McGannon, 2018), questioning, and probing the second author regarding the analysis and

220   allocation of data to different CMOs. Through this process of discussion, the second author

221   returned to the transcripts at different stages to scrutinize her decisions. Subsequently, the

222 CMOs were shared with the rest of the research team (who had conducted the analysis of the

223 first phase), to provide feedback and critical reflection, particularly in relation to the first

224 phase results.

Results

226 The purpose of this study was two-fold: first, to identify who engaged with the KGIS

227 e-learning program and, second to evaluate coach and activity leaders' perceptions of the

228 program and their perceived learnings gained from the program. We obtained information to

229 address the first purpose of this study through phase one of the study, meanwhile, we

230 addressed the second purpose through both phase one and two – that is both phase one and

231 two data contributed to developing the CMO configurations. In total, we developed four

232 CMO configurations pertaining to perceptions of KGIS and key learnings.

Engagement with the Program

234 The demographic information of the survey respondents provided insight into who

235 had taken the KGIS online education training between its launch in October 2018 and the

236 survey delivery in June 2020. Of the total survey respondents, 420 disclosed their gender,

237 with 56.0% (n = 237) identifying as women; 43.0% (n = 180) identifying as men; and 0.5%

238 (n = 2) identifying as non-binary/gender-queer/gender-fluid. Most survey respondents were

239 residents of Ontario (49.8%, n= 209) and the geographic distribution of the remaining

240 respondents were as follows: 11.5% from British Columbia; 13.6% from Alberta; 5.6% from

241 Saskatchewan; 6.7% from Manitoba; 3.6% from Quebec; and 8.8% from all the maritime

242 provinces, collectively. Less than 1% of respondents resided in either North-West Territories,

243 Yukon, or Nunavut. Most respondents were between the ages of 40-49 (37.0%, n = 157). A

244 little over one percent of respondents were between 16-19 years old; 14.0% were between 20-

245 29 years old; 22.0% were between 30-39 years old; 19.0% were between 50-59 years old;

246 5.0% were between 60-69 years old; and less than 1.0% were over 69 years old.

247   Only 159 respondents shared their educational history, with the majority (51.0%, n =

248   81) holding a bachelor's degree in kinesiology or human kinetics. Many respondents held

249   diplomas or certificates in fitness/personal training (27.0%, n = 43), as well as degrees in

250   recreation or sport management (26.0%, n = 42). Several respondents (11.0%, n = 18) held

251   advanced coaching diplomas from the National Coaching Certification Program (NCCP);

252   master's degrees in either coaching (9.0%, n = 15) or human performance/exercise science

253   (8.0%, n = 13); or advanced allied health degrees (7.5%, n = 12). Other respondents held

254   additional advanced post-graduate training, such as, athletic therapy or certified exercise

255   physiology (4.0%, n = 7). It is not evident whether the 352 respondents who opted to skip this

256   question did not possess any of the above-mentioned education or simply did not wish to

257   disclose such information.

258   Respondents had experience in a variety of supporting roles in sport, including, coach,

259   athlete, mentor, administrator, parent, volunteer, teacher and other (i.e., executive, sport

260   manager, health promoter/advocate). However, despite fulfilling many different roles within

261   the sport context, a large majority (69.0%, n = 290) of respondents indicated it was their role

262   as a 'coach' that inspired them to complete the KGIS e-learning program. In addition to their

263   personal and professional history in sport, respondents were asked to identify which sports

264   they worked with and were allowed to list up to five sports with which they were involved.

265   All those who responded to this question (n = 419) listed a primary sport, a large majority

266   (69.0%, n = 289) listed a secondary sport, and less than half provided subsequent sport

267   listings. Responses from this question revealed a diverse range of sports within the various

268   sport listings. However, the most frequently mentioned sport, for both primary and secondary

269   sport involvement, was soccer at 24.0% (n = 102) and 19.0% (n = 54), respectively. Ice

270   hockey, basketball, ringette, gymnastics, and volleyball were the other sports most frequently

271   mentioned across survey responses.

