

1 **Examining Student Designed Games through Suits' Theory of Games**

2
3 Ashley Casey^{1,2}, Peter Hastie³ and Steve Jump⁴

4
5 ¹School of Sport, Exercise and Health Sciences, Loughborough University

6 ²Department of Physical Education and Sports Sciences, University of Limerick

7 ³School of Kinesiology, Auburn University

8 ⁴Physical Education Department, Beaumont School

9
10
11
12
13
14 Corresponding Author

15 Dr Ashley Casey
16 School of Sport, Exercise and Health Sciences
17 Loughborough University
18 Leicestershire, UK
19 LE11 3TU

20
21 A.J.B.Casey@lboro.ac.uk
22

Examining Student Designed Games through Suits' Theory of Games

Abstract

This paper documents how a unit of student-designed games can create a more meaningful version of Physical Education for disengaged students; a version that enhances the educational legitimacy of the subject matter by affording it worth in and of itself rather than being justified for other, extrinsic or instrumental reasons. Furthermore, it seeks to develop new knowledge relating to the conduct of game instruction within physical education, by using Suits' theory of games. Drawing on Suits' theory we develop a conceptual model that is intended to represent the hierarchical processes that occur in game play through student-designed games. This model is then tested via examination of the experiences of a cohort of teachers and their year 10 students from a mixed secondary school in the greater London area. From our discussions with the students, it is argued that the key focus of the games that these students were used to playing was the need to "play the game well". By contrast, we suggest that it is possible to provide more meaningful experiences to students if a more philosophically-driven and less efficiency-driven approach to games is taken, following Suits' (1978) lead more closely. By exploring the loop between and around lusory means, lusory goals and constitutive rules (the aspects of Suits' (1978) theory that have been shown to represent student-designed games) students engage with a more meaningful games experience than simply playing the game well. This 'new' approach to games may offer counter balance to the ideological tendencies now emphasised in countries and contexts that celebrate instrumental outcomes of performative Physical Education and Sport rather than affording worth in and of itself to the curriculum's subject matter.

Keywords: Games making, game theory, physical education, Bernard Suits, game appreciation

48 Examining Student Designed Games through Suits Theory of Games

49 A number of educational philosophers have taken a stance that is best
50 represented by Tinning (2009, p. 151) when he suggested that the educational
51 legitimacy of a curriculum's subject matter is contingent on its activities having worth
52 in and of themselves rather than being justified for other, extrinsic or instrumental
53 reasons. Tinning (2009), like Arnold (1985) and Peters (1996) before him, argued that
54 physical education was increasingly seen in instrumental terms. Using the UK as an
55 example he suggested that the then Labour government – although we would argue
56 successive governments – believed that physical education, through its increasingly
57 popular moniker of school sport, could be important in delivering on instrumental
58 outcomes such as 'sports talent ID', 'decreasing obesity', and 'citizenship'. However,
59 while it might be argued that these are laudable goals they are also dangerous goals
60 (Tinning, 2009), as their outcomes are not only achieved in a multifarious and
61 unpredictable future, but it may also very difficult to prove that physical education
62 played any role in their achievement. By tying ourselves to these ethereal outcomes we
63 run the risk of becoming badly unstuck; especially when considering how poorly
64 disconnected physical education seems to be from a curriculum capable of achieving
65 these goals (Ennis, 2000).

66 Writing in the same monograph Kirk (2009) and Siedentop (2009), among others,
67 argued that, as a field, physical education needed to help children (and the adults they
68 become) to value the physically active life. Both did this by asking us to consider how
69 children gain 'capital' ["changes in persons that form skill and capabilities that enable them
70 to act in new ways" Siedentop (2009, p. 13)] through physical education. In contrast to this
71 aspiration many have argued that physical education has repeatedly asked persons to act in
72 old and established ways and has almost singularly failed to achieve its stated aims. Indeed

73 such is the volume of work making this claim that it seems futile to guide the reader to a
74 single work or author. Suffice to say that, as a field, our hopes, beliefs and aspirations do not
75 match our curriculum or pedagogies. Capital is currently gained not through enabling
76 curricula but through measures of performativity (Evans, 2013). Physical education and its
77 subject matter have been molecularized to help teachers break content down into its smallest
78 unit, *ergo* its most teachable form (Jones, Harvey, & Kirk, 2014) and these molecules (e.g.
79 the handstand or the penalty shot) have become the measures against which performativity is
80 gauged.

81 It has been argued that “sport is our subject matter” (Siedentop, 1982) and that “to
82 those looking in from the outside, the playing of games and sport within physical education
83 would seem the *raison d’être* of the subject (Casey & Hastie, 2011, p.296) and yet the same
84 molecularized notion of sport is not taken in wider society. Indeed, such is the prevalence of
85 games in wider society that they occupy an almost unrivalled place in everyday life; a place
86 that seems to go unquestioned. In contrast the manner in which they are transferred into
87 education, through school sport, has long been questioned (Siedentop, 1982). Consequently
88 the capital that is ‘won’ and ‘lost’ outside of school – in Sunday leagues and recreational
89 settings - is only bestowed in physical education on those whose contributions meet the
90 measures of performativity that we apply in physical education and school sport. In the next
91 section we will explore the gulf that appears to exist between the “rich [and] impoverished
92 meaning” we afford games in and out of schools respectively.

93 **Games as society**

94 Games – in every form imaginable - occupy a plethora of positions in society
95 generally and in our lives specifically. They are ubiquitous and yet are translated and
96 transformed in so many different ways by different people and different cultures. Games can
97 take on the form of jocular play or serious competition, can occur in organised activities

98 (such as international sport, club sport, and school curricular [the focus of this paper] and
99 extra-curricular provision) or in the form of *ad hoc* games between friends, and can be scaled
100 from solo to mass participation games. In his exploration of the practical philosophy of sport,
101 Kretchmar (1994) asked us to consider three questions with regards to games and, by default,
102 play: (i) why do games exist in every culture?; (ii) how does something that is “only a game”
103 become responsible for a trillion dollar global industry; and indeed (iii) is too much play
104 harmful?

