

Group work in physical education

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Abstract

1
2 Student group work is a central feature of many contemporary pedagogical approaches to
3 teaching physical education. Despite this proliferation, our understanding of the teaching-
4 learning dynamics inherent in group work remains limited and has tended to be under-
5 theorized. The purpose of this paper was to examine different theoretical approaches to group
6 work in order to identify similarities and differences and consequently provide insights and
7 recommendations into ways of using group work as a pedagogical strategy. Four theoretical
8 approaches to group work models were described in detail with brief empirical examples used
9 to illustrate aspects to which each approach draws attention. The examination demonstrates
10 conceptual overlap, elaboration and distinctions between the theoretical approaches related to:
11 (i) content knowledge; (ii) engaging learners; (iii) the teacher's role; and (iv) group
12 composition. Meta-theoretical discussions of teaching strategies such as group work generate
13 important discourse on the potential for the development of effective pedagogical practice.

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15

16

17 Keywords: meta-theory, pedagogy, interaction, joint action, cooperation, status

18 Contemporary discussions concerning the nature of physical education have led to
19 curricular and instructional innovation (Hastie & Casey, 2014; Kirk, 2013). Innovation has, in
20 turn, been accompanied by a great deal of research examining the educational value of
21 different approaches to teaching physical education (Harvey & Jarrett, 2014; Hastie, de Ojeda
22 & Luquin, 2011; Miller, 2015). Even a cursory examination of this research reveals that
23 student group work – broadly defined as students working with peers beyond the immediate
24 presence of teachers – is a central feature of many of these approaches (e.g., Sport Education:
25 Siedentop, Hastie & van der Mars, 2011; Cooperative Learning: Dyson & Casey, 2014).
26 Further, student group work has been associated with learning outcomes across a variety of
27 different domains including the physical, cognitive, affective and social (Casey & Goodyear,
28 2015; Darnis & Lafont, 2015; Lafont, 2012).

29 Since Ward and Lee's (2005) claim that group work in physical education has tended to
30 be under-theorized, a number of scholars have investigated how learning theories can be used
31 to interpret the complex dynamics of teacher and student-interactions (see for example, Barker
32 & Quennerstedt, in press; Lafont, Proeres & Vallet, 2007). TEXT DELETED Learning
33 theories not only have the potential to explain pedagogical practice but can be used to guide
34 pedagogy (Quennerstedt, Öhman & Armour, 2014) and may be useful for predicting future
35 student learning.¹ As a point of departure for this paper, we take an observation of influential
36 educational theorist Robert Slavin concerning learning theory. Almost 25 years ago, Slavin
37 (1992) claimed that student group work is informed by multiple and diverse theories. He
38 proposed that while researchers often make assumptions about learning from one specific
39 theoretical viewpoint, in order to build a sound understanding of group work in practice, it is

¹ Unlike pedagogical models which are prescriptive (Kirk, 2013), the main purpose of learning theories is to provide ways of thinking about how learning takes place (Quennerstedt, et al., 2014). Learning theories can help to inform pedagogical models but they need not be elaborated into a set of specific learning outcomes, teaching strategies, educational justifications and so forth.

40 necessary to cross disciplinary and theoretical boundaries. Slavin (1992) suggested moreover,
41 that no one theory will be shown to be “demonstrably correct” in all circumstances (p. 163)
42 and that to develop a perspective on group work that is relevant to a range of learning
43 contexts, it is useful to explore the interconnectedness between theories (see also Slavin,
44 1996; 2015).

45 Literature on group work in physical education and education more generally has tended
46 not to heed Slavin’s calls. With the exception of some work based on the Cooperative
47 Learning model (Darnis & Lafont, 2015) there exists very little PE research that has explored
48 the interconnectedness between theories of group work. The purpose of this paper is to
49 provide examples of theoretical interconnectedness along with insights into how an
50 understanding of this interconnectedness can improve research and practice. Examining
51 interconnectedness can not only help identify the unique features of particular theories but it
52 also provides an opportunity to consider links between theory and practice. For academics
53 operating in a praxis-oriented field such as physical education, translating multiple theoretical
54 approaches into practical teaching implications is a useful exercise. In this paper, we examine
55 four theoretical approaches that have been used to investigate student group work. These
56 approaches have been selected as they each emphasize different aspects of the ternary system
57 of group work (i.e. the teacher, learner and content) and thus provide the potential for
58 discussion of the both the interconnectedness and differential aspects of this pedagogy. In
59 each case, we describe basic assumptions and underpinning concepts. The four approaches
60 are: (1) joint action studies in didactics approach; (2) a symbolic interactionist approach; (3) a
61 socio-constructivist approach with focus on member status; and, (4) a group-based incentives
62 approach. Along with descriptions, we provide practical illustrations of how the theoretical
63 approach has been used to make sense of group work. In the second part of the paper, we turn

64 our attention to the interconnections between these approaches, focusing specifically on: (i)
65 content knowledge; (ii) engaging learners; (iii) the teacher's role; and (iv) group composition.

