Social Capital: A Key Ingredient in the Development of Physical Activity Leadership

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1   **Abstract**

2   **Purpose:** This research investigated how social capital relates to physical education (PE)

3   teachers' abilities to facilitate physical activity (PA) outside of PE class in their schools.

4   **Method:** Twenty-seven elementary PE teachers were interviewed. Data were analyzed using a

5   multi-step qualitative coding process ending in a cross-case analysis.

6   **Results:** Among the three components of social capital (trustworthiness, norms, and information

7   networks; Coleman, 1988), positive norms around PE, and more broadly, PA, were most

8   important for creating a physically active culture in schools. Trustworthiness was important, but

9   less so than positive norms, and information networks were relatively unimportant for creating a

10   culture of PA. Time was a limiting factor, because without it, PE teachers could not develop the

11   social capital needed to promote PA.

12   **Conclusions:** Becoming a PA leader is not just a function of will and motivation; rather, PE

13   teachers must be supported with time and positive norms around PE and PA, which requires

14   engagement of district and school leaders.

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25   **Introduction**

26   With growing acknowledgement of the importance of regular physical activity (PA) for

27   enhanced health and academic outcomes (Basch, 2010; Centers for Disease Control and

28   Prevention [CDC], 2010), more attention is being devoted to the types of opportunities that exist

29   in school settings for students to accrue PA, as well as opportunities to learn the knowledge,

30   skills, and dispositions for PA. These opportunities are regularly provided during physical

31   education (PE) classes, but there is a growing recognition that cultivating a positive culture

32   around PA cannot *solely* be accomplished within PE classes (Johnson & Turner, 2016). To

33   promote a schoolwide culture that provides and values PA, national authorities such as the CDC

34   (2013) and the Society of Health and Physical Educators (SHAPE America, 2013) have

35   advocated that all schools develop a Comprehensive School Physical Activity Program

36   (CSPAP). A CSPAP is a multi-faceted, comprehensive strategy to ensure school-aged children

37   and youth receive quality PE and opportunities for PA before, during, and after school. The

38   inclusion of school personnel and family and community members in these efforts is a key aspect

39   of implementation (CDC, 2013; Centeio, Erwin, & Castelli, 2014). Each school's CSPAP should

40   provide coordination and synergy across various components and stakeholders (CDC, 2015); yet,

41   a common question pertains to who should lead these efforts. The CDC (2013) recommends that

42   the first step in creating a CSPAP is to designate a PA leader (PAL), and to select a person who

43   is invested in PA and student health. It has been argued that the person best-positioned and most

44   qualified to be a PAL is the school's PE teacher (Castelli & Beighle, 2007).

45   Given the vital role that a PAL can play within a school for developing, promoting, and

46   leading the implementation of a CSPAP, this research attended to characteristics of PE teachers

47   and school cultures as they relate to PA opportunities. Specifically, the research investigated how

48   social capital (Coleman, 1988) relates to PE teachers' abilities to facilitate PA outside of PE class

49   in their schools. As others have noted, it is crucial to consider how a CSPAP champion (or PAL)

50   can engage human capital in efforts to accelerate school-wide changes (Webster, Beets, Weaver,

51   Vazou, and Russ, 2015). Encouraging others to support new initiatives often requires a great deal

52   of social capital; therefore we framed our research in terms of Coleman's (1988) components of

53   social capital (trust, information networks, and norms). Further, while issues of social capital and

54   CSPAP implementation are relevant to all schools, this work focused solely on elementary

55   settings due to several substantial differences between elementary and secondary settings. For

56   example, elementary schools often have fewer PE teachers, PE classes scheduled on just a few

57   days per week instead of being an elective scheduled every day for a semester, and they often

58   provide PA opportunities outside of PE such as recess and classroom PA, while this is often

59   uncommon at secondary levels (CDC, 2015). Our research was guided by the following research

60   questions:

61   1. In what ways were components of social capital related to PE teachers' abilities to

62   facilitate PA outside of PE class within their schools?

63   2. What enabled or constrained the development of social capital for PE teachers to become

64   a PAL?

65   **PE Teachers as PALs: An Uphill Battle?**

66   As noted previously, the task of leading the development and implementation of a

67   CSPAP is often given to the school's PE teacher. However, there is some evidence that not all

68   PE teachers see being a PAL as desirable and/or feasible (Webster et al., 2015). In many schools,

69   resources are limited and PE teachers' workloads are substantial (Turner, Johnson, Calvert, &

70   Chaloupka, 2017), making it nearly impossible for a PE teacher to take on additional

71   responsibilities, whether they desire a leadership role or not (Jones et al., 2014). Additionally, PE

72   teachers may not have been adequately prepared to be a PAL (Goc Karp, Scruggs, Brown, &

73   Kelder, 2014). SHAPE America (n.d.) notes that effective PALs must possess:

74   • In-depth content knowledge about national guidelines and standards for PE, as well as

75   knowledge about how PA benefits students;

76   • Leadership skills to inspire others to facilitate sustainable change that promotes a culture

77   of PA and wellness;

78   • Communication and promotional skills; and

79   • Collaboration skills to build strong relationships with diverse stakeholders.

80   Several university-level PE teacher education programs have restructured teacher preparation

81   experiences to be more aligned with the CSPAP framework, and to better prepare new PE

82   teachers for the role of a PAL (e.g. Carson, Castelli, & Kulinna, 2017). Yet, for many PE

83   teachers, both in-service and pre-service, the requisite training for skills in leadership,

84   organization, adult training, and coordination has not been provided (Goc Karp et al., 2014).