105 All of these questions, Kretchmar suggests, appear to go against the idea that play
106 (and by association games) is an inherently bad thing and yet, it appears, play is readily
107 positioned as something that we are expected to leave behind us as we get older. This
108 sentiment is exemplified in the notion that children need to “grow up” and take things “more
109 seriously” and in the idea that “making a game out of something” is a bad thing to do. In
110 contrast, Morgan (2006) argues that sport, games and physical education are among the most
111 important and serious of all human activities. To play games, Morgan argues, should be the
112 reasons that we work rather than being positioned as thing we *might* do when we are not
113 working. In changing the position and increasing the value we place on sport, games and
114 physical education, we reposition them as meaningful and highly valued experiences rather
115 than simply seeing them as a form of escapism.

116 Developing this argument further, Kretchmar (2001) suggests that for an activity to
117 be considered as a central part of an active lifestyle it needs to be meaningful. Meaning, he
118 believes, is currently positioned as a “vague, homogenous thing” (p. 260) rather than being
119 considered across the full spectrum of importance (i.e. unimportant to vitally important).
120 Consequently we lack the wherewithal to acknowledge impoverished forms of meaning
121 (where we acknowledge, yes, perhaps, that might be important at some stage in our lives)
122 and rich forms of meaning (in its heights and depths, and in its here and now importance)

123 that motivate us to get involved, be involved and stay involved in something. This simple
124 fact, Kretchmar (2001) argues, is that “meaning varies as widely as the levels of fitness and
125 skills we see in our students” (p. 260). Furthermore “when we fail to distinguish rich from
126 impoverished meaning, we miss a marvellous opportunity to strengthen our pedagogy and
127 win more converts to the active lifestyle” (Kretchmar, 2001, p. 261). The question is,
128 therefore, does physical education present itself as meaningful?

129 Fundamentally, however, making something meaningful is not as simple as providing
130 opportunities to play. If it were then rolling out the ball would be a far more successful
131 approach to physical education than it is at present. Play, in Kretchmar’s (2007) opinion, “is
132 typically overrated...games, in fact, tell us more about our distinctive humanity than does
133 play” (p.1). He notes:

134 First, play is more primitive than games. It comes first in terms of evolution and
135 childhood development, and it is accessible to lesser animals. Second, games
136 require more impressive intellectual operations than play. A sentient being, in
137 other words, has to be much smarter to negotiate games than play, and this can
138 be shown by the cognitive operations required for each activity. Third, games
139 are artifacts, conventions, and thus first cousins of art, literature, and other
140 forms of culture. Play, on the other hand, exists and thrives with or without
141 culture.

(Kretchmar, 2007, p.1)

142
143
144 At the heart of Kretchmar’s line of reasoning is the argument that games are uniquely
145 human and give meaning to being human. However, many noted sport pedagogy scholars
146 have voiced particular dissent with respect to current practices of games instruction within
147 physical education. For example, in his description of “physical education as sport-
148 techniques”, Kirk (2010) suggests that pride of place in current physical education is given to
149 the techniques of games and sports over the performance of the games and sports themselves,
150 resulting in the practice of discrete specific movements out of the game situation. Indeed,
151 criticism of this practice was born out in the genesis of the pedagogical model called “Sport

152 Education”, where Daryl Siedentop (1994) used the terms inauthentic and decontextualized
153 to describe how sport was presented to students in school physical education.

154 In positioning physical education as “sport-techniques”, this paper argues that we are
155 missing a vital step; one that is, perhaps, overlooked far too often when we seek to defend
156 the current incarnation of physical education in our schools. That is, for children (and the
157 adults they become), the physical education they receive in the present will have a strong
158 influence upon their decisions with respect to future engagement in physical education and
159 physical activity. Currently that decision revolves around two ideas. First, since games (and
160 by default physical education because of the way it positions teams games as its *raison*
161 *d’etre*) are not seen seriously, they are overlooked in favour of more important pursuits such
162 as passing exams and getting a good job. Second, because games are reduced to techniques
163 they are no longer even seen as play and are therefore afforded impoverished meaning in our
164 lives rather than being distinguished by their richness of value and meaning.

165 Aside from the focus on sports techniques, Ennis (2000) critiques games instruction
166 in which students participate in units where there are minimal instructional periods and few
167 policies to equalities playing opportunities for low skilled players. Ennis argues that this sets
168 up cases in physical education where students must rely essentially on previous experiences
169 with sport which reproduces an “elitist perspective on sport” (Ennis, 2000, p. 121). As a
170 result, these lower skilled students (together with or those who do not fit within the high
171 status definitions constructed by the dominant class members) find little interest or meaning
172 in physical education and lack the willingness to expend effort or participate in physical
173 education activities. In fact, Rovengo (2008) suggests that one of the top challenges facing
174 physical education is to address inequitable opportunities to learn and participate in physical
175 activities and hence improve the quality experiences for those children and adolescents who
176 feel alienated and disengaged.

177 One response to student alienation in games instruction has been the advent of
178 student-designed games. Described as the process in which students create and practice their
179 own games, and in which the teacher as facilitator is able to guide and establish certain limits
180 (Hastie, 2010), recent research has suggested that that student-designed games units have the
181 capacity to free young people to define competition at their own developmental level (Casey
182 & Hastie, 2011), and that all students are able to develop some basic understanding of how
183 game rules both enable and constrain certain tactics and skills (Hastie, & André, 2012).
184 Further, when the focus was placed upon student learning, Casey, Hastie, and Rovegno
185 (2011) noted that student-designed games provides a forum that allows students to develop a
186 more sophisticated understanding of game structures and game play. In other words, and
187 revisiting (and reworking) Kretchmar's (2007) ideas, student-designed games are positioned
188 as more impressive intellectual operations than learning techniques, allowing children the
189 chance to negotiate games and their rules rather than performing already learned techniques,
190 and help learners to define games as artefacts or conventions.