272 **Perceptions of the Program and Key Learnings**

273 *CMO 1: Accessibility and Convenience*

274   Contextually, many participants described barriers that made it challenging to access

275 training and support. Such barriers included transport difficulties, limited time, and a

276 perceived lack of access and availability. David, for instance, shared sentiments that echoed

277 the thoughts of many:

278   There's not enough, not nearly enough, I don't think. I think, particularly at the

279   community level right… You get training to be certified to coach at that level and then

280   other than your criminal record check there's nothing you do necessarily after that. So, I

281   could go in and coach for 50 years and never have to update or do anything. There's not

282   nearly enough ongoing training.

283 Within this context, participants identified the virtual, accessible, and flexible design of the

284 KGIS program as key mechanisms underlying success. Specifically, participants described

285 how they were able to complete the program in their own time, and at their own pace

286 (mechanism). As discussed by Heidi:

287   The other thing too is its online and you could start and stop, which was also really

288   important, not everybody has the time [to attend in-person courses]. They could pace

289   themselves if they needed to chunk it out in different parts, that was a very useful part

290   of the way it was structured.

291 Similarly, William shared:

292   I thought it's probably one of the best online courses I've done coaching wise… I found

293   it convenient like you know, the online was good, I remember it being super easy to

294   navigate and save your spot, and it even told you how long like the next module was

295   like in between, kind of thing. So, you can kind of if you, you know if you have like a

296   half hour or you have an hour then you can kind of crush some of it out, you're like 'do

297   I have time for another module?' Ahh no, I've got to…

298   Consequently, outcomes observed as a result included increased engagement and

299 satisfaction with the KGIS program. As explained by Amy in the interview:

300   I think the modules were written in a way for anybody, you know, any gender to

301   engage at any access point in sport, like head coach, volunteer coach, parent, sister,

302   brother, to be helpful and supportive and useful. It's one thing to read a journal article

303   that's generally dry, and another thing to engage with videos like that, and I think this

304   was a really great way to present the information and wrap it up in a clean way.

305 This CMO configuration is displayed in Table 1.

306   *****Insert Table 1 here*****

307 CMO Configuration 2: *Increase in Knowledge and Perspective.*

308   Many participants expressed concerns regarding the lack of qualified coaches who

309 have the necessary training and experience to work with female athletes (context). For

310 instance, in response to being asked about coaches' backgrounds and prior experience, Kevin

311 and Dougal commented: "Everything's volunteer based so if a parent doesn't do it then

312 nobody does it. That's the hard part here, there's not really qualified people to do stuff. The

313 one guy that I was working with had no experience in coaching [females] whatsoever"

314 (Dougal) and "Some of the coaches here are coaching because they have daughters, or they

315 love the game, and they've never heard of 'Keeping Girls in Sport'" (Kevin).

316   In this context, participants noted how KGIS increased their knowledge and

317 perspective, enabling them to become more cognisant of female athlete's needs (mechanism).

318 As one survey respondent simply stated, the material was "thought provoking" and "helped

319 [to] conceptualize the scope of the issue." In the interviews, Heidi succinctly explained:

320 "Some of the scientific stuff about women and how they felt about injury. That's the stuff that

321 I remember, even to this day." Additionally, participants felt the presentation of this

322 information, using statistics and stories was particularly powerful and valuable. One survey

323 participant shared, "I valued the statistics and facts … as a female, both [an] athlete and

324 coach, I was surprised at some of the information and learned lots."

325   Many participants found the information pertaining to nuanced gender differences

326 insightful. For instance, Stephanie shared:

327   I think it's really good to have that information [injuries module] in this program… I

328   think it helps anybody who's watching it or doing the program to remember that there

329   are still things that are different about the female body than the male body. You know,

330   and so many things are designed with male athletes in mind. Obviously, I mean, what

331   I remember the most about the physical injuries that was talked about being so

332   different where the knee injuries and it having so much to do with the, you know,

333   female shape and development with the hips… And I think it's sometimes just that

334   mindset switch where even though you're coaching a bunch of maybe really

335   competitive kids, they still have different needs than when you coach your son's

336   hockey team.

337 In addition to the prevention of physical injuries, participants described developing an

338 awareness of the emotional challenges faced by females within a sporting environment. As

339 Kevin described:

340   I thought it was a very informative component because we as leaders often think of the

341   physical injuries. You know they roll an ankle; they get a concussion. In general, I don't

342   think we think enough about the social and emotional part of players mentality.