85   Thus, while many PE teachers are naturally passionate about PA, they may need to be

86   empowered to learn the skills necessary to assume PAL responsibilities (Webster et al., 2015).

87   **School Contexts for PE Teachers**

88   PE has historically been marginalized due to a number of issues, including low collegial

89   support, isolation, and a lack of opportunities for targeted professional development (Beddoes,

90   Prusak, & Hall, 2014). These issues must be taken into account when exploring the concept of

91   PE teachers as PALs, because marginalization can negatively impact the success of PE teachers

92   (Gaudreault, Richards, & Woods, 2017). Many PE teachers report feeling lower support in their

93   content area compared to other teachers, and perceive that administrators do not support the PE

94   programs (Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005).

95   In addition, structural issues may predispose PE teachers to feel isolated. The most

96   common staffing arrangement for US elementary schools is to have only one PE teacher per

97   school, or even fewer in circumstances where one teacher is assigned to more than one school

98   (Turner et al., 2017). This can lead to isolation, and a lack of a sense of professional community

99   (Curtner-Smith, 2001; Gaudreault et al., 2017; Parker, Patton, Madden, & Sinclair, 2010; Stroot

100   & Ko, 2006). When teachers do not have a community in which they can learn from peers, they

101   can feel professionally stagnant. When they are not valued by other peers and school leadership,

102   this can lead to burnout and departure from the profession (Gaudreault et al., 2017).

103   **Theoretical Framework**

104   Consistent with much of the educational research related to social capital (Dika & Singh,

105   2002), Coleman's (1988) conceptualization of social capital frames this research. Coleman notes

106   that social capital is a resource that can facilitate actions of people within social structures; that

107   is, possessing stronger social capital can help an individual mobilize resources and spark action

108   because it can be accumulated over time and leveraged to accomplish difficult tasks (Smylie &

109   Evans, 2006). In Coleman's conceptualization of social capital, three main components are

110   developed through social interactions: trustworthiness, information channels, and norms.

111   Trustworthiness is described in terms of 'credit slips' and obligations, in that one must be able to

112   trust that when providing a resource or service to someone else, they will somehow be repaid or

113   the action will be reciprocated. Information networks are the sources through which one can

114   access important and relevant information related to the social structure, with minimal effort.

115   These networks can influence behavior by introducing new or limiting information for taking

116   particular actions in the organization (Smylie & Evans, 2006). For the purposes of this research,

117   we use the ease and frequency of communication with others within the school (e.g., other

118   teachers, principal, staff) as a proxy for information networks. And finally, norms, or rules

119   within a social structure, help to promote certain actions and restrain others; the norms

120   themselves—as well as knowledge of these norms—allows one to behave in particular ways and

121   can motivate organizational change (Coleman, 1988).

122   We find this conceptualization of social capital to have value when considering how a PE

123   teacher might move into the role of a PAL within the social structure of a school. For example, a

124   PE teacher may not have an adequate budget for new PE equipment for the upcoming school

125   year. If the PE teacher has sufficient social capital, he or she might easily share word of this need

126   to the rest of the school (information channels). Administrators or colleagues see the importance

127   of the PE teacher's requests because PA is highly valued in the school (norms) and rally behind

128   the teacher's request. Then, because the PE teacher frequently collaborates with classroom

129   teachers, those classroom teachers donate to the cause (trustworthiness). Conversely, if a PE

130   teacher possesses weak social capital, requests for equipment may be ignored or perceived as

131   unimportant, and thus, the requests go unfilled or are denied.

132   On the surface, all three components of social capital may appear to be equally important,

133   but as Ekinci (2012) notes in summarizing research about social capital, trust is the "key element

134   of social capital and its most important determinant" (p. 2517). Others (e.g. Bryk, 2010; Bryk &

135   Schneider, 2003) concur that trust is *the most important* component in social capital when

136   considering organizational improvement and change. Researchers have, however, also

137   documented that norms may be the foundation upon which relationships and trust are built

138   (Penuel, Riel, Krause, & Frank, 2009), causing a lack of clarity as to which component of social

139   capital must develop first.

140   Social capital is a key factor in the diffusion of innovation (Frank, Zhao, & Borman,

141   2004), which is important when considering how PE teachers may implement a 'new' CSPAP

142   model within their schools. With respect to the implementation of new policies and ideas, the

143   stronger the components of social capital, the more likely the implementation is to be successful

144   (Smylie & Evans, 2006). Given how powerful social capital can be in terms of organizational

145   change and accepting new initiatives within schools, there is increasing interest in how teachers

146   create the relationships that support the development of social capital (Bridwell-Mitchell &

147   Cooc, 2016). This study takes an initial step in this line of inquiry, specifically considering the

148   unique context and culture surrounding elementary school PA and the roles of PE teachers.

149   **Methods**

150   The intent of this study was to investigate how social capital relates to PE teachers'

151   abilities to facilitate PA outside of PE class in their schools, and thus learn more about the

152   process and feasibility of a PE teacher becoming a PAL. Based on the literature, we believe that

153   a PE teacher would need to possess components of social capital conducive to this type of

154   leadership. Additionally, given the realities of teaching, we wanted to explore what might enable

155   or constrain the development of social capital for a PE teacher to become a PAL.

156   **Participants and Setting**

157   Participants for this project were 27 elementary school PE teachers employed in six

158   school districts in the Intermountain West. Data collection occurred between January and April

159   2017. To recruit participants, we first began by sending emails to district administrators at seven

160   school districts within 60 miles of the research institution. We then emailed all of the districts'

161   elementary school (grades K-6; 78 total schools) PE teachers, inviting them to participate in an

162   in-person interview. Recruitment used an open sampling approach (Patton, 2015), whereby all

163   responding teachers were interviewed until saturation was reached. A total of 27 interviews were

164   completed, representing 33 of the 78 schools. Teachers were offered a $50 gift card as an

165   honorarium. Characteristics of the teachers, schools, and school districts are provided in Table 1.