66 **Theoretical Approach 1. Joint Action Studies in Didactics (JASD) to Understand** 67 **Student Learning**

68 The JASD framework belongs to the French *didactique* tradition, which examines the
69 triadic system of teacher, student, and knowledge taught within classroom interactions (Allal,
70 2011). The framework describes the process of didactic transposition – essentially how
71 content knowledge intended to be taught by the teacher is transformed into the actual
72 knowledge learned by students. Within didactic transposition, teachers and students co-
73 construct forms of knowing while knowledge itself is transformed through the pedagogical
74 acts of communication and interpretation (Amade-Escot, Elandoulsi & Verscheure, 2015).
75 This idea of an evolving co-construction of knowledge has been used in physical education
76 research to account for descriptions of learning within peer-assisted learning tasks (e.g.
77 Hennings, Wallhead & Byra, 2010).

78 A JASD approach accounts for the situated nature of teaching and learning processes
79 and aims to capture the enacted curriculum in detail. It takes into account the joint action of
80 the teacher, the students and the specific knowledge content as interrelated instances (Amade-
81 Escot, 2000). The notion of 'joint action' suggests that knowledge is co-produced by the
82 teacher and students in culturally-bounded contexts (Amade-Escot et al., 2015). However,
83 joint action does not mean that participants have the same goals rather that there are explicit
84 and implicit negotiations that occur between teacher and learners around the content. Studying
85 and describing these transactions provides a sophisticated understanding of the dynamics of
86 the whole teaching-learning process.

87 To account for teacher and students' joint actions with regard to particular knowledge,
88 the JASD framework proposes a set of concepts and analytical tools. Two primary concepts

89 are the didactic milieu and didactic contract. The didactic milieu refers to the material
90 resources, symbolic representations and social organization provided by the teacher as a set of
91 evolving conditions from which knowledge and associated meanings are intended to be
92 construed through joint actions. The didactic contract refers to teachers' and students' specific
93 expectations related to the content knowledge to be studied (Sensevy, 2007). These reciprocal
94 expectations resemble a "contract" but may misalign as content development progresses
95 causing breaches in the didactic contract. The theoretical aim of the JASD is not to evaluate
96 the quality of the didactic contract, but to describe the mechanisms through which the teacher
97 and students negotiate their respective expectations (Amade-Escot, 2000).

98 Changes in the didactic milieu and didactic contract and thus 'joint action' are
99 described using three analytical tools: mesogenesis, chronogenesis and topogenesis.
100 Mesogenesis refers to changes in the didactic milieu and describes the process by which, over
101 time, the didactic milieu is reorganized. Chronogenesis refers to the genesis of the didactic
102 time and describes the evolution of the content knowledge as it unfolds during the joint
103 action. Chronogenesis is related to the pace of content development which may progress,
104 accelerate or stagnate during didactic interactions. Topogenesis refers to how the teacher and
105 students share respective responsibilities during interactions to produce content knowledge.
106 Importantly, the threefold set of geneses descriptors evolve in concert with every stage of
107 mesogenesis corresponding to a topogenetic state and a chronogenetic state with regard to the
108 content knowledge at stake (Verscheure & Amade-Escot, 2007).

109 The following empirical episode provides an example of the use of JASD to describe
110 the emergence of the didactic contract during student interaction in a cooperative group task
111 (AUTHORS OMITTED FOR ANONYMOUS REVIEW). The example illustrates how: (i)
112 student leaders within the group modify the didactic milieu and reduce the pace of
113 chronogenesis by causing a significant breach in the didactic contract, and (ii) teachers'

114 mesogenetic actions are required to re-align the didactic contract. The context for this episode
115 is a gymnastics lesson where fifth grade students are working in teams of three to individually
116 perform a crouched head stand for three seconds. Each student has a specific role in the
117 group; that of coach, reporter or equipment manager.

118 **Practical Illustration 1.** Marata and Rua consistently over-balance, going into a forward roll
119 due to an unequal base of support. “Move your hands back Marata” (Saki, coach). Marata
120 overbalances for the third time in succession. Saki holds Marata’s legs to enable her to hold
121 the crouch balance for three seconds. This mesogenetic action introduced by the student coach
122 causes a breach in the didactic contract. Although holding her legs enables Marata to hold the
123 crouch, it alters the chronogenesis, as it reduces the importance of having an equally
124 distributed triangle base of support. Sue, the teacher, then intervenes, “Remember coaches, I
125 don’t want you to hold their legs while they are attempting the crouch balance”. This
126 mesogenetic action moves the teacher to a higher topogenetic position as she adds a task
127 constraint that moves the chronogenesis forward to the teacher’s didactic intent. The didactic
128 milieu is modified in the interactions permitted between the student coach and the peer
129 performers. Rui holds his balance for two seconds and then overbalances. “Keep your elbows
130 out Rua” (Saki, coach). This mesogenetic action by the coach again caused a breach in the
131 didactic contract by encouraging a more linear base of support between the hands and head.
132 This breach was recognized by the teacher who introduced a new mesogenetic action, “All
133 groups make sure that your teammates are making a right angle with your elbows, and rest
134 your knees on your elbows to hold the balance” (Sue, teacher). This teacher action served to
135 re-align the didactic contract with both Marata and Rui being consistently successful at resting
136 knees on their elbows to hold the crouch balance for three seconds.