343   Bullying, peer pressure, you know things like that.

344   Numerous participants explicitly stated strategies and concepts they had taken from

345 KGIS in order to establish an environment where females felt welcome and valued, and to

346 prevent bullying behaviours:

347   In fact, one thing as a result [of KGIS], I was very careful about how we selected, I

348   didn't let the players vote on letters on the team. It was something that the coaches and I

349   always did on our own, we would personally select who the captain and the assistants

350   would be, and they were selected specifically because of those characteristics. Who are

351   the unifiers in the, on the team? Who pulls people together? Who makes sure

352   everyone's included? We very much look for those personalities, rather than then letting

353   the kids, it becomes a popularity contest right and sometimes that's the subject of some

354   bullying frankly right. To see who gets the letter and who doesn't. (David).

355   Building on several other's comments, one coach, Dougal, described the importance of

356 organising social activities and events, providing females the opportunity to form close

357 friendships and connections:

358   Another thing I did, I took from one of the modules, like the social aspect where the

359   girls are looking for the social thing. So, what I would do is I would organise events or

360   things outside of basketball… We would go and see the local university, girls'

361   university team. So, we would go and watch a basketball game, the girls would hang

362   out and we'd have dinner, like pizza lunch, or whatever. And they roam around and

363   play, and then they meet the university girls playing basketball. Or I'd organise like a

364   hiking thing… Just something different, other than basketball, where the girls are able

365   to socialise…

366 For many participants, involvement in KGIS led to increased confidence in their own skills

367 and ability to coach female athletes. For example, because of KGIS, David commented, "I

368 feel better equipped", while Beth described:

369   So, some of the things [from KGIS], I'm like well I do that so. And there was definitely

370   like some light bulb moments, I'm like okay that's great. But on the other side of it just

371   that awareness like we talked about relationship injuries and making sure that I tackle

372   that. Nutrition. It's like almost reminders to myself that 'oh geez am I really a whole

373   coach or am I just choosing you know the parts that I want to, I want to be a coach for,

374   right?'. Taking some of those practical strategies, reminding me of areas. And then the

375   other part, is just like things that maybe I would challenge and that has propelled me in

376   a direction… So, I guess [KGIS] sparked me to dive in a little bit deeper into some

377   more areas… (Beth).

378 This is depicted further in Table 2.

379   ****Insert Table 2 here****

380 CMO configuration 3: *Improved Communication and Trust Among Stakeholders*

381   The findings from the interviews and survey revealed a culture of mistrust between

382 coaches and parents (context). As one coach, Dougal, revealed: "When I started coaching the

383 girls, there were a few parents that were questioning me right on how I was doing stuff."

384 Similarly, Heather stated: "Because I felt completely misunderstood… They [parents and

385 coaches] didn't understand my processes and they didn't understand why it was working."

386 Within this context, many participants highlighted how the KGIS program provided access to

387 knowledge and evidenced-based information which, in turn, created several opportunities for

388 more open and transparent communication between parents and coaches (mechanism). As

389 explained by one survey respondent: "It created a dialogue within the club that differentiated

390 us to other clubs in the area." Likewise, Stephanie stated in an interview:

391   It [KGIS program] was really, really effective in reminding me that either I'm on the

392   right track or how to justify or explain why I'm doing things to the parents… So, you

393   know, sometimes you know that what you're doing is on the right track, but you can't,

394   well at least I'm not very articulate so explaining it to the parents isn't always easy,

395   and so having something like that [KGIS], with statistics and research to back it up. I

396   can say 'hey, this is why we're doing this, this is why it's important.'

397   In fact, participants indicated that completing KGIS had led to immediate changes in

398   their behaviours and communication. For instance, Dougal indicated in an interview that

399   because of KGIS:

400   It sort of gave me more ammunition and more like… I had a parents' meeting and I sort

401   of used that as okay, well here's what the research says. Like if you don't believe me

402   and my background, then we believe this stuff, right? So, I kind of use that as

403   ammunition to tell them, you know you don't need to question me (Dougal).