166   These participants teach at schools where students come from a variety of racial/ethnic

167   and socioeconomic backgrounds.

168   **Data Collection**

169   After IRB approval was obtained, interviews were conducted by four of the authors. Each

170   participant met in-person with an interviewer outside of instructional time. Interviews were

171   conducted at a location of each teacher's choosing, such as his or her school office, or a quiet

172   offsite location. All participants consented prior to beginning the interview, with written

173   documentation of informed consent. The 27 interviews were digitally recorded, and transcribed

174   verbatim. Interviews lasted 18 to 58 minutes ($M = 34.2$ minutes, $SD = 9.8$ minutes).

175   The semi-structured interviews (Roulston, 2010) utilized an interview guide to ensure

176   coverage of topics relevant to our research questions. The questions were developed

177   collaboratively by the interviewers, with the goal of gathering relevant contextual information

178   about the school and specifics of each teacher's work arrangement and instructional

179   responsibilities (e.g. *How often do you teach students in PE class and for how long?*); to assess

180   collaboration opportunities and perceived norms regarding PE and/or PA (e.g. *Are you able to*

181   *participate in professional learning community time with other teachers at this school?*); to

182   explore perceived needs and barriers to PE and/or PA (e.g. *What potential barriers would inhibit*

183   *you from supporting other teachers in using PA breaks in their classrooms?*); to assess

184   individual attitudinal factors (motivation, confidence) that may be associated with PA leadership

185   (e.g. *To what extent do you feel that you are able to make sustainable changes in the culture of*

186   *your school for keeping students physically active?*); and to allow spontaneous sharing of

187   relevant information. Given that questions broadly covered themes related to school PA, but PE

188   practices were also discussed, many of the analyses present the term "PE and/or PA." This can

189   be taken to refer to themes surrounding all school PA practices, including PE.

190   **Data Analysis**

191   Data analysis employed a multi-step process, to allow the researchers to examine the

192   nuances between participants and schools. Each step is further explained below.

193   **Step one: Component coding.** All transcripts were entered into Dedoose (SocioCultural

194   Research Consultants, 2017) to organize and manage the data. Prior to the first round of data

195   analysis, the first two authors developed a code book with descriptive codes (Saldaña, 2016) for

196   PA, facilitators and barriers to developing social capital, and codes that were consistent with the

197   three components of social capital as they would be applied in a school setting. These two

198   authors coded four transcripts independently (eight total) using these codes, then met to refine

199   coding definitions based on emergent ideas in the transcripts and resolve any discrepancies. After

200   this meeting, the first author coded the remaining 19 transcripts independently using the co-

201   authored codebook (See Appendix A).

202   **Step two: Holistic magnitude coding.** After all transcripts were coded with these

203   descriptive codes, the first two authors applied magnitude coding (Saldaña, 2016) of high,

204   medium, or low for each component of social capital, level of PA, and supports/barriers

205   holistically for each participant to indicate the extent to which these concepts were present and/or

206   supportive of PE and/or PA in their experiences (See Appendix A). Magnitude coding has been

207 used by other educational researchers (e.g. Vincent & Kirby, 2015) to 'quantitize' qualitative

208 data by intensity or presence (Tashakkori & Teddlie, 1998). In this research, magnitude coding

209 allowed for the building of individual cases for each participant in terms of social capital and

210 levels of PA. Additionally, as Saldaña (2016) notes, although some researchers are

211 uncomfortable with quantitizing qualitative data, magnitude coding is a way to "add texture to

212 codes" (p. 86). This additional step of magnitude coding added depth to the current analysis.

213   **Step three: Cross-case pattern coding analysis.** Finally, each teacher's case was

214 entered into Excel and sorted by levels of PA to more deeply explore the relationships between

215 levels of PA and levels of social capital components. Table 2 provides a visual representation of

216 each teacher's case that was placed alongside the participants' demographic and school data to

217 look for patterns (Saldaña, 2016), as the spreadsheet was sorted by different characteristics. For

218 example, the data were sorted by gender then by levels of norms, to observe any relationships

219 that emerged from the data. This was done for each permutation of characteristics documented in

220 Table 1 to inductively analyze the data. Note that due to the sensitive nature of the data,

221 participants are not labeled with their demographic and school data.

222   **Analytic memos throughout analysis.** During each data analysis phase described above,

223 we jotted down noticings and questions about the data. For example, one participant mentioned

224 that she believed some classroom teachers did not integrate PA into their classrooms because

225 they had personal issues with physical fitness. As this is an intriguing statement, we created an

226 analytic memo (Saldaña, 2016) on this topic and re-examined the data to see if this was a one-off

227 statement or if other participants made similar comments. This procedure was repeated

228 throughout the entire data analysis process.

229 **Subjectivity Statement and Measure to Ensure Trustworthiness**

230   Four of the five authors have conducted research about PA and PE in local schools for at

231   least three years each, and two of the authors train preservice PE teachers and provide ongoing

232   professional development to inservice PE teachers. In this way, these four authors could be

233   considered 'insiders' (Dwyer & Buckle, 2009) in that they are a part of the local PE and/or PA

234   efforts and are familiar with relevant policies, programs, and stakeholders. The first author has

235   not been part of these efforts and did not participate in the data collection or other PA outreach

236   and/or programming with the other authors. The first author joined the project at the data

237   analysis and writing phase, and is certainly an outsider (Dwyer & Buckle, 2009). Given the

238   ongoing debate as to whether it is preferable to be an insider or outsider in qualitative research,

239   we believe that having both in the research team is an asset. The insiders were able to use their

240   knowledge to ask relevant questions and understand contextual issues particular to PE and/or PA

241   while the outsider was able to look at the data with fresh eyes and consider what the data

242   communicated without preconceived notions of the meaning.