137 This example highlights how the JASD framework enables the interpretation of
138 content-specific interactions that occur during group work. It accounts for the

139 interdependence of classroom actions on the one hand, and the cultural contexts in which
140 teacher and student joint action occurs on the other. The use of cooperative group work
141 involves the purposeful devolution of content-related decision-making to students. As peer
142 coaches, students are placed in a higher topogenetic position as they are expected to formulate
143 interactions that include error detection, diagnosis, and some level of remediation for peer
144 performance. This layer of student interpretation causes an increase in the frequency of
145 breaches in the didactic contract and subsequently a more dynamic evolution of content. The
146 dynamic nature of the process can involve periods of acceleration and stagnation in student
147 learning of content.

148 **Theoretical Approach 2. Symbolic Interactionist Theory: Epistemic Ecologies, Positions** 149 **and Trajectories in PE**

150 Symbolic interactionism has its roots in pragmatism (Mead, 1934). From this
151 perspective, social interaction is carried out with different ‘resources’ such as talk, gesture,
152 posture and stance (Goodwin, 2007; Streeck, Goodwin & LeBaron, 2011). When looking at
153 real-life situations, such resources are investigated in terms of their consequences within the
154 specific situation (Hutchins & Nomura, 2011). A baby’s cry for example, might be examined
155 as an action that leads to the baby being picked up by a parent rather than a signal of
156 emotional distress. This *consequentiality* is related to the sequential nature of interaction – as
157 individuals act, they present possibilities for their own and others’ next actions (Goodwin,
158 2000). Interactionist approaches also acknowledge the importance of: (i) material
159 environments (Goodwin, 2013) which affect people as they interact, and (ii) the social nature
160 of actions since intended readings must be communal in order for them to work. Within social
161 situations individuals create local environments (Goodwin, 2007, p. 53), working together in
162 worlds of shared perception and action. Goodwin (2007) suggests that this can often be seen
163 in actors’ bodies as they align their bodies and focus their talk and action on the same object.

164 In a recent paper, AUTHORS OMITTED FOR ANONYMOUS REVIEW used three
165 specific concepts from symbolic interactionism to examine group work in PE: *epistemic*
166 *ecologies*, *epistemic positions* and *learning trajectories*. Epistemic ecologies provide a way of
167 thinking about how knowledge is organized in a group. It places importance on the task and
168 the knowledge that the group can assemble in situ to complete the task. In PE, groups create
169 different epistemic ecologies as group members bring their unique experiences to the task and
170 combine their knowledge in different ways. Within epistemic ecologies, participants take on
171 different *epistemic positions* (Goodwin, 1981). Individuals act in ways that situate them as
172 ‘knowers’ or ‘unknowers’ relative to one another. A person might ‘know a lot’ but if they do
173 not display the appropriate actions within their local ecology, they may not assume a knower
174 position. In this respect, positions are ‘acted out’ or ‘embodied’. Moving from an unknowing
175 to a knowing position – relative to others in the group – is expressed by the notion of a
176 *learning trajectory* (Melander, 2012). Goodwin (2013) proposes that learning occurs as group
177 members participate in epistemic ecologies and begin to “understand each other in just the
178 ways that make possible the accomplishment of ongoing, situated action” (p. 8).

179 **Practical illustration 2.** As an illustration of these concepts in action, we describe a case that
180 took place during a golfing lesson. In this specific situation, one boy was attempting to
181 produce a chip shot with a practice ball and was being helped by two other boys [TEXT
182 DELETED]. The chip shot, selected and demonstrated at the start of the lesson by the teacher,
183 structured the epistemic ecology in which the three boys acted. Knowledge could be enacted
184 either by performing the shot or by recalling procedural information from the teacher’s
185 demonstration. One boy had already demonstrated a successful shot and within the ecology
186 had taken on an epistemic position of ‘knower’ (referred to as knower-a, below). The boy
187 holding the club had not performed the shot and was taking on an ‘unknower’ position. The

188 third boy in the group (described below as knower-b) constructed an epistemic position
189 between the knower and the unknower.

190 Using this framework, it is possible to look at the kind of actions involved with each
191 position in more detail. Knower-a was able to move close to the unknower, demonstrate
192 aspects of the shot, adjust the golf club and the unknower's wrists so that the technique could
193 be attempted, and provide continual verbal instruction and commentary during the attempt.
194 The unknower asked questions, oriented himself so that the others could monitor his attempts
195 with the club, and adjusted his actions in line with the comments of his colleagues. Knower-b
196 engaged in the same kinds of activities as knower-a but provided less advice and did not move
197 as close to the unknower as the knower. In each case, positions were mutually supporting –
198 both the unknower and knower-b let knower-a speak more, take the club, and demonstrate. In
199 this respect, each position was granted by the other two participants.