404   Meanwhile one survey respondent shared, "I had to use this information in a difficult parent –

405   coach interaction." As evident in the extracts above, taking part in the KGIS program resulted

406   in improved communication and trust between coaches and parents (outcome). This was

407   summarised by Heather, who explained: "The people that have taken it [KGIS], that I've

408   asked to take it, have understood me better as a coach and understood my values and why I

409   make certain decisions" (Heather). This CMO configuration is presented in Table 3.

410   *****Insert Table 3 here *****

411   *CMO Configuration 4: Suggestions for Improving Future Content*

412   Some participants involved in KGIS had accumulated extensive experience working

413   with female athletes (context). In such instances, it appeared the program did not meet their

414   individualized needs and preferences (mechanism). For example, one participant, Kevin,

415   described how he perceived the program more as an introductory course to coaching females:

416   I think it was a very good introductory component…I think very basic information

417   which I think is what is needed. For me, I looked at it, because I have been in the game

418   as a technical leader for a while, I had a different set of eyes for it. I think it was a very

419   good entry level introduction for someone who is coaching girls in sports, to get them

420   kind of started.

421   In a similar vein, some survey respondents stated the program was a review of information

422   they were previously aware of but acknowledged the KGIS program as an excellent

423   introduction to strong messages and important material. As one respondent stated, "Great

424   starting point for those that are less informed. Reinforces what we know for those that are

425   informed so useful none the less."

426   Within this context, participants made insightful and practical suggestions regarding

427   educational content and modules that would be more meaningful to them. Olivia, for

428   instance, explained:

429   Because I coach boys and girls together it's always co-ed [coeducational] and there are

430   different dynamics in coaching a co-ed group than an only girls' group and I didn't see

431   that necessarily reflected in the course… I think it would just be introducing the notion

432   that in some sports, you have girls and boy's playing alongside each other and how do

433   we work with the boys, to help them make the girls experience better?

434   Heidi expressed support for carrying out modules related to multi-sport involvement: "multi-

435   sport is a module that I think could be expanded in the future", and suggested that having the

436   KGIS program available in multiple languages would be an important precondition to engage

437   culturally diverse coaches and participants:

438   Multiple languages. The one thing I will say is, although Canada is French and

439   English… You're relying on a lot of parents that are coaches that speak more than one

440   language. In water polo, for example, we're talking about people with backgrounds, that

441   you know, are, you know, they're not comfortable in either of the languages [French or

442   English], it's not their first language.

443   Expanding the reach of the KGIS program was also a suggestion made by Mia:

444   I would wonder if there's a spot to invite boys into the conversation because well, we

445   need to keep boys in sport as well and I think that sometimes, with this, it was very girl

446   focused which is wonderful but boys are our allies and just like girls need to see a

447   reflection and mirrors of themselves in sport, men need to see other men leading the

448   charge on KGIS.

449 Finally, Kevin highlighted the importance of providing follow-up KGIS educational modules:

450   Can there be a follow up? A KGIS volume two or part two… What happens

451   traditionally is we take these courses, we get all excited about something, we're going

452   to change the world, we're going to do this, and then as time goes, we fade away, we

453   forget, and we fall back into habits that we used to do.

454 For these participants, the KGIS program reaffirmed, re-enforced, and validated their

455 knowledge, behaviours, and decisions (outcome). As expressed by Amanda, "Since I've been

456 working with girls a while and I was already kind of invested in it [KGIS], I think it kind of

457 just reaffirmed what I was doing, it was like okay, keep doing this, and keep building on it."

458 This CMO configuration is detailed in Table 4.

459   *****Insert Table 4 Here ****

460   **Discussion**

461   The purpose of this study was two-fold: first, to identify who engaged with the KGIS

462 e-learning program and, second to evaluate coach and activity leaders' perceptions of the

463 program and their perceived learnings gained from completing the program. Overall, of those

464 participants who completed the survey, slightly more women than men completed the KGIS

465 program, fulfilled a coaching role, were from Ontario, aged between 40-49 years, and

466 spanned a range of sports, predominantly team sports. The engagement of individuals across

467 the gender spectrum is important, not least because recent research has indicated that female

468 athletes are sometimes reluctant to discuss aspects specific to females (i.e., menstruation)

469   with male coaches because it is both uncomfortable and men are not perceived to understand

470   the experience (Brown et al., 2020; Findlay et al., 2019). As such, increasing men's