191 Drawing on the work of Bernard Suits, a games-theorist and philosopher, the purpose
192 of this paper was to provide answers to the following three key questions. These were: (1)
193 How does a unit of student-designed games add to the meaning that previously disengaged
194 students see in physical education? (2) To what extent can Suits' theory of games be
195 modified to explain these student responses? (3) To what extent can Suits' theory help
196 provide a deeper explanation of the previous findings of student-designed games that
197 students appreciate engagement? The answers to these questions may help to create new
198 knowledge relating to the conduct of game instruction within physical education. In
199 particular, they may help to determine if student-designed games might be positioned as rich
200 and meaningful experiences for young people.

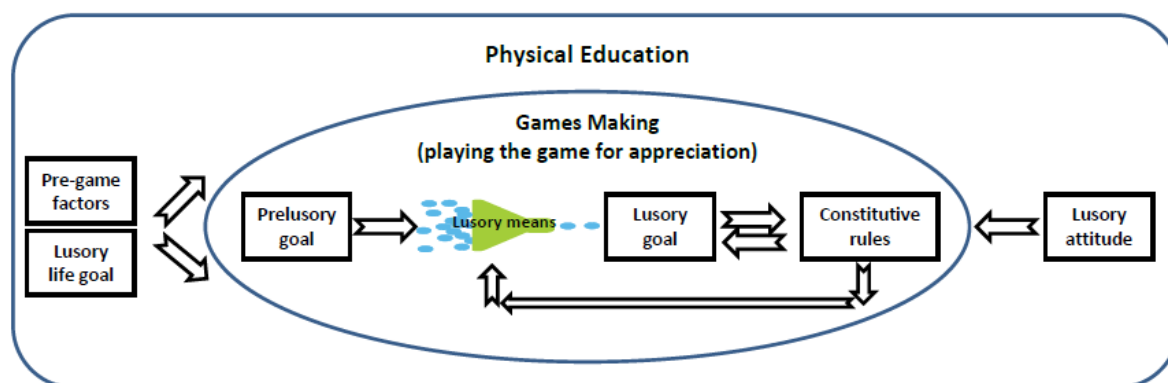
201 **Suits' theory of games, life and utopia**

202 Much of the analysis considered in this paper is shaped by Bernard Suits' (1978)
203 work *The Grasshopper*, along with the work of Scott Kretchmar who drew on Suits' ideas.
204 Both argue that work and working is about doing things as efficiently as possible. In contrast
205 games are the complete opposite. Take golf as an example. Carrying the ball to the hole
206 would be an instrumentally better way of achieving the best score, but to do so takes away
207 the intrinsic value of the sport, or that crossing the finishing line in a running race more
208 easily achieved by simply crossing the infield rather than running around the track. Yet this
209 is not the reason that we play games. Put most simply "playing a game is the voluntary
210 attempt to overcome unnecessary obstacles" (Suits, 1978, p. 41).

211 In his treatise on games, Suits argues that four hierarchical processes occur when we
212 engage in game play. Firstly we agree to try and achieve a prelusory goal. Taken from the
213 Latin *ludus* meaning game, Suits (1978) suggested that prelusory should be considered to be
214 the pre-game goal. In the case of golf this would "involve getting an object (a ball) to a series
215 of targets (the holes) in as few tries as possible" (Kretchmar, 2007, p. 7). Secondly the player
216 agrees to do this by lusory means, only the permitted rules. Often this means abiding by the
217 constitutive rules, a set of rules that prohibit the use of more efficient rules in favour of the
218 quirky rules of the game (i.e. using a series of different metal clubs to hit the ball towards
219 and eventual into the series of holes). This is all acceptable to the players if they have a
220 lusory attitude (i.e. they agree that these rule make this particular game possible).

221 Figure 1 presents our interpretation of Suits' treatise as it might relate to games
222 *making*. While traditional games have pre-determined goals and rules, in games making
223 students have the opportunity to explore and manipulate the means through which they
224 develop lusory goals and constitutive rules. Further, this exploration involves a continuous to
225 and fro process where changes in rules impact changes in goals and vice versa. In Figure 1,
226 this process is represented by the double arrows between the constitutive rules and the lusory

227 goal, as well as the loop between constitutive rules and filter in which students experiment
 228 with appropriate lusory means. As a consequence, to revisit the aim of this paper, we sought
 229 to determine if this figure (and the theory it represents) provides an appropriate heuristic for
 230 understanding student-designed games within physical education.



231

232 Figure 1. *Application of Suits' game theory to games making*

233

Methods

Participants and setting

235 The participants in this study were 58 year 10 students (14-15 years old) and two
 236 teachers from a mixed secondary school in the greater London area. The students were
 237 members of two physical education classes that each met three times a week for 45 minutes.
 238 These classes differed in that the students had been previously streamed into two different
 239 cohorts based upon their standard scores in Physical Education from previous years. What
 240 was common amongst the students however was that they represented all of the students
 241 within year 10 who had elected not to enrol in the formally GCSE (General Certificate in
 242 Secondary Education) examination in physical education or the BTEC Sport qualification on
 243 offer to them. As such, these students were engaged in "Core PE" and were described by
 244 their teachers as "a mix of generally disaffected children, able sports participants who had
 245 chosen not to be examined in the subject, and a group of academically gifted pupils who,
 246 similarly, had chosen not to gain a physical education qualification." Indeed, it was the notion

247 of “disengaged” that seemed to be the theme that ran through the entire cohort. In the words
248 of two students, physical education was described as “a time to mess about for the whole time
249 I’ve been at school” or “it’s just like...sport and you just play...you come and get changed, go
250 out on the courts or in here somewhere, then do some activities about a certain sport and then
251 perhaps play the sport at the end of the lesson.”