243   Keeping in mind Tracy's (2010) eight "big tent" criteria for high quality qualitative

244   research (worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution,

245   ethical, meaningful coherence [p. 840]), we have taken steps as a research team that address each

246   of these to ensure that this research is useful to the larger community. First, we see the topic of

247   PE and/or PA leadership to be timely and we sought to craft a study that would help us better

248   understand 'what is' in terms of PALs so we can better theorize about 'what can be.' We

249   endeavored to be transparent and detailed in our purposes, methods, and findings so readers may

250   feel confident about the rigor of the study. We also sought 27 different viewpoints for this

251   research in order to triangulate data; this allowed for broader, more consistent patterns to emerge

252   from the data, which in turn lets readers better trust our conclusions. Finally, it is of the utmost

253   importance to us that teachers (PE or otherwise) be portrayed respectfully and that researchers

254   assume the best intentions; as a result, we have been thoughtful in how the findings were

255   reported.

Results

257   This section begins by sharing themes related to social capital that were found in relation

258   to different levels of PA, then discusses factors that may contribute to or hinder the creation of

259   social capital.

260   Of the 27 participants, nine indicated high levels of PA in their schools (three female and

261   six male teachers; 18% of all female participants and 60% of all male participants). These nine

262   participants listed many PA strategies that either they or the school facilitated, such as

263   running/walking programs during lunch and/or recess, obtaining grants for events or equipment,

264   having a high number of teachers in the school using classroom PA breaks, and holding PA

265   events during parent/family nights. For those working at high-PA schools, they often listed at

266   least four or more PA events/programs which they were personally responsible for facilitating.

267   On the other end of the continuum, eight participants reported fairly low levels of PA in their

268   schools outside of PE class. These participants often indicated that some teachers in the school

269   were using classroom PA breaks, and then stated that although they wanted to start some sort of

270   PA activity (e.g., running club, intramurals), they had not yet done so or did not feel it was

271   possible given their circumstances. The remaining ten participants indicated medium levels of

272   PA in their schools, perhaps facilitating a running club or parent event, but not multiple PA

273   activities as was seen with the nine participants in the high-PA schools (see Table 2 for more

274   details). We believe that much can be learned by deeply examining the 17 participants who fell

275   at the extreme ends (high/low) of our PA continuum, in light of the components of social capital.

276   We also discuss anomalies of themes at two medium-PA schools.

277   **High PA Schools and Social Capital**

278   These data indicate that norms are key components for PE teachers to have the ability to

279   facilitate PA. Of the nine participants in high-PA schools, we coded six participants as high-level

280   in the area of norms, as they indicated that norms in their school were very supportive of PA, and

281   they had a school culture that encouraged collaboration to promote student learning and

282   wellbeing. These schools seemed to recognize the importance of PA for students and had support

283   from teachers, students, and parents. This played out in several ways, such as school-supported

284   rules for games at recess so students could self-monitor; allowing older students to 'apprentice'

285   with the PE teacher to mentor younger students in PE and/or PA; encouraging classroom

286   teachers to take students to different school spaces for PA; and providing more time for PE class.

287   Perhaps more importantly, several of these participants indicated that they were viewed as an

288   integral part of the school rather than as a 'baby-sitter' or otherwise unimportant. Charlie stated:

289   I think sometimes you get in a sticky situation where we're [PE teachers] viewed

290   differently. And, it was important to us…[the school PE teachers] that from the get-go,

291   we were all viewed the same [as classroom teachers]. And, one thing you will notice, if

292   you hang out for a little while is that kids don't get pulled from specials, they don't get

293   pulled from PE, they don't get pulled from music. We are just as valued as they

294   [classroom teachers] are and teachers understand that.

295   Similarly, Barbara shared, "I feel they [classroom teachers] view me as a teacher and not just a

296   prep period." In terms of school culture, participants in these high-PA/high-norms schools spoke

297   of their colleagues working together for the common goal of student success. Aaron asserted,

298   "It's like the old 'It takes a village to raise a child.' But it's really true, and however you can help

299   out with that, you just pitch in and do it…We're a school, we're a family."

300   Trustworthiness can be viewed as 'credit slips' or reciprocity, and in the nine high PA

301   schools, levels of trustworthiness between PE teachers and colleagues were rated as high in three

302   schools, and at a medium level in five schools. For PE teachers with high levels of

303   trustworthiness between themselves and their colleagues, they often spoke of 'pitching in,' as

304   referenced earlier, and that it was fun to do more than only their PE-related activities:

305   I'm more than willing to go as teachers…need help. I'll pull kids if they need help with

306   resource pieces of that. It's fun for me, every once in a while, to go back and get into a

307   lesson. And it's good for them to see me in another light other than the PE teacher. I can

308   do other things to work with them and it opens up a lot of different avenues with kids and

309   that's a really cool thing. When they see you in more than just the PE role and how

310   you're willing to come out and help with reading or math and get involved in a different

311   dimension. (Aaron)

312   While some participants went beyond the gymnasium walls to support student learning, other

313   participants brought classroom content into the gym, such as Cindy, who shared, "I love doing

314   cross-curricular activities so I will ask teachers, 'What is your theme this week? Are you

315   working on solar systems? What is the science emphasis?' And if I can I [will] incorporate that

316   into my PE activities." In return, these participants found that classroom teachers were then very

317   supportive of PE and/or PA activities: "If I open up, they're more willing to work with me in

318   situations. So it's a win-win for everybody" (Aaron). For those in high PA schools with medium

319   levels of trustworthiness, participants indicated that some classroom teachers were willing to

320   help with running clubs or PA events and in return, they would attempt to integrate classroom

321   content into PE class when it fits; Charlie noted, "We try to make that [content integration] work

322   as much as we can without taking away what they come to have when they come to PE."