471   knowledge regarding the range of factors that influence girls and women's experiences within

472   sport is important to mitigate and overcome such barriers. Additionally, it is recognised that

473   coaching often occurs in a gendered manner, with coaches, particularly men, accepting taken

474   for granted gendered truths regarding athletic performance rather than reflecting on their

475   perceptions and practices as they pertain to girls/women compared to boys/men (de Hans &

476   Knoppers, 2019). As such, it is encouraging that several men engaged with this resource and

477   subsequently, indicated that the program provided a valuable stimulus to critically reflect on

478   their practice, approaches, and engagement with girls. However, given that typically men

479   make up most coaching positions (approximately 70%; Messner & Bozada-Deas, 2009), the

480   fact that more women appear to have completed the program (assuming the survey is

481   representative), suggests there is a need to consider how to encourage men's interest and

482   engagement with such programs.

483   Moreover, much has been written about the differences in coaching girls/women (see

484   LaVoi et al., 2007), and the potential impact being a male coach may have on the interactions

485   with, and perceptions of, female athletes (e.g., de Hann & Knoppers, 2020). Further, it has

486   been suggested that girls/women have a desire to be or may benefit from being coached by

487   someone of the same gender (Diedrich, 2020; Ekholm et al., 2019), not least because being

488   coached by an individual of the same gender means there is likely to be some common

489   understanding and shared experience. However, recent evidence suggests that just because

490   women coaches may share similar experiences as girls/women athletes, they are not always

491   aware of research or evidence related to female-specific topics (i.e., menstruation), nor are

492   their personal experiences the exact same as the individuals they may be coaching (Brown &

493   Knight, 2022). Thus, it is positive to note women engaging with this program to increase

494   their knowledge to improve engagement with girls in sport, even though they are the same

495   gender.

496   Findings from both the survey and the interviews indicated that participants had

497   positive perceptions of the program. One reason for this positive perception was related to the

498   accessibility and flexibility of the program. Participants indicated that the platform was easy

499   to use, that the content was easily digestible, and due to the online nature of the program,

500   could be completed with ease in the time frame that worked for each individual coach. Such

501   findings echo those from other evaluations of coach education programs, in which coaches

502   have either suggested face-to-face programs would benefit from being online to enhance

503   flexibility (e.g., Camiré et al., 2018), or online programs have been perceived positively due

504   to being online, convenient, and easy to navigate (Driska, 2018; Santos et al., 2019). Again,

505   somewhat similar to earlier evaluations of coach education programs in which interactive and

506   practical examples were seen to be of greatest value (e.g., Camiré et al., 2018; Driska, 2018;

507   Santos et al., 2019; Turgeon et al., 2021), participants in the current study expressed a liking

508   for the use of vignettes and practical examples to bring the content and practices to life.

509   Taken together, there is a strong and increasingly building evidence base to support the

510   continued and developing use of online platforms, if well developed and constructed, to

511   enhance the coach learning experience.

512   In contrast to some program evaluations in which coaches have expressed a strong

513   desire for less theory and more practical content (e.g., Camiré et al., 2018), the evidence-

514   based, research informed nature of the KGIS program was received extremely positively. In

515   fact, it was the evidence base upon which the program was developed that enabled coaches to

516   develop confidence in their approaches, which they perceived to positively impact their

517   relationships with parents and also enabled them to reflect upon and understand where

518   changes may be needed. Such a difference in desire for research and an established evidence-

519   base may pertain to the focus of the program, notably that this KGIS is targeted at

520   understanding the needs of a particular population with whom coaches are working and

521   integrating this knowledge into existing practice rather than adding additional content that

522   may be viewed as an "add-on" to the fundamentals of technical and tactical coaching (e.g.,

523   life skills, psychosocial skills).