252 The two teachers were both recently employed at the school. Steve, the department
253 head, was just completing his first year, while Natalie had also moved to the school straight
254 from University. Both teachers had become dissatisfied with the curriculum they inherited
255 within the school, which could be described essentially as a multi-activity, “physical
256 education as sport-techniques” (Kirk, 2010) method of presentation. As such, one of their
257 goals was to provide their students with a form of engagement that was potentially more
258 meaningful and motivating. As Natalie suggested:

259 I think for this particular group of kids we’re working with, they’re not
260 particularly sporty, they’re not particularly competitive, they’re not particularly
261 good at PE, it’s one of those types of groups so for them to spend the next two
262 years doing practical PE where we’re saying “You need to get better at netball,
263 you need to get better at hockey”, I think they’re intelligent enough to know
264 “why would I want to do that? I don’t particularly enjoy it, I don’t have that
265 particular edge.”
266

267 As such, both teachers were committed to not “regurgitating the Key Stage 3
268 curriculum at Key Stage 4 and were willing to explore student designed games as a
269 potential way of engaging more students.

270 **The games making unit**

271 The games making units comprised 21 lessons that were conducted during the
272 students’ weekly allotted physical education lessons, with all lessons taking place on the
273 school’s netball courts. Given the disparity between the enrolments in the two classes, the
274 students were divided into teams of five or nine (depending on their class) by the teachers
275 who attempted to make them as even as possible based upon their games-playing ability.

276 The task for each team was to design a game using a web-based wiki as the platform
277 for recording the game and sharing it with the other participants. The students had access to
278 any equipment available within the school's physical education equipment room. All teams
279 were given some basic guidance relating to both game design and issues such as health and
280 safety to ensure that game development proceeded safely and equitably.

281 The unit was divided into three phases. First, the teachers allocated 6 lessons for
282 students to explore previously untaught games such as Korfbal, Tchoukball and Handball.
283 This was followed by 9 lessons in which the students trialled and modified their games.
284 During this time each team presented its game to allow for peer feedback. Finally, the final 6
285 lessons saw the teams making the final adjustment to their games and consolidating all the
286 constitutive rules. Following this the students spent 20 lessons playing their games in a
287 competitive league structure, which allowed all students to play and officiate (involving
288 refereeing, time keeping, scoring and updating league results and tables on the wiki) in all of
289 the created games (these lessons were not included in this study).

290 **Data collection**

291 Interviews were conducted with both teachers before the commencement of the unit,
292 at mid-point, and on completion of the project. The first of these focused on the teachers'
293 rationale for conducting the games making unit, and to explore their perceptions of the
294 students' engagement in physical education. The second and third interviews focused more
295 on students' responses as well as the teachers' understanding of games making pedagogies.
296 Specifically, the key questions posed during these two interviews included the following: (1)
297 How do you perceive the students' responses to the unit?; (2) What differences do you see in
298 terms if participation in this unit and their previous games participation?; (3) What do you
299 think the students have learned?; and (4) How have you found the change in terms of your
300 own teaching practice?

301 Interviews were also conducted with nine student teams immediately following the
302 completion of their game-design segment. The goal of these interviews was to discover the
303 students' rationale behind the particular games they had invented as well as their overall
304 responses to the process of games-making. These interviews were conducted in a small
305 meeting room, followed a semi-structured format, and lasted approximately 20 minutes. Five
306 stimulus questions served to drive these interviews, which were recorded on a small digital
307 recording device for later transcription. Those questions were: (1) How did this experience of
308 games making compare with previous games lessons in Physical Education?; (2) Tell me
309 about your game – how you went about designing it – how your group worked together; (3)
310 Were there any features of the games making process that you found particularly enjoyable or
311 just enjoyable?; (4) What were the biggest challenges or frustrations you encountered?; (5)
312 What do you believe you have learned during this unit? The students were asked to elaborate
313 on their responses in cases where their answers were limited, and were also encouraged to
314 make comments beyond the specific questions.

315 **Data analysis**

316 All interviews were transcribed verbatim. The analysis occurred in three phases. First,
317 the researchers systematically analysed the data using inductive analysis and constant
318 comparison (Denzin & Lincoln, 2003; Lincoln & Guba, 1985). During several readings, each
319 interview or log text was segmented into a series of thoughts and perceptions. Second, based on
320 the work of Bell, Barrett, and Allison (1985), a thought or perception was defined as a
321 statement that was conceptually consistent with a single topic or idea. Finally, thoughts and
322 perceptions were compared to the hypothesized figure of student-designed games in order to
323 answer the research question of the paper.

324 **Results**

325 In presenting the results, we have taken Figure 1 which we presented earlier in the
326 paper and working from outside in and then from left to right, explore each aspect of the
327 model in turn. Therefore the findings will be presented in subsections that relate to (1) *pre-*
328 *game factors* and *lusory life goal (with respect to physical education)*, (2) *lusory attitude*, (3)
329 *lusory means*, (4) *lusory goals*, (5) *constitutive rules*, and (6) the “*decision*” loop between
330 *constitutive rules and lusory means*. Where we have used student voices in our presentation
331 of the findings we have noted the gender (e.g. F) and the group (e.g. 3) of the student.

332 **1. Pre-game factors and the Lusory life goal (students’ attitudes towards and goals**
333 **for physical education)**

334 The pre-game factors that related to games making in physical education revolved
335 around the students’ past experiences of games in a school curricular and extra-curricular
336 context, as well as their attitude towards school in general and to physical education
337 specifically.

338 In the main, physical education and games were socially constructed for these students
339 as a subject for which they did not wish to gain an academic qualification. From discussions
340 with the staff, students’ involvement in either lessons and/or the school’s extra-curricular
341 programme could best be described as disengaged. According to Steve, the main explanation
342 for this was that “there are a huge variety of kids in the group...some who love sport, some
343 who hate sport, some who are academic, some who are not academic, some who like playing
344 competitive sport, some that just like individual sports”. From the students’ perspective,
345 taking part in physical education then was seen as something “I have to because it’s on my
346 timetable” (M-1). Such indifference was supported by statements from students who
347 suggested that “we just played a game, we got taught how to play the game and we played it”
348 (F-1).