323   Interestingly, the information network/communication component of social capital did

324   not seem to be as tightly related to high PA as the other two components of social capital. Out of

325   the nine high PA schools, four participants indicated low to nonexistent information networks

326   within their schools (i.e., with general education teachers), two indicated medium levels of

327   communication, and three indicated high levels of communication. For those who had low levels

328   of communication with others in their school, they often shrugged this off as teachers having "so

329   much on their plate, they have so much to do" (Dan), and they felt that any communication in

330   terms of sharing strategies or asking them to collaborate would be difficult or ill-received. Many

331   of these participants only had time to speak with classroom teachers as they were picking up or

332   dropping off their class. The two participants who indicated slightly more open communication

333   with others in their schools stated that they had attended classroom teacher collaboration (or

334   professional learning community) time in the past and felt welcomed to do so now; however,

335   similar to those who felt they had low levels of communication with teachers, they stated that

336   classroom teachers have so much to do, they did not want to interfere with collaboration time if

337   they did not need to. Finally, the three participants who felt they had high levels of

338   communication with their colleagues either sent out emails containing strategies and helpful

339   websites on a regular basis, or often dropped in on collaboration times and other grade-level

340   conversations just to check in with classroom teachers.

341   **Low PA Schools and Social Capital**

342   In low-PA schools, once again norms were seen to be the most important component of

343   social capital in terms of PA practices. Five of the eight low-PA school participants had low

344   levels of all three components of social capital, which seemed to stem from detrimental norms

345   around PE and/or PA. Unfortunately, these participants felt unsupported, that PE and/or PA was

346   not valued, and that they were isolated as professionals. Jarrod attributed the root cause of this

347   disenfranchisement to state-level policies, whereby teachers do not need to be certified to teach

348   PE. He voiced the belief that this leads classroom teachers to treat *all* PE teachers (even those

349   who are certified) as non-certified employees, and PE as an unimportant subject. He noted:

350   I think PE takes a backseat. I have teachers who come to me and say, "Well, I have this

351   kid who does not want to run because he does not like running" and I think, "But it is PE,

352   and would you go tell their reading teacher, 'This student does not like to read. Should

353   they not read in their reading class?' You are not going to tell a reading teacher that so

354   why are you telling me that? Why?" And right there is probably the problem…Those

355   teachers would never want to incorporate physical activities in the classroom because in

356   their life they don't see it as a valued thing and so it they would never want to put it into

357   their classroom time either because they would say it is a waste of time.

358   Certainly, it is evident how the norms/values in a school such as this could make it difficult for a

359   PE teacher to develop a culture of PA in the school.

360   There were two participants (Maria and Henry) in low-PA schools who had medium

361   levels of both trustworthiness and communication/information networks in their schools, but still

362   had poor norms around PE and/or PA, which illustrates the importance of creating productive

363   norms. In these cases, the participants described positive, reciprocal relationships with their

364   colleagues, and healthy communication patterns about school issues, but indicated that classroom

365   content often took precedence. One participant in a low-PA school (Quiana) indicated more

366   healthy norms ('medium' level) around PE and/or PA; many teachers have flexible seating and

367   they feel that the newer teachers (rather than veterans) seem open to incorporating more PA into

368   the school day. So, although Quiana indicated low levels of communication and trustworthiness

369   (in terms of reciprocation from classroom teachers) due to being new to the school, this teacher

370   may have opportunities to enhance the PA culture at that school.

371   **Medium PA Schools and the 'Norms Anomalies'**

372   Although the findings regarding high-PA and low-PA schools are illuminating, we

373   believe it is important to discuss two of the participants, Eva and Francesca, who were in

374   medium-PA schools and also reported poor norms around PE and/or PA. These two teachers

375   reported low levels of trustworthiness (in terms of reciprocity) and communication. Given the

376   relationships observed earlier between levels of PA and the norms in the school around PE

377   and/or PA, we dug deeper into these interviews to explore how these PE teachers seem to be

378   working around poor norms. Eva reported that classroom teachers treat 'specials' teachers (PE,

379   art, music and library) as "babysitters for collaboration time" and as if their "time is disposable."

380   She is seeking to change that culture, but for now, reported having some support from her

381   principal to allow her to obtain professional development workshops specific to PA and/or PE, as

382   well as possibly provide PA workshops for teachers. Thus, although the norms surrounding PA

383   and/or PE overall in the school are not optimal, Eva has a supportive principal. Francesca, on the

384   other hand, appeared to be able to overcome these poor norms out of sheer passion for the work.

385   She stated, "I've chosen this as my mission…these are my kids. They're very needy kids, so I'm

386   doing it for them." This theme was revisited time and again during the interview, and she shared

387   that she often spends up to $500 of her own money each year to support her 'mission' to provide

388   PA opportunities for their students. Consequently, both of these teachers illustrate that although

389   productive norms around PE and/or PA are key factors in promoting schoolwide PA, having a

390   passion for the work, plus support from the building principal, may allow PE teachers to

391   overcome unhealthy norms.