200 Local acknowledgement of positions was significant in terms of the unknower's
201 epistemic trajectory. When he finally attempted to strike the ball, he missed twice. Each
202 attempt constituted a chance for the unknower to enact knowledge so both the epistemic
203 structure of the group and his own epistemic position were at stake. On missing the ball, the
204 unknower claimed that he was simply taking practice shots and was not really trying to hit the
205 ball. For the other two participants however, the misses confirmed his position as an
206 unknower. Knower-b immediately provided more advice, suggesting that the hitter was trying
207 to strike the ball too hard. After more unsuccessful attempts, the unknower handed the club to
208 knower-b without having changed his position within the epistemic ecology of his group.

209 In sum, the aspects of symbolic interactionist theory presented here draw attention to the
210 ways in which knowledge is central to structuring group work. In the example presented, we
211 can see how knowledge of a golf shot provided the focus of the students' interactions, that the
212 students' own knowledge of the shot led the students to take on different positions relative to

213 one another (and engage in a set of actions and behaviors deemed appropriate to those
214 positions), and provided the ‘currency’ through which students could change their positions
215 within the group – referred to above as trajectories.

216 **Theoretical Approach 3. The Role of Status and Privilege during Group Work**

217 Constructivist and socio-constructivist approaches to group work suggest that learning
218 is a process of meaning making derived from individual’s social experiences (Brooks &
219 Brooks, 1999; Vygotsky, 1978). Of course, when students enter group work situations, they
220 bring with them a range of skills and knowledge as well as different expectations of others
221 within the group. Issues related to status can have marked effects on learning. Cohen (1994)
222 has explored the role of status characteristics during group interactions extensively. She
223 defines status as “socially evaluated attributes” that can alter power, interaction, and
224 opportunities within groups (Cohen, 1994, p. 24). According to Cohen, status is not fixed, but
225 rather is unique to the setting. Status has been shown to be related to competence (Barker,
226 Quennerstedt, & Annerstedt, 2015a), gender (Goodyear, Casey & Kirk, 2014), and economic
227 level and attractiveness (Brock, Rovegno & Oliver, 2009). Importantly, and in light of
228 Rovegno and Dolly’s (2006) contention that equitable group participation is essential to
229 constructing meaning and an important precursor to learning, status can result in inequitable
230 interactions among its members and can potentially be exploited to oppress or alienate other
231 members of the group (Brock et al., 2009).

232 **Practical illustration 3.** In the following scenario, four fifth grade students are working
233 together during a Sport Education season of an invasion game, Pinball. The game is played
234 with one ball on a rectangular court and the aim is to knock down six bowling pins on the
235 opposing team’s end line. Teams are allowed to arrange their pins in any formation along
236 their end line before play begins. The focus team for this illustration (the Soaring Falcons)
237 includes two high status and two low status players. Lucas has high status, being very skilled

238 and captain of the school soccer team. Amber, who has average skill, also has high status by
239 being very popular in school. Janie has low status, being of average skill and quiet. Jacob, a
240 straight-A student has low status and low skill level.

241 At the beginning of Game 1, Amber places the pins in a bowling formation on the
242 center of the end line without consulting her team. Jacob has watched older students play this
243 game on several occasions during an afterschool program his mother directs, and suggests that
244 the pins be spread out. Amber does not respond and play begins. The Soaring Falcons lose. In
245 Game 2, Amber positions the pins in a bowling formation again. Jacob once more suggests
246 that the team spreads the pins out. Amber responds, “No, this is better. It’s like bowling, and
247 that’s hard.” Jacob sighs. Again, the Soaring Falcons lose. Before Game 3 Jacob hurries to
248 spread out the pins. Lucas notices and says: “Set them up like Amber had them.” Jacob
249 responds, “But we will lose again” to which Lucas replies, “I will guard the pins and it’s
250 easier if they are together.” Jacob’s shoulders sink. Quickly after play begins, an opponent’s
251 shot ricochets off Lucas’ foot and all the pins tumble down causing the Soaring Falcons to
252 lose a third time. For Game 4, Amber and Lucas decide they will both guard the pins. Neither
253 Jacob nor Janie offer any alternative suggestions. The Soaring Falcons lose. Before Game 5,
254 the final game of the regular season, Lucas remembers a multi-target drill from his soccer
255 practice and suggests that they spread their pins out. Amber responds, “Great idea!” Jacob
256 lowers his head and turns away from his teammates as they go to move the pins. The Soaring
257 Falcons win! While Amber and Lucas are high fiving, Jacob looks to Janie and shrugs his
258 shoulders. Janie responds, “I know it was your idea, but they never listen to us. Nothing we
259 can do.”

260 From a purely constructivist standpoint, the Soaring Falcons applied *some* of their
261 prior knowledge and as a result developed a new and improved game strategy, hence positive
262 performance results. Socially, status dominated interactions within the group. High status

263 students were afforded privilege in decision-making and validated opinions, while low status
264 students were silenced. In particular, Jacob learned his place in the group through a
265 progressive series of inequities that limited and eventually extinguished his voice, as well as
266 his desire for engagement. As previously suggested by Garcia-Lopez and Gutierrez (2015),
267 examining the dynamics or process of knowledge construction during group work may
268 provide useful insights into establishing equitable participation of group members, and
269 therefore enhance learning.