349 **2. Lusory attitude (the students’ attitudes towards games making)**

350 In considering the challenges of games making we concluded that there were two
351 parts to this aspect of game theory. Firstly, because games revolved around problem setting,
352 there was a need for every group of students to come up with a problem. Secondly, the
353 difficulty inherent in solving the problem is also dependent on the participants' willingness
354 to abide within the common agreement to play by the rules.

355 Indeed, in analysing the data it became clear that the students either resisted or
356 accepted these challenges. One class initially resisted the notion in game theory of "problem
357 setting" to a point where they created problems that already had multiple existing and well-
358 known solutions. That is, their games essentially spliced two games together, for example the
359 games of football and netball. They then opted to abide by existing (albeit hybrid) rules. For
360 example, in creating the game "Netfoot", one team produced a game in which netball was
361 played inside the goal circle and football was played on the rest of the court. The only rules
362 of significance were the transitions between the two games, which required a player to flick
363 the ball up into the *netballer's* hand or to roll the ball out to the *footballer's* feet.

364 In contrast, other students showed a real willingness to adopt the games-making
365 challenge itself and to indeed create a novel game. As one student pointed out:

366 It's really hard not to copy other games because the game that we had was a mix
367 between some games, it was a really good game but it was too much like the
368 other games so we had to completely think out of the box 'cause we were
369 thinking of some games and then we were like 'oh no, that's too much like
370 football' or 'that's too much like netball or something' so we did have to think
371 about that. (F-2)

372
373 The decision to deliberately seek out and solve a new problem, rather than
374 simply regurgitating a familiar problem and an equally familiar solution, was
375 fundamental in improving the lusory attitude of some students who had been described
376 by their teachers as "negative" and "not in the slightest bit motivated".

377 The second aspect of lusory attitude is a willingness to abide within a common
378 agreement to play by the rules. Given the decision by some students to develop combination

379 games, it should have been relatively easy for them to abide by the rules, as they had already
380 inherited their own history of rule adherence in regards to these two games. However,
381 alongside their decision not to set particularly a new or difficult problem for themselves was
382 an underlying attitude of disinterest towards the unit. When asked in their summer interviews,
383 how seriously they took the games-making process one female student replied: “quite
384 seriously but we didn’t take it like really, really seriously, we were trying to enjoy it and be
385 light hearted about the whole thing, it was good fun though.” (F-1)

386 For those students who searched for innovative problems, the agreement to abide by
387 the rules of their games brought additional challenges. That is, in having (at least initially)
388 less clearly defined rules allowed for the seeking out of loopholes in their own rules as well
389 as those created by other groups. In his interview one student admitted that “trying out our
390 game and finding out all the weak points was pretty fun” (M-8) while another classmate felt
391 “it’s more interesting because you’re making up your own game instead of following rules
392 that have already been set by someone else, so you can adapt” (F-8).

393 Taken as a whole there was certainly a shift in students’ lusory attitude towards their
394 physical education lessons as they participated in the games-making unit. The following
395 exchange represents a positive change in attitude that affected a number of the students:

396 M-5: We’re not messing about as in just sitting down and chatting to each other,
397 we’re messing about doing the game.

398 M-5: We have fun doing the game and improving it, you enjoy doing and
399 learning what you’re doing.

400 F-5: You’re playing but you’re learning as well.

401 M-5: We’re not taking it dead serious but still doing the game in a fun way.

402 F-5: Plus it’s very enjoyable.

403

404 The feeling that the students had shifted from being a group who “quite often get
405 disengaged” to one that were interested and challenged by physical education was a strong
406 theme of the teachers’ response to the unit. In particular, when asked to elaborate on what
407 they meant by “motivated” Natalie mentioned that absence of comments such as “I really

408 don't like netball", "I don't want to do rugby" or "I really don't want to go outside and do
409 practical today", and that the shift was more to one of "wanting to do it and wanting to get
410 out there and if they don't have their kit or they are injured, they seem to be, the majority
411 seem to be still getting involved."

412 Steve, who worked with both classes, saw more of the difference between the two
413 rather than just seeing the difference between the old and the new that Natalie saw. In
414 particular he noted differences in the students' engagement in the different classes:

415 [one class] seem much more engaged, they're coming up as with good a games
416 as the [the other class] but they seem more interested in the structure of the
417 games and scoring, coming up with better systems in terms of how many points
418 you get for different things and how you get people out and more imaginative
419 ways of scoring.

420
421 However, the teachers' opinions were not universally applied to all students. In
422 acknowledging the impact of the unit on some of the students, Steve felt that some missed the
423 old approach to physical education:

424 I think some of them miss traditional physical education because they've done
425 that for three years and that's their comfort zone and they're feeling a little bit
426 confused, well not confused but unsure or just not very comfortable with this
427 change, that is quite a big change for them so I think some of them just want to
428 go back to the norm.

429
430 When asked to explain why this might be, he elaborated:

431 I think others have got real passion for certain sports and feel like they're
432 missing out on that now because they're doing something different, so there's a
433 couple of boys in there who are dead keen on football, couple of girls very
434 interested in hockey and netball and I think they just want to get back to playing
435 their sport because that's what they love.

436
437 **3. Lusory means (the permitted actions of the game)**

438 One of aspects of the games-making unit that created the biggest set of obstacles for the
439 students was the openness of the games-making task. Because the games-making process was
440 presented as a *tabula rasa* and the students were given a fairly free rein in terms of the games
441 that they might develop, the scope was perhaps too broad. Physical education, which had

442 previously been filled with activities and games that required students to do “something you
443 were told to do” (F-6), had suddenly become about open choice and this was a big change. As
444 noted earlier, for some this meant doing versions of what they had always done, while for
445 others it was about being creative and coming up with an idea for a new game. Nevertheless,
446 this was one of the hardest aspects of the whole process.