392   **Time and the Development of Social Capital**

393   Only one factor consistently arose as both a facilitator and barrier for developing social

394   capital and, in turn, school PA: time. Of the eight low-PA schools, three participants (Nancy, Ian,

395   and Paige) teach at multiple schools, and two participants (Olive and Jarrod) are part-time. Each

396   of these five participants indicated that they did not have time to build relationships with

397   teachers, attend meetings, or cultivate productive norms around PA. For example, Ian stated,

398   I would like to do recess duty, go over playground rules, but being at two schools, it's

399   hard to make sure that they are following the rules when I am not here…[And] it would

400   be nice to go in and teach them [students and teachers] how to do something in their

401   classroom, but schedule-wise, we would have to take up their PE day to be in their

402   classroom, and then they would not have PE for the week…It's a scheduling thing.

403   Nancy lamented:

404   I used to have more time [when working at only one school] to help plan our staff

405   wellness and doing things outside of school time as a staff. But I don't have as much time

406   for that anymore. I wish we just had more time so we could do our job a little bit better.

407   Similarly, Olive noted she had previously facilitated a walking club, but being part-time, she can

408   no longer accomplish that. Two of the remaining three participants (Henry and Quiana) at low-

409   PA schools work at very large schools (700-800 students), which means more classes and more

410   grading, and less time and energy to plan additional PA.

411   Of the participants in high-PA schools, only two (Bill and Cindy) teach at multiple

412   schools; however, these participants only discussed PA at one of their schools, as they are both in

413   their first year of teaching at an additional school, due to increasing workloads and fewer PE

414   teachers in those districts. It is important to note that none of the participants in high-PA schools

415   were responsible for instruction for more than 690 students, and some participants are in much

416   smaller schools (300-400 students). As one might expect, this allows more time to collaborate

417   and communicate with colleagues, and to create a culture supportive of PA and/or PE. For

418   example, Aaron noted that because he has a bit more time in his schedule, "You know, I'll stop

419   in and see if there's any need, can I help out at all, is there anything that can use me for. From

420   time to time I'll let [the principal] know that I have a block of time here or there if they can use

421   me." Throughout the interviews of participants in high PA schools, these teachers acknowledged

422   that although their schedules were tightly packed, they had/made time for PA in their schools.

423   **Additional Insights and Needs**

424   The inclusion of open-ended questions allowed these participants to freely provide

425   information that they considered relevant to our research question of how to create a culture of

426   PA in a school. In many cases, they seemed appreciative of the chance to be heard, and to voice

427   their needs and desires for structural changes that would help them to be more successful as

428   teachers. One of the key elements of this open-ended feedback was that teachers desired support

429   mechanisms for increasing their success, not only through structural and scheduling changes that

430   would allow them more time to do their work (as noted above), but also through mechanisms to

431   build additional skills. As Cindy noted:

432   This is important that we take on this role… But without guidance, and for those of us

433   who have graduated a while back and not used to that kind of thing, it would take

434   training. How do we do that? We may have the passion for wanting to do that, but how

435   do we implement that in our already busy day—and physically exhausting day—in order

436   to spread the message to everyone else in the building? Just because it is a passion for us,

437   doesn't mean that it's a passion for everybody else.

438   Importantly, the interviews all seemed to confirm the desire among PE teachers to provide

439   comprehensive PA programming in schools, and thus the lack of CSPAP implementation does

440   not appear to be largely driven by apathy or lack of motivation among these PE teachers, but is

441   due to structural factors such as scheduling, instructional loads, and leadership support, which

442   can facilitate or diminish social capital and, consequently, PA practices.

443   **Discussion**

444   With many organizations recommending an increase in school PA through frameworks

445   such as CSPAP, the question remains, which stakeholders are responsible and poised to best

446   implement this change? As PA is seen as most tightly connected to PE content, PE teachers seem

447   like a natural choice to be a PAL for a CSPAP. As our results show, however, many PE teachers

448   often do not have the time to take on additional responsibilities, nor the social capital to ask for

449   help, despite having the passion and knowledge for the task of being a PAL.

450   In a previous study examining the effectiveness of PE teachers as PALs, PE teachers

451   were given additional supports, including CSPAP-specific professional development and

452   ongoing technical assistance, to increase PA in their schools (Carson et al., 2014). Although PE

453   teachers successfully added PA opportunities in line with CSPAP recommendations, it did not

454   coincide with an increase in student PA. In the current study, however, PE teachers had not

455   received CSPAP-specific training. The PE teachers at schools that did not have a PA-promoting

456   culture were already facing greater barriers (e.g., larger student-to-teacher ratios, teaching across

457   multiple schools) than were the teachers at schools with more extensive PA programming. PE

458   teachers at low-PA schools reported barely being able to fulfill the basic requirements of their

459   contract, let alone putting in extra time to communicate with other staff about the benefits of PA.

460   In other words, considering each school's staffing arrangements, supports such as professional

461   development opportunities, and local context is crucial. We found that a dedicated PE teacher

462   with strong social capital and adequate time can facilitate a very comprehensive range of PA

463   programming (i.e., "high PA" schools). At schools where the PE teacher works part-time,

464   however, that individual may not have the time to build trust and positive norms, nor the time to

465   allow for the planning of PA events (i.e., activity nights, sports clubs, field day). In such

466   situations, a classroom teacher who is full-time at the school and who regularly uses classroom

467   PA may be able to champion changes in school PA norms. For example, such teachers would

468   have regular contact with their peers and could credibly articulate that time spent in PA during

469   class is not time "wasted," but rather time spent re-energizing and re-focusing their students to

470   learn (Len Goh, Hannon, Webster & Podlog, 2017). Paradoxically, although the specialized

471   training of a PE teacher provides authoritative content knowledge, specialists may not be valued

472   by classroom teachers as having the same credibility as do other classroom teachers, with regard

473   to classroom-based PA; in other words, classroom teachers may be perceived by their peers as

474   having more valid experiences as to the challenges and logistics of incorporating PA in the

475   classroom. Although that aspect of PA leadership was not explored in the current work, future

476   work should consider the perspective of classroom teachers as to who they consider to be

477   trustworthy resources for support in using classroom-based PA.