270 **Theoretical Approach 4. Incentives for Working Together**

271 In this section, Slavin's (1991) perspective on Cooperative Learning is used to explore
272 how group-based incentives, in the form of group goals, influence students' interactions and
273 learning. Slavin (1996; 2015) argued that Cooperative Learning methods that rely solely on
274 student interactions could not result in achievement. Consequently, Slavin's (1996; 2015)
275 perspective on Cooperative Learning considers the interdependent nature of four major
276 theories (motivation, social cohesion, cognitive-development, and cognitive-elaboration).

277 Slavin's (1996; 2015) model for Cooperative Learning is driven by a motivation
278 perspective through a focus on group goals, or incentives (See Figure 1). Slavin (2015)
279 focused on group goals predicting that they would provide students with the motivation to
280 engage in the tasks as well as help others (Slavin, 2015). He hypothesized that this form of
281 motivation would, in turn, drive cognitive processes and result in peer tutoring, peer
282 modelling, elaboration, peer practice, or peer assessment; the types of interactions emphasized
283 in cognitive-development theories (see for example, Piaget or Vygotsky) and cognitive-
284 elaboration theories (Slavin, 2015). Slavin's perspective on Cooperative Learning also
285 suggests that group goals can lead to group cohesion, where individuals care about other
286 members and feel they have a responsibility for others. Cohesion can in turn, reinforce task
287 motivation, encourage students' interactions and, consequently, enhance learning. Finally, the

288 cognitive processes embedded within peer-tutoring, peer modelling, and so forth can be more
289 intrinsically rewarding and lead to task motivation and group cohesion, further demonstrating
290 the interconnectedness between the concepts.

291 [Insert Figure 1 Here]

292 **Practical illustration 4.** The following empirical illustration seeks to elaborate on Slavin's
293 model. The illustration focuses on a group of five students who were practicing shot putting.
294 The group's goal was to achieve the greatest overall group improvement score in the class.
295 The group scores were the sums of each individual member's improvement, calculated as the
296 difference between their first and second throws. This illustration occurred during practice
297 time between throws one and two. Interactions and behaviors are representative examples.

298 The group began with one person practicing at a time. In response to a student's
299 suggestion, "shall we throw it together", the group split in half with three members of the
300 group throwing and the other two members observing, swapping roles after each throw.
301 Before each throw the observers explained and demonstrated how to perform the throw; "put
302 your hand like that [student demonstrated], turn around in front, now turn and throw". They
303 also made comments prior to individual performers' throws to help correct body positions:
304 "touch it with your neck"; "in your fingertips". After throwing, the students raced to collect
305 the shot and give it to their peers. During this time, the observers provided feedback; "to
306 improve I think you should do more powerful steps so you go down more to move". In
307 addition, the observers praised individual members and the efforts of the group: "wahoo, well
308 done, go Gemma"; "good it's working"; "yeah! Let's go guys".

309 In this illustration students: (i) re-organized the group to complete throws together in
310 smaller sub-groups; (ii) provided feedback; and (iii) praised individual and group efforts. It
311 could be argued that these behaviors and interactions were driven by the reward embedded in
312 the group goal i.e. to achieve the highest group improvement score. Indeed, Slavin (1996)

313 suggests that rewarding a group based on the group's collective performance from all
314 members' individual performances creates a form of individual accountability. As such, an
315 interpersonal reward structure in which group members will give or withhold social
316 reinforcements (i.e. encouragement, feedback) in response to group members' task related
317 efforts is developed. In this sense, the interpersonal reward may have motivated the students
318 to practice the throw and to encourage and help each other. The ways that the students
319 interacted also resembles peer tutoring (feedback), peer modelling (demonstrations), peer
320 practice (throwing), and peer-assessment/correction (corrections). Further, the interpersonal
321 reward could have encouraged social cohesion, as seen through the students choosing to
322 'throw it together'.

323 Slavin's model, therefore encourages us to consider the motivational influences
324 embedded within tasks that may affect how students interact and, consequently, their learning.
325 It shows how incentives, in the form of group goals, can be used to support and encourage
326 students to interact. Although Slavin's (2015, p. 6) model is driven by a motivational
327 perspective, it highlights how different concepts can be complementary rather than
328 contradictory and become interconnected to inform optimal learning conditions.

329 **Meta-theoretical Connections and Praxis Implications**

330 We want to turn now to a discussion of the similarities, differences and
331 interconnectedness between the theoretical approaches. Specifically, we consider some of the
332 assumptions underpinning the approaches and the implications they have for pedagogical
333 practice. We focus our attention on four areas: (i) content knowledge; (ii) engaging learners;
334 (iii) teachers' roles; and (iii) group composition.

335

336 [Insert Figure 2 Here]

337

338 **Content Knowledge**

339 A symbolic interactionist approach encourages teachers to consider the kinds of
340 knowledge that they are (re)producing in their lessons. Learning intentions for group work
341 that are focused solely on the reproduction of ‘technical knowledge’ will demand different
342 kinds of student interactions to a sport-culture oriented model, such as Sport Education
343 (Siedentop et al., 2011), for example. A focus on technique-based knowledge also encourages
344 students to concentrate on learning as an individual process. A culturally-oriented approach to
345 knowledge is more likely to foster a collective approach to learning, where practices are
346 central and knowledge is viewed in terms of participation. In either case, it seems particularly
347 useful for practitioners to reflect on what it means to know and do as well as appropriate ways
348 to engage students with the intended content.