447 A specific challenge was bringing everyone ideas together to make a game that actually
448 worked. Two comments are particularly pertinent here:

449 M-6: To start with there were like no ideas, then everyone had ideas but they
450 were different, we had to try and merge them together to make something that
451 worked, which was a real challenge, to get it to work.

452
453 F-5: You’ve got to make sure you get everything right because if you mess up
454 in the game, no-one’s really going to understand you. You have to make sure
455 you can explain the game before you play it.

456
457 One of the core problems, for some students at least, was that they did not like having
458 to go through the filter of the lusory means. Put simply, students did not like having to think
459 of ways of limiting their ideas concerning the goal of their game by also limiting the
460 permitted rules through which they could play. Indeed, as one female student suggested,
461 “there’s a game for basically everything so to be completely different, the game will probably
462 be really rubbish because there wouldn’t be any structure to it” (F-9).

463 The teachers were aware of the “discussions” and “negotiations” that the students
464 were engaged in around the prelusory goals and lusory means of their games. When asked if
465 the students were having these discussions amongst themselves,” Steve replied:

466 They are, yeah, they’re having discussions, they’re having arguments, they’re
467 going through that phase where they’re all fighting for a little bit of power or
468 trying to get their point of view across and I think that’s great, You’ve just got
469 to let them sort of see it through haven’t you?

470
471 However, in the act of facilitating these discussions, Steve felt that his role was also
472 changing:

473 They do take some guiding, I think to keep it rolling You've got to get involved
474 with some groups more than you do with others and give them a bit more
475 guidance and a bit more...
476

477 **4. Lusory goals (defining how to win)**

478

479 Once of the students had "filtered" the prelusory goal for their games through the
480 lusory means, they were then required to define how to win their games. For winning to
481 occur the team must achieve the prelusory goal by remaining fully compliant with the lusory
482 goal. The actualisation (and in some cases the realisation) of the lusory goal was a key
483 turning point for many of the groups. A number of the students were happy with the idea of
484 developing a game that tested their ability to "come up with a game" (i.e. setting themselves
485 a testing goal). Where the real challenge came was in turning that *test* into a *contest*. Many of
486 the students focused much more on the test (scoring points by overcoming a set of rules and
487 obstacles), rather than the contest (outscoring their opponents to win the game). They were
488 concerned with creating an "enjoyable test" (F-4) or a "valid challenge" (M-6) but struggled
489 with the need to balance the need for uncertainty in the outcome with the level of skill of
490 participants. In other words they could come up with a test that they could master as a group
491 but when it came to defining a contestable game between two teams of unknown ability they
492 found it more difficult.

493 When, in the interviews, the students were asked to consider why some of their initial
494 ideas or games were (in their words) "boring" they felt that aimlessness and inactivity were
495 key causes of boredom. When they were asked to define a good game the students had some
496 clearer ideas as to what a good game should be:

497 F-2: Something that everybody enjoys including boys and girls.

498 F-2: Something that everyday can play, for example a football game, girls might
499 not really like it whereas netball, boys might not really like it so a game that
500 everybody can do and that everyone will enjoy.

501 M-2: It's not individual to one personality or gender, anyone and everyone can
502 enjoy it really.
503

504 F-3: Not too complicated.

505 M-3: It has to be fun.

506 F-3: Active.

507 F-3: Quite clever.

508

509 Clever seemed to be important for some students. In a similar vein to games-makers

510 in previous studies (see Casey & Hastie, 2011; Casey et al, 2011) the search for innovation

511 was seen as being important. Tried and tested was seen as the norm and therefore consistent

512 with regular physical education, new was better. When asked to explain “clever” the same

513 student continued:

514 F-3: Not like the usual pass it round score game but something different.

515 Interviewer: Was difference important?

516 F-3: Yeah. [some other students agree] It made it more fun because you hadn’t
517 done it before so just had to try out the new game.

518

519 “Newness” was not the only aspect of a good game that the students highlighted. For

520 them the game needed to be enjoyable. Consequently the lusory goal needed to ensure that

521 students also enjoyed what they were doing. There was certainly the tacit belief that for

522 something to be enjoyable it had to be popular and fair – something that the games played in

523 physical education were not.

524 **5. Constitutive rules (restrictions put in place)**

525

526 The biggest gulf experienced by the students seemed to be between the desire to have

527 a lusory goal that made things fun, new, and enjoyable, with the reality of developing a set of

528 constitutive rules that made that goal possible. Indeed, the students engaged in a lot of

529 vacillation between their aim for fun and enjoyment and the development of a rule set that

530 allowed for this.

531 In their interviews the students spoke primarily about the challenges of making their

532 games work, especially when they were subjected to the scrutiny of others through game

533 play. The development of constitutive rules was likened by some players to fixing bugs in the

534 game in the same way that a programmer would fix a poorly behaving computer game.

535 Sometimes this occurred through observations of their game being played by others and
536 sometimes from the feedback they were given from other students in the guise as players of
537 their game. Some of this “fixing” also occurred as a result of playing other team’s games and
538 identifying aspects of these games that they either liked or thought would improve their
539 objective of enjoyable fun.

540 At their heart, these constitutive rules were functioning to achieve the enjoyable test
541 within the lusory goal. Nevertheless, they did not always serve to facilitate a good contest.
542 This was evident in both hybrid games where the established rules of netball and football
543 impeded the need for something that was new – and in the truly “new” games, where the
544 evolution from test to contest had not yet occurred. This meant that the loop identified in
545 Figure 1 from constitutive rules to lusory goals (often via the filter of lusory means) was a
546 much-travelled route for some of these teams.

547 **6. The loop from constitutive rules with lusory means (making game adjustments)**

548 The toing and froing between rules, goals and means was neither linear nor regular.
549 Importantly though, this period of shift and transition was seen by the students and the
550 teachers as supporting both enjoyment and autonomy. Two groups provided particularly
551 poignant comments:

552 M-4: It was something different, we felt like we were more involved and it was
553 much more interesting and it was more fun.