524   The benefit of having evidence to back-up their approaches and subsequently, support

525   meaningful opportunities for interactions with parents was a somewhat unexpected finding,

526   but particularly interesting given the increasing emphasis being placed upon optimising

527   parental involvement in youth sport (Knight, 2019). Healthy relationships between parents

528   and coaches are critical for ensuring that young athletes, as well as parents and coaches

529   themselves, have positive and safe sporting experiences (Harwood & Knight, 2015; Knight &

530   Gould, 2016). Unfortunately, however, parents are often perceived as a source of stress for

531   coaches, not least because parents may question coaches and be perceived to interfere with

532   training and competitions (e.g., Gould et al., 2008). Over the last decade, there has been

533   increasing research conducted exploring parental involvement in sport (e.g., Dorsch et al.,

534   2021), with a range of strategies and techniques being suggested to facilitate positive parent-

535   coach relationships (e.g., Knight & Gould, 2016; Smoll et al., 2011). Such strategies have

536   typically focused upon how coaches could interact and communicate with parents with

537   limited consideration being given to how coaches themselves may be "upskilled" to better

538   manage and navigate interactions. Given the value coaches placed upon having access to

539   evidence-informed approaches and strategies for working with girls to subsequently, support

540   their communication with coaches, it would appear pertinent to consider what other topics

541   may be beneficial for coaches to further facilitate confidence in their practice and

542   consequently, improve relationships with various stakeholders – including coaches

543   themselves.

Applied Implications

544

545   Strategies to enhance coaches' access to, and engagement with, training opportunities,

546 particularly those who are working in a volunteer capacity, are needed and the findings of this

547 study suggest that online, easily accessible programs, which allow coaches flexibility and

548 more choice over their learning are beneficial. The benefits of such approaches have become

549 even more evident over the last two years as through the COVID-19 pandemic there has been

550 a substantial increase in the number of meetings, programs, conferences, and workshops that

551 are provided online. As a result, people are even more comfortable and familiar with utilising

552 online platforms for learning. However, many of those events that have taken place

553 throughout the pandemic have been live events, which counters one of the main benefits

554 identified in relation to the KGIS program, which was that it could be completed in chunks

555 and when it was convenient to coaches. Additionally, as we emerge from the pandemic and

556 face-to-face events can start to take place again, the results of the current study would suggest

557 that there should remain a place for online learning and that to increase engagement with

558 programs, organisations should continue to utilise pre-recorded/developed training programs.

559   Further, the results of the current study highlight the need to ensure that programs are

560 not provided as "one-off" stand alone events, but that planning for follow-up resources and

561 future learning opportunities are also integrated into initial planning. For instance, resources

562 addressing the intersecting factors that impact sport participation may be particularly

563 valuable. This will ensure that important topics are continually revisited and remain at the

564 forefront of coaches' work. Finally, when developing online training programs, it is

565 important to consider the diverse range of individuals who are likely to engage with it, both

566 from a language and socio-cultural perspective but also experience. For instance, ensuring

567 that there are additional resources or learning materials available for those who have more

568 experience of a topic, that would expand beyond an introduction, may be beneficial.

Limitations and Future Research

Overall, this study used quantitative and qualitative methods to enable an understanding of who was engaging with the KGIS program and what participants perceived to have learned from completing the program. Although the relatively large response rate to the survey increases our confidence that the results are representative of the overall group of individuals who completed the KGIS program, it is important to exercise some caution particularly regarding the demographics. That is, it should be recognised that there can be gender and cultural biases associated with the completion of questionnaires, which may explain why there were more women than men who completed the survey and similarly appearing to engage with the program. Future research may benefit from integrating evaluation processes within the actual program of work to increase completion, such as including the survey within the program itself – although this could potentially become a barrier to engagement with the program from the outset.

Another limitation of the study is the delay which occurred between the survey and interviews. While we always intended to conduct follow up with interviews after the survey administration, we postponed the interviews due to the COVID-19 pandemic. Although it did not impact on the actual data collection in either phase – it delayed the follow up interviews due to shifting priorities and time demands. As such, for some participants there may have only been a few weeks between the program and survey completion, while for others, it may have been more than year which, in turn, may have influenced the ideas discussed in the interviews and memory of the program.

Finally, the evaluation only focused on coach and activity leaders' perceptions of the program and how they thought it had influenced their behaviours and practices. However, the extent to which the program helped to "keep girls in sport" and impacted on the experiences of girls themselves is unknown. Future research exploring not only how coach education

594   impacts on coaches' perceptions of their behaviors and support but also on perceptions of the

595   girls/athletes themselves would be beneficial to facilitate a more thorough evaluation of

596   effectiveness.