349 In both the gymnastics and golf examples presented from the JASD and symbolic
350 interactionist perspectives, the content focus of group work was the reproduction of specific
351 individual technical skills (crouched headstand and golf chip shot). With respect to content,
352 there is similarity between the ideas of epistemic ecologies and the didactic contract. Both
353 groups of students placed some level of importance on the content and the knowledge that the
354 group could assemble in situ to complete the task. One could say that this focus on content-
355 related outcomes initiated a *didactic contract* such that *learning trajectories* were created for
356 each member of the triad in each group. The *epistemic positions* of the participants in each
357 group varied, however, since the students in the gymnastics task were assigned the role of
358 ‘coaches’ they were automatically placed in the position of knowers. This topogenetic state
359 did not exist in the golf example as all three students were afforded the opportunity to situate
360 themselves as knowers and the epistemic positions were ‘acted out’ or ‘embodied’ such that a
361 knower and unknowers emerged during action.

362

363 **Engaging Learners**

364 What is unclear from these theoretical perspectives are the mechanisms by which
365 students choose to place importance on the task and thus engage with the intended content.
366 Why, for example, are there periods of content acceleration and stagnation when students are
367 very engaged and less engaged in the content to be learned? Slavin's (2015) theoretical
368 perspective of planning group goals and promoting individual accountability provides a useful
369 lens to interpret this issue. Group goals differ from lesson objectives or learning outcomes that
370 are often used to guide teaching and/or signify what a class or individual students should be
371 able to do by the end of the lesson. A group goal is an indicator of a group's success. This
372 reward is based on the group's achievement and not an individual student's success. In PE,
373 group goals might involve completing a group quiz or a group project, creating a group dance
374 routine, navigating an orienteering course as a group, or successfully outwitting opponents in
375 a game-based situation. Unlike in the symbolic interactionist approach in which students are
376 thought of as learners 'by default' who will automatically attempt to increase their
377 knowledge, the incentives approach suggests that learners require encouragement, possibly in
378 the form of competition, in order to learn.

379 It was clear from the discussion around incentives that group goals help individuals to
380 focus on improvement and learning. If the task is structured correctly, the group's success will
381 be dependent on the learning of each individual team member (Slavin, 2015). Individual
382 accountability can be embedded into group goals and/or tasks by a measure of assessment. In
383 the empirical example, each group member's learning and performance in shot putting was
384 individually assessed as their individual improvement score was recorded and required for the
385 group to gain the greatest group improvement score (i.e. the group goal). Slavin (1996)
386 suggests that individual accountability can also be embedded in assessments of learning. For
387 example, a group member might be selected at random to represent the group's learning, and

388 the whole group could be rewarded based on the selected member's performance (Slavin,
389 1996). The 'take home message' from Slavin's perspective on Cooperative Learning is that
390 there needs to be measures in place to assess each individual's learning and each individual's
391 learning needs to be related to the group goal.

392 **The Teacher's Role**

393 In all perspectives, while it was not explicitly stated, the teacher played a central role
394 in group work by orchestrating a social and cultural environment for learning. This was seen
395 through, for example, the provision of resources, allocation of student roles, and the
396 determination of content and group goals. According to the JASD framework, how the teacher
397 orchestrates a learning environment represents the didactic milieu, a 'set of evolving
398 conditions' that the teacher has purposefully selected to support learning. Beyond the creation
399 of a learning context for group work, however, there was limited focus on teachers' actions
400 and interactions with groups and/or students during group learning tasks. This is not only a
401 limitation to the theoretical perspectives outlined in this paper but within pedagogical research
402 more broadly (Gillies et al., 2008), and within physical education more specifically (Goodyear
403 & Dudley, 2015). Given the concept of *consequentiality* – outlined in the symbolic
404 internationalist perspective – and the understanding that individuals' interactions impact on
405 their own and others interactions (Goodwin, 2000), it seems vital that an understanding of
406 how the teachers' interactions can positively impact on group-based learning is further
407 explored.

408 The JASD framework provided some useful insights into teacher behavior that are
409 worthy of further consideration. In particular, the concepts of 'joint action' and topogenesis
410 show how teachers and students share responsibilities for learning within group work. This
411 concept is akin to considerations around teachers becoming co-learners and co-participants
412 with their students i.e. when teachers also become learners and when students also become