554 F-4: It’s like different because when we do a normal physical education lesson,
555 we stand around for 15 minutes with them going, “okay we’re going to do this”.

556 F-4: It’s more fun than normal physical education and you’ve got a
557 responsibility to look after people who are playing your game, tell them the
558 rules, so that’s a bit better than normal physical education.

559 F-4: I like it because you get to make your own rules of your own game, you
560 don’t have to follow by the rules of other games and you can use your own
561 ideas.

562

563 M-5: It’s good that it’s not just you’re told a game and you go do it, you
564 actually think more about it and so the more academic people like it more than
565 just running about to buy a bunch of rules.

566

567 At its heart, however, this loop provided the students with a very real (to them and their
568 teachers at least) sense of both understanding about games and their rule and game
569 appreciation. As two students commented:

570 F-4: I think it was really different because before we just played a game, we got
571 taught how to play the game and we played it whereas this time you'd got to
572 think more about why other games are like, why other games are good so
573 you've got to try and make your game good.

574 M-4: And it's good because you need to find out why they work and apply
575 those skills to your game.

576
577 When asked to describe what he felt the students learnt as a consequence of the games
578 making experience, particularly the interplay between rules, goals and means, Steve replied:

579 I think some are surprised at how much they needed to think about creating a
580 game and I think for some, it was quite interesting to see the first time they tried
581 to play it themselves as a group, suddenly there was loads of arguments, "that's
582 not the rules", "this isn't the rule and why are we doing this?" and I think they
583 then thought "crikey, we need to think of a hell of a lot more rules than we've
584 got".

585 **Discussion**

586 The purpose of this paper was to provide answers to the following three key
587 questions. These were: (1) How does a unit of student-designed games add to the meaning
588 that previously disengaged students see in physical education? (2) To what extent can Suits'
589 theory of games be modified to explain these student responses? (3) To what extent can
590 Suits' theory help provide a deeper explanation of the previous findings of student-designed
591 games that students appreciate engagement?

592 Based on the findings reported above, we are confident in our suggestion that Suits'
593 (1978) theory of games (and our representation of his ideas as a model – see Figure 1)
594 provides an appropriate heuristic for understanding student-designed games within physical
595 education. Fundamentally, what emerged from the data was the sense, for many of these
596 children, that their physical education lessons were now more meaningful. They no longer
597 defined physical education as "just like...sport and you just play..." and nor was it a time
598 when they just "mess[ed] about." Even for those children who were challenged by the games-

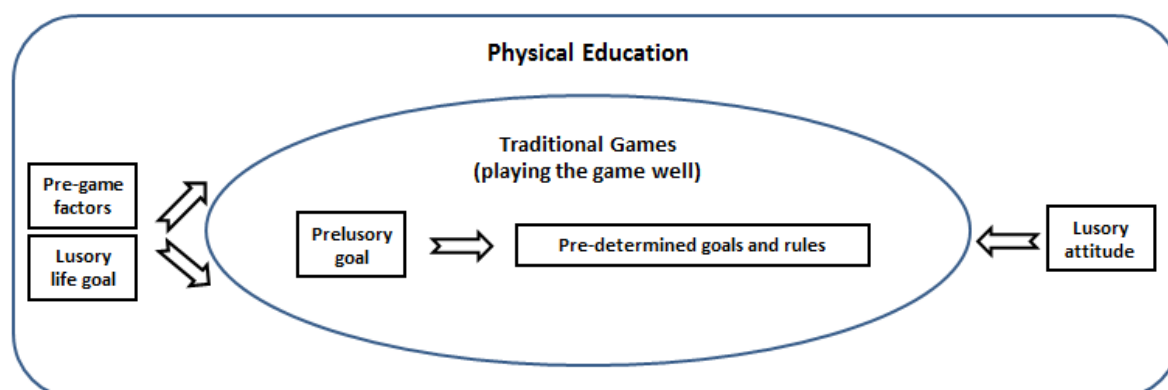
599 making process still talked about PE differently. The games, their games, took a different role
600 in their lessons. They now needed to be ‘fun, new, and enjoyable’ and when they were not
601 they needed to be ‘fixed’. Capital, we would argue, was now being won for having a good
602 game rather than for being a good player.

603 By his own admission Suits (1978, p. 22) badly theorized work as a “technical
604 activity” through which, he intimated, work was an “activity in which an agent seeks to
605 employ the most efficient available means for reaching a desired goal.” While this might be
606 considered a crude analogy for the complexities of work it does allow us to make a direct
607 comparison between work and games. Work, Suits argued, was in stark contrast to the
608 “means employed in games [which] are not the most efficient” (p. 22). In some ways it was
609 the contrast between “work-focused” school efficiency and “games-focused” play
610 inefficiency that caused many of the participants in this study the most problems. It was not
611 so much that the students could not think of new ideas – although this was a problem for
612 some – it was that this thinking was too much effort and it did not allow them to get on with
613 the business of playing. It could be argued that physical education has been guilty of the same
614 efficiency drive of work that these students advocated. In reducing the complexities of games
615 to skills and techniques, the complexity and inefficiency of games better fits the constraints
616 of the industrial age school (Lawson, 2009) with its timetables and processes. Yet in doing so
617 it moves beyond the premise that we work so that we can play (Morgan, 2006). Indeed Suits
618 (1978, p. 9) himself suggested “our labour is valuable because it permits us to play.”