478   In a CSPAP, as with other school programs, how each school's principal facilitates and

479   supports program elements is important (Lau, Wandersman, & Pate, 2016; Moore et al., 2018). If

480   a principal demonstrates the PE teacher's expertise as valuable, that could influence teachers and

481   increase the PE teacher's social capital (Egan & Webster, 2018). For example, a principal could

482   establish that PA is valued by asking the PE teacher to lead a PA break during staff meetings.

483   Allocating resources such as professional development hours to sessions about classroom-based

484   PA not only provides teachers with content knowledge and skill-building opportunities, but also

485   conveys a message of support that builds a norm that supports PA. Finally, administrators can

486   change norms through explicit encouragement and messages of support for PA in their daily

487   interactions with teachers. In this way, while administrators are not PA content experts, they are

488   nevertheless a crucial element of shifting norms toward valuing PA.

489   The current work illustrates the crucial importance of norms in creating change in

490   schools. As Minckler (2014, p. 672) noted:

491   The transformational leader performs a crucial role in developing the structures, both

492   physical (for example, shared scheduling time) and cultural (for example, norms of

493   collegiality) that create the opportunities for groups of teachers to work together to create

494   and use teacher social capital.

495   Much of this leadership rests with the principal, who can arrange schedules in ways that allow

496   for shared time, and building the connections and trust that allows teachers to accrue the social

497   capital that changes school culture. Principals often communicate their expectations for

498   behaviors that would be consistent with district objectives (Smylie & Evans, 2006). Thus, a

499   crucial next step is to explore the role of principals in developing the physical and cultural

500   structures that allow PA to be implemented, which values the role of PE teachers, and which

501   promotes a culture that explicitly values PA.

502   **Limitations**

503   Although we sought a variety of participants (e.g., variation in gender, location, school

504   size), only one interview was conducted with each PE teacher. The perspective of a PE teacher is

505   not necessarily representative of the opinions of other individuals at a school. Future work could

506   triangulate interview findings with additional interviews and observations. This study provides a

507   snapshot of elementary school PE teachers' perspectives regarding their current responsibilities,

508   their potential role as a PAL, and variations according to school PA characteristics. Further,

509   while our magnitude coding of PA (low/medium/high) helped to measure whether and to what

510   extent PE teachers had implemented some elements of a CSPAP, our interviews did not directly

511   address the five components. Therefore, it is possible that we did not allow our participants to

512   fully describe their CSPAP efforts. Future research should consider explicitly addressing each

513   CSPAP components to provide more nuance into what CSPAP 'levels' might look like.

514   **Conclusions/Future Research Directions**

515   There is no doubt that PE teachers' skills and content knowledge are well-suited for the

516   role of a PAL; however, it does not matter how knowledgeable, enthusiastic, and committed a PE

517   teacher may be. If they do not have the time and resources to establish social capital, nor the

518   explicit support of their principal, then changing the PA culture of a school is likely to be

519   extremely challenging, if not impossible. Currently, PA leadership programs (e.g., SHAPE

520   America) emphasize shifting the culture in the school and engaging leadership. The current

521   research corroborates this as a sound method for improving school PA opportunities, showing

522   that PALs need resources and tips about how to build social capital and how to meaningfully use

523   data and evidence about the academic benefits of PA. We suggest that national efforts to support

524   CSPAP implementation focus on district- and school-level leadership, emphasizing the value of

525   PA and the crucial role of PE teachers in achieving the goal of keeping students active. If such

526   efforts can effectively be used to recruit district and school leaders as allies who can provide the

527   structural conditions for PE teachers to build social capital, then we will be one step closer to

528   empowering PE teachers in their efforts to promote transformational cultural change.

529

535

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Table 1

Participating PE Teachers' School Characteristics

Characteristic	No. of teachers ($n = 27$)
Location of School [a]	
City-Midsize	11
Suburb-Large	8
Suburb-Midsize	1
Town-Distant	3
Town-Remote	1
Rural-Fringe	3
District Per Pupil Spending[b]	
Under $5500	12
$5501-$7000	7
$7001-$8100	8
Size of School	
Smaller (235-425 students)	6
Medium (426-615 students)	13
Larger (616-810 students)	8
Percentage of Students Eligible for Free or Reduced-Price Lunch	
0-25%	11
26-50%	3
51-75%	9
76-100%	4
Teacher Gender	
Female	17
Male	10
Teacher Career Stage	
Early (0-5 years)	1
Middle (6-15 years)	12
Later (16+ years)	14

[a]These categories are defined by the National Center for Education Statistics, using urban-centric locale codes.
[b] Data are from 2015-2016 state school data source.