413 their own teachers. An example of when teachers become co-learners can occur in instances
414 when students are not able to perform a skill and/or – as symbolic interactionist perspective
415 highlighted – when ‘knowers’ might need assistance in getting their instructions interpreted in
416 ways that facilitate their peers’ learning. In these instances, the teacher needs to firstly
417 interpret the learning context from their students’ perspective (i.e. become a learner) and then,
418 if appropriate, be willing to adopt a higher topogenetic position (i.e. become a teacher) within
419 the group. In adopting the role of the learner, teachers should be able to diagnose their
420 students’ learning and learning needs and may question or simply observe the group’s
421 learning (Goodyear & Dudley, 2015). Following this diagnosis of learning needs, teachers
422 may then respond by engaging in a range of mediated interactions that could include
423 refocusing students’ attention, technical prompts or offering specific guidance (Gillies, 2008).
424 In addition, teachers may make changes to the didactic milieu by altering the spatial
425 organization of the group in order to facilitate more conducive student interactions.
426 Importantly however, and dependent on the initial diagnosis of learning, an effective
427 intervention may involve no teacher interaction or changes to the didactic milieu. Certainly,
428 while there was a misalignment in the didactic contract in the Pinball illustration, the teacher
429 could have decided not to intervene in order to focus on social and affective learning
430 outcomes of Sport Education.

431 It should also be noted that a common misconception with teacher behavior is that
432 teachers should only interact with groups if students face a barrier to their learning, there is a
433 *stagnation* to group-based learning, or there is a misalignment of the didactic contract
434 (Goodyear & Dudley, 2015). It might be suggested, therefore, that teachers can adopt a higher
435 topogenetic position in group work as a means to advance the learning outcomes that can be
436 achieved from group work. For example, although the teacher was not active within the
437 incentives approach illustration, the teacher could have interacted with this group to enhance

438 their shot putting and/or to strengthen their ability to offer guidance and support. This final
439 point concerning teacher-group interaction highlights the importance of teachers becoming
440 co-learners. To effectively support and advance learning, teachers need to be engaged in an
441 on-going assessment of their students' learning and their learning needs in order to understand
442 if, how, and when to interact with groups or alter group dynamics.

443 **Group Composition**

444 JASD, symbolic interactionist and member status perspectives encourage educators to
445 consider group composition and its relation to learning in more detail. If knowing is the result
446 of social interaction then the learning of individuals and their performances in assessment
447 tasks will be crucially affected by those around them. This is an important point given that
448 groups are often formed in an ad hoc manner (Casey & Dyson, 2012). Unfortunately the
449 complexities of group work are difficult to navigate for teachers because many of students'
450 previous social experiences may be unknown. As exemplified in the Sport Education game
451 sequence, power dynamics within the Soaring Eagles team convinced the low status pupils
452 that they were less valued in the group, which progressively decreased their interaction and
453 engagement in the group. While it is unclear whether their physical skills improved, they
454 certainly learned that status through popularity was necessary for making decisions in their PE
455 class. Unlike the other perspectives, the member status perspective encourages educators to
456 consider group composition in terms of interpersonal and biographical terms. Considering
457 status can help teachers judge when to intervene during group interactions, and when a
458 teachable moment can be discretely, but deliberately brought to the attention of all groups. In
459 a sense, the perspective encourages educators to take a more cultural and longer-term
460 perspective on students' interactions than say, the symbolic interactionist perspective that
461 positions local knowledge as the key determinant of social interactions.

487 gain from acknowledging the complementarity of theoretical approaches. We would like to
488 finish by emphasizing implications for researchers and physical educators and adding some
489 concluding thoughts. Our intention is to avoid being overly prescriptive while still identifying
490 issues that deserve consideration when researching or teaching in group work situations.

491 First, by moving between theories, both scholars and educators can become sensitized
492 to groups' individual characteristics. Scholars and educators can see how different factors
493 such as conceptions of status and content knowledge combine to influence interactions. For
494 researchers, an 'inter-theoretical' approach results in potential to develop more nuanced
495 pictures of what is going on in empirical material. Similarly, for educators, this kind of multi-
496 perspectivity promotes a more systematic evolution of pedagogical practice such that if
497 challenges arise, alternative strategies may be attempted.

498 By examining the interconnectedness of different perspectives, researchers and
499 educators also stand to gain 'reflective distance' and the possibility to consider their
500 conceptions of group work in new ways. Assuming that measurement is necessary for
501 learning for example, supports quite different pedagogies compared to assuming that students
502 have an intrinsic desire to learn. In any situation though, teachers have different kinds of
503 students with different motivations and so forth. To achieve a good match between pedagogy
504 and learners, it is necessary to think with different frameworks. Similarly, as researchers
505 develop explanations of group work, they should be cognizant of their own taken for granted
506 assumptions. By being aware of these assumptions, researchers can create space for new ways
507 of understanding group interactions.

508 Some descriptions of group work have downplayed the importance of teachers' roles
509 in group work (see for example, Barker et al., 2015a). Thinking 'inter-theoretically' alerts us
510 to the variety of tasks that teachers are involved in during group work. Further, it suggests that
511 teachers play important roles in practically all phases of group work, regardless of whether

512 they are interacting directly or indirectly with students. By selecting content, structuring tasks
513 in terms of equipment and level of difficulty, and assigning individuals to groups for example,
514 teachers have considerable potential to exercise their pedagogical expertise and influence
515 group work situations. From a research perspective, the roles that teachers play during group
516 work cannot be ignored in analysis. While teachers may not directly appear in the picture,
517 their significance needs to be factored into explanations of how and why students are acting as
518 they are.