597   **Conclusion**

598   The KGIS program is a beneficial program, that is well received and used by coaches

599   and sports leaders across Canada. Specifically, the flexibility and accessibility of the online

600   platform, as well as the evidence-based nature of the materials were deemed to be particularly

601   useful for coaches. Such evidence-based materials enabled coaches to develop their

602   confidence in practice when working with girls and subsequently, communicating with

603   parents to justify, explain, and augment their approaches. Overall, the findings highlight the

604   value of creating programs that are tailored around the specific needs of girls (and other

605   population groups), but also reinforce the need to ensure that follow up support and

606   information is provided to ensure that learning continues and impacts upon practice.

607

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Table 1
CMO Configuration 1: Accessibility and Convenience

Context	Mechanism	Outcome
Participants described several barriers that made it challenging to access training and support (e.g., transport difficulties, limited time, and a lack of available courses/training).	The virtual, accessible, and flexible design of the KGIS programme allowed participants to complete the programme in their own time, and at their own pace.	Increased engagement and satisfaction with the KGIS programme.

Table 2

CMO Configuration 2: Improved Communication and Trust Among Stakeholders

Context	Mechanism	Outcome
A culture of mistrust between coaches and parents.	The KGIS programme provided access to knowledge and evidenced-based information which, in turn, created several opportunities for more open and transparent communication between parents and coaches.	Improved communication and trust between coaches and parents.

Table 3

CMO Configuration 3: Increase in Knowledge and Perspective

Context	Mechanism	Outcome
A lack of qualified coaches who have the necessary training and experience to work with female athletes.	The KGIS programme increased participants knowledge and perspective, enabling them to become more cognisant of female athlete's needs.	Enhanced both individuals' self-efficacy and confidence in their own skills and ability to coach female athletes.

Table 4

CMO Configuration 4: Suggestions for Improving Future Content and Engagement

Context	Mechanism	Outcome
A minority of participants involved in KGIS had accumulated extensive experience working with female athletes.	In this context, KGIS was unable to meet their individual needs and preferences, many made suggestions regarding future content that would be more meaningful to them.	The KGIS programme reaffirmed and validated their knowledge, behaviours, and decisions.

Keeping Girls in Sport e-Learning Program: Module Structure

Module 1 – Girls and Sport: This module explores the background of girls in sport, who they are, how they engage and the impact of their coaches.	
Section 1: Program Overview	Introduces general concepts of KGIS. Navigation information for e-learning program provided.
Section 2: Who Am I As a Coach?	Explores long-standing beliefs and myths of girls in sport. Reflection tool to help coaches evaluate their personal coaching philosophy is introduced.
Section 3: The Evolving Story of Girls in Sport	Reviews history of girls in sport, from US Title IX in 1972 to Canadian women's Olympic team in 2016.
Section 4: Module 4: Where Are the Girls?	Discusses participation rates for Girls in Sport and explores the reasons for why girls are leaving sport.
Module 2 – Injuries and The Female Athlete: This module considers various injuries that female athletes may experience and how some can have long-term consequences.	
Section 1: Keeping Girls Healthy	Looks at creating health sport environments through programs like the Long-Term Athlete Development model.
Section 2: Mechanical Injuries	Explores the concept of mechanical injuries and prevention strategies.
Section 3: Energetic Injuries	Explores the concept of energetic injuries and consequences of improper fuelling.
Section 4: Relationship Injuries	Explores the concept of relationship injuries and the effect these may have on individual athletes as well as teams.
Module 3 – Keeping Female Athletes Engaged: This module outlines what organizations, coaches, and leaders should consider to keep girls interested and engaged in sport.	
Section 1: Where Are We Now?	Revisits reflection tool to evaluate if KGIS has shifted opinions about coaching.
Section 2: Are They Having Fun Yet?	Explores "what makes sport fun" from the perspective of child/youth girls.
Section 3: Three Key Themes	Outlines 3 key themes for Keeping Girls in Sport. Investigates stages of development through Long-Term Athlete Development.
Section 4: Creating the Ideal Environment	Explores how an ideal environment for female athletes can be created.
Module 4 – Wrapping Up KGIS: The final module reviews available resources, revisits the personal reflection tool, with modifications, and insight from a Canadian athlete and role model is shared.	