Table 2

Data Analysis Representing Final Code Assignments

Teacher Identifier*	Trustworthiness	Information Networks	Norms	PA
Aaron	High	High	High	High
Alice	Medium	High	High	High
Barbara	Medium	Medium	High	High
Bill	High	Low	High	High
Charlie	Medium	High	High	High
Cindy	High	Medium	High	High
Dan	Medium	Low	Medium	High
Elliott	Medium	Low	Medium	High
Frank	Low	Low	Medium	High
Daesha	Medium	Medium	High	Medium
Gabriela	Medium	Low	High	Medium
Eva	Medium	Low	Low	Medium
Francesca	Medium	Low	Low	Medium
Gail	Low	Low	Medium	Medium
Hayley	Low	Low	Medium	Medium
Iris	Medium	Medium	Medium	Medium
Joslyn	High	Medium	Medium	Medium
Kayla	Medium	Medium	Medium	Medium
Laura	High	High	Medium	Medium
Maria	Medium	Medium	Low	Low
Nancy	Low	Low	Low	Low
Olive	Low	Low	Low	Low
Henry	Medium	Medium	Low	Low
Ian	Low	Low	Low	Low
Jarrod	Low	Low	Low	Low
Paige	Low	Low	Low	Low
Quiana	Low	Low	Medium	Low

Appendix A: Codebook

Code	Definition	Sample Quotes	Holistic Levels for Individual Cases
Physical activity (PA)	Programs/ activities that get students moving outside of PE -- current or future	"We got a walking program. We offer a jump rope program. If there's anything out there that the district has. We're going to put on a fun run this May for the first time and I'm going to organize that. We participate in the National walk to school thing." "I'm just doing my best to encourage teachers to teach their students games that they can play outside of PE, that they can play out on the playground." "We just do field day or activity day and that's it."	**Low** – Maybe some teachers doing brain breaks; perhaps one PA activity **Medium** – Many/all teachers using brain breaks; 2-3 PA activities throughout the year **High** – Many/all teachers using brain breaks' 4-5 PA activities throughout the year
Facilitator of development of social capital	Someone or something that directly supports the development of trust, information networks, or norms supportive of PA	"Thank you [to] our principal, because he's been really intentional about using our time wisely…we have to give teachers time and so one thing that he's done…he has designed for us actually take away one of those staff meetings and use that for an extra PLC time in addition to the Wednesday ones. So because my Wednesday ones are full with specific PE teachers, then on the staff meeting days then I can join my other groups at their grade level…I also can use that time to go and approach classroom teachers."	
Barrier to development of social capital	Someone or something that prevents/ precludes the development of trust, information networks, or norms supportive of PA	"My schedule is pretty packed with less flexibility this year as I've had in years past because of the amount of kids we have. So I got pretty full afternoons and things and going through my mornings…It hasn't been as much this year but in years past, I've reached out." "But I don't have the extra time. When I say no, it's because I can't do it all." "So that's kind of the challenge of it all, in terms of us even getting to the point where we're asking, 'What do you need? In 5th grade, what do you need or is there anything I can do for you?' We don't really have time for that. We're busy doing our thing." "Sometimes when I'm changing schools I don't actually get a chance to know the teachers well." "I'm pretty busy. I have the second busiest PE schedule in the school district and so I don't get to get into other classrooms as frequently anymore."	
Trust-worthiness	A two-way relationship, specific actions of give/take	"We have a great relationship in this school where they respect me and I respect them and what they do."	**Low** – Poor relationships with classroom teachers; no reciprocation; much separation between

	between PE teachers and others in the school	"As a PE teacher, I feel like I bend over backwards. My gym gets taken from me, I'm doing stuff in the classroom or I am trying to do stuff outside the classroom and I feel like it's not reciprocated." "But no, there's not a lot of sharing between the PE teacher and the other teachers as far as the group goes."	classroom teachers and PE teacher
			Medium – Some reciprocated relationships with classroom teachers, but infrequent
			High – Strong relationships with classroom teachers; several instances of reciprocation in the relationships
Information networks	Evidenced by acts of easy communication, either the PE teacher sharing information with others or the school having easily accessible channels for information sharing	"If I come up with an idea I'll send out an email to them with a link. 'Check it out…This looks like a good thing that might benefit you in the classroom.'…People have sent me links and stuff and I looked over them and if I thought they were beneficial, we've shared it that way." "I've never gone in to a classroom teacher and sat down and had a discussion of here's what we do."	**Low** – No/very little communication with classroom teachers
			Medium – Some communication with select classroom teachers or groups of teachers, but infrequent
			High - Regular communication with classroom teachers about PE/PA and evidence of regular two-way communication
Norms (related to PE/PA)	How the school values/behaves related to PE/PA – the importance place on this as well as the culture related to PE/PA in the school	"One time my principal, at a staff meeting…the majority of the time he was standing and moving while he was delivering all of the whatever the staff meeting was. It had nothing to do with activity or the reason why he was just [taking the stance that] at that meeting we are going to move during the meeting. It was fun. Everybody was smiling I'm not sure how much was retained from whatever was being presented but the message was delivered: Movement can be fun." "PE is undervalued…We get a lot of, 'Just run them. Just make them run around a whole bunch.' And that's PE: Go run around. That kind of irks me…It drives me nuts when I hear kids saying, 'I am going to gym class.' It's not gym class. This is PE. There's a difference." "[The principal will] just send out an email that says, 'Remember that specials are as important as your class. Don't keep your kids or if there's a specific reason…then just come talk to me but don't just not have them come to my class.' So she's really supportive. I have two or three new people [who think] that PE is just fluff, but they will learn. They'll learn from our building and I think some of them have come around to why it's so important."	**Low** – PE/PA not valued and/or PE teacher not respected as a colleague
			Medium – PE teacher respected as a colleague, but PE/PA still somewhat viewed as 'less important' than classroom content
			High – PE/PA valued and movement recognized as an integral component of students' education