519 Fourth and related, when teachers move between theoretical explanations, they can
520 frame or position students in different ways. In other words, they provide students with
521 different possibilities for being and acting. If we see learning as a process that necessarily
522 involves developing new ways of being/acting (see Quennerstedt et al.'s [2014] discussion of
523 a participation metaphor of learning) then provision of such possibilities is crucial.

524 We would like to finish with some brief reflections. First, although researchers have
525 tended to take mono-theoretical approaches to group work, there is little evidence to suggest
526 that practitioners are guilty of the same offense. Our impression is that while educators may
527 not use formalized, explicit theories to guide their work, they tend to be more flexible,
528 moving between different personal ways of understanding group work and learning. This is an
529 unexplored proposition, however and is an area that deserves further investigation. More
530 generally, a number of the arguments that we have made for this meta-theoretical
531 consideration of group work theory could be just as easily made for other aspects of learning
532 theory. As the place of learning theory in physical education has grown in recent years
533 (Quennerstedt, et al. 2014), it would be useful to examine the underlying assumptions and
534 how different approaches and theories complement one another. Finally, we are aware that
535 other theoretical approaches to group work exist that we have not examined here. Lafont's
536 sophisticated work on group dynamics from a social psychological perspective for instance,

537 has not been included (Lafont, 2012; Lafont et al., 2007). Barker and Quennerstedt (in press)
538 also provide a novel reading of group work using Foucauldian theory. The objective of the
539 paper was not to provide a comprehensive picture of scholarship on group work but rather to
540 show how theoretical approaches can complement one another. The challenge now is to see
541 how inter-theoretical approaches can be extended in both research and practice.

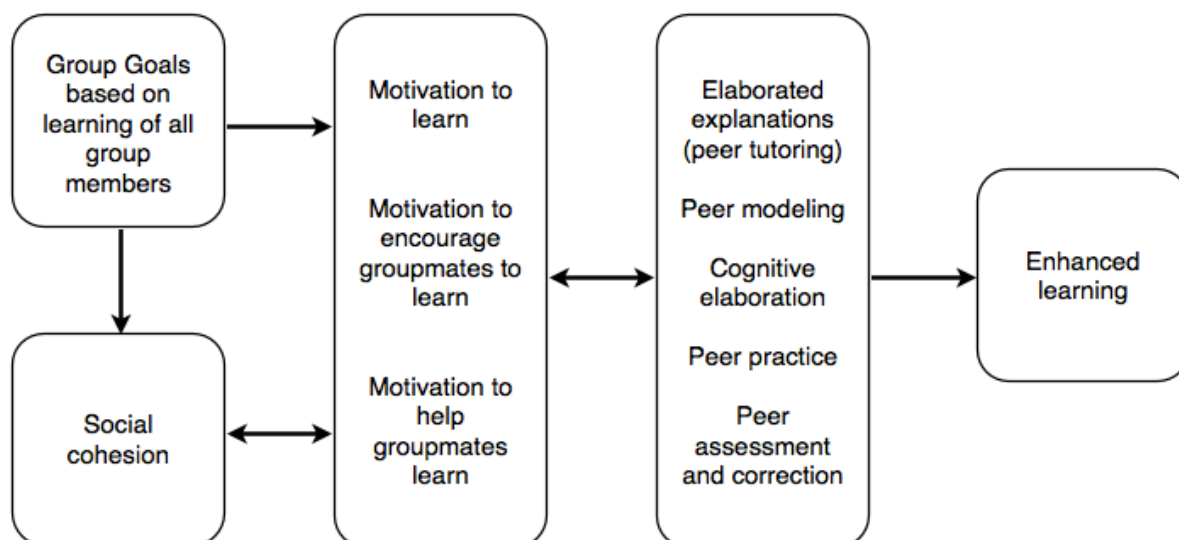
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653 Figure 1: Slavin's (2015, p. 7) Model of Cooperative Learning Effects on Learning



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671 Figure 2. Summary of Theoretical Emphases of each Framework in relation to Four
 672 Pedagogical Themes

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	JASD	Symbolic Interactionism	Student Status and Privilege	Group Incentives
Content Knowledge	Forefronts content as the driving force of teacher-learning interactions	Situates content as the medium by which learning trajectories are created. Nature of content dictates epistemic positioning	Specific content is often hidden within student interactions	Contingencies provided for group-based content development
Engaging Learners	Assumption that content initiates student engagement with task and didactic contract	Nature of content is critical to establishment of engaged learning trajectories	Engagement of learners dependent on relative status within group	External accountabilities are necessary to maintain engaged learning
Teacher's Role	Initiates and is responsible for process of didactic transposition	Nature of consequentiality suggests how teachers interacts with the group facilitates epistemic positioning	Teacher's actions often hidden from specific interactions, yet task design and student roles often a priori teacher decisions.	Teacher actions required to initiate and sustain accountability for group performance
Group Composition	Decisions on group composition often hidden from discourse on evolution of content	Identities of group members made apparent through symbolic interactions	Group composition viewed as critical to learner engagement within tasks	Incentives provided to overcome group member differences and group composition challenges.

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