

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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Abstract

The purpose of this study was two-fold: first, to identify who engaged with the Keeping Girls in Sport e-learning program and, second, to evaluate coach and activity leaders' perceptions of the program and their perceived learnings gained from completing the program. An explanatory sequential mixed-method design was adopted. First, an online survey was distributed to all individuals who had participated in the program. In total, 511 (33% response rate) completed the survey. Quantitative survey data were analysed using descriptive statistics. Subsequently, interviews were conducted with 20 survey respondents. A realist logic of analysis was applied to the qualitative data and context-mechanism-outcome configurations were formed (Pawson & Tilley, 1997). Overall, survey findings indicated that most participants identified as women (56%), were coaches (69%), and aged between 40-49 years (37%). In general, participants had positive perceptions of the program. Participants perceived that the accessibility and flexibility of the program increased opportunities to engage with content and thus their learning. They described improvements in knowledge and perspective regarding working with female athletes. This increase in knowledge provided participants with confidence to establish trusting and positive relationships with others, specifically parents. Nevertheless, participants highlighted a need for more tailored but also more expansive programs.

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

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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

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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

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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

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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

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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

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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.

225 **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.

233 **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.

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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

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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

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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.

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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:

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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,

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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

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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:

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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)

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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-

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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.

544 **Applied Implications**

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.

569 **Limitations and Future Research**

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

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

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

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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.

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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.

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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.	

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