619 It does not seem unreasonable to suggest that games generally – and games making-
620 specifically – might be the very antithesis of the efficiency that Suits was talking about. Even
621 the most established and refined of games is unpredictable: if they were not so capricious
622 then ‘match-fixing’ would not be the curse that it is. However, in this drive for efficiency
623 some of the other core elements of games, play, and game play are missing. When a game is

624 reduced to its core skills, or when actions are taught in relation to the rules but the rules
 625 themselves are not explored or tested, then learners re-enact movements rather than being
 626 responsive to situations. Yet games are means-end-orientated activities and rule-governed
 627 activities (Suits, 1978) in which winning is a finite event that is achieved (or not) only
 628 through adherence to pre-prescribed rules. Therefore, games learners and developers need an
 629 understanding of the actions and interactions of rules and means if they are to enhance their
 630 understanding of games. Such is the “inseparability of rules and ends in games” (Suits, 1978,
 631 p. 24) that it seems remiss of physical educators and coaches to somewhat ignore the
 632 relationship between these two important facets of games.

633 One element of games that has been a focus of physical education – particularly
 634 physical education as sport-techniques – has been the “rule of skill” (Suits, 1978, p. 37). Suits
 635 held that “to break a rule of skill is usually to fail, at least to that extent, to play the game
 636 well, but to break constitutive rule is to fail (at least in that respect) to play the game at all”
 637 (p. 38). We would argue that the key focus of the games that these students were used to
 638 playing was the need to “play the game well”. Indeed it could be argued that the main focus
 639 of physical education has been playing well and the opportunity to just play is removed from
 640 students as the opportunity arises. To this end we suggest physical education has been using
 641 an impoverished version of Suits’ (1978) theory which is illustrated in Figure 2.



642

643 Figure 2. *Application of Suits' game theory to traditional games teaching*

644 In this figure, the loop (and its associated toing and froing) between lusory means,
645 lusory rules, and constitutive rules is replaced with predetermined rules and goals and the aim
646 of playing the game is superseded by the need to play the game well. Such an approach, with
647 its focus on specific outcomes through the mastery of specific “sport-techniques”, limits (as
648 much as the unpredictable of games can be limited) the scope of acceptable outcomes
649 available to teachers and student alike. In other words, this approach adopts “work-focused”
650 school efficiency as opposed to “games-focused” play inefficiency and its subsequent
651 potential for learning and game appreciation. Put differently, the instrumental outcomes of
652 traditional physical education were replaced with activities that had worth in and of
653 themselves (Tinning, 2009).

654 The drive for efficiency in teaching is not unique to physical education and nor is this
655 problem new but the application of Suits’ model allows us to view it through a different lens.
656 Siedentop (1994) has not been the lone voice in arguing that many children and young people
657 lack the tactical and strategic acumen to be successful games players (see Mitchell, Oslin, &
658 Griffin, 2013). Indeed the ubiquitous focus on the acquisition of sport-techniques has been
659 seen as the catalyst for the development pedagogical models such as Sport Education and
660 Teaching Games for Understanding and yet, despite the birth of these pedagogical models,
661 the teaching of strategy remains difficult. Perhaps, as is shown in this study, only by moving
662 away from established games and their prerequisite skills, and having students make their
663 own games, does the significance and importance of tactics, strategies and rules become
664 overt. Only by moving away from the comfort of traditional national games such as cricket
665 and netball and heading into the unknown can we start to help students to build up their
666 understanding rather than disseminating information we deem pertinent to given sport-
667 techniques.

668

669

Conclusion

670

671

672

673

674

675

676

677

Physical education has increasingly been seen as an important mechanism in the delivery of instrumental outcomes such as ‘sports talent ID’, ‘decreasing obesity’, and ‘citizenship’ (Tinning, 2009). However, in aspiring to such ethereal outcomes the subject continues to act in old and established ways. Value and worth is placed, not on the activities having worth in and of themselves but rather on other extrinsic or instrumental measures (Tinning 2009). Playing the game well is valued above all other things and students are assessed in molecularized forms of activity (Jones et al., 2014) and against measures of performativity (Evans, 2013).

678

679

680

681

682

683

684

685

In contrast, the findings from this study provide support for our notion that we might be more able to provide meaningful experiences to students in physical education if we were to follow a more philosophically-driven and less efficiency-driven approach to games, and perhaps follow Suits’ (1978) lead a little more closely. That is, while the well-played game is pleasing to our eyes (as players ourselves and as literate sports fans) perhaps the well-played game is not the core function of physical education. If, as Kretchmar (2005, p. 153) suggests, we need to make playgrounds to “help our students...find the better and more captivating varieties of play [then, in short,] we need to become highly skilful playmakers.”

686

687

688

689

690

691

692

693

We suggest that physical education needs to “get over” its reluctance to break the rules of skill and focus on what the rules actually allow us to achieve in our game play. As this study has shown, by exploring the loop between and around lusory means, lusory goals and constitutive rules (the aspects of Suits’ (1978) theory that have been shown to represent student-designed games) students engage with a more meaningful games experience than when they established games in regulative ways. Furthermore, and in developing findings from previously published work on student-designed games (see Casey and Hastie, 2011; Casey et al. 2011), the search for meaning is not inherent in all students, as some just want to

694 play. Students have lost the inquisitiveness that, it could be argued, is the hallmark of both
695 children and outstanding players – players who are frequently lauded for ripping up the
696 rulebook and doing the unexpected. Finally, while current physical education, with its
697 preponderance for “sport-techniques” serves to satisfy those young people who want to play
698 the game well it also alienates those previously marginalized (Ennis, 2000) by pre-game
699 factors and their lusory life goals. In contrast, student-designed games afford students with
700 the chance to overcome and change those factors that come from outside of physical
701 education and yet which have such an impact on participation.

702

703
704**References**

- 705 Arnold, P. (1985). Rational planning by objectives of the movement curriculum. *Physical*
706 *Education Review*, 8(1), 50-61.
- 707 Bell, R., Barrett, K. R. & Allison, P. C. 1985. What preservice physical education teachers
708 see in an unguided, early field experience. *Journal of Teaching in Physical Education*,
709 4, 81-90.
- 710 Casey, A., & Hastie, P. A. (2011). Students and teacher responses to a unit of student-
711 designed games. *Physical Education & Sport Pedagogy*, 16, 295-312.
- 712 Casey, A., Hastie, P. A., & Rovegno, I. (2011). Student learning during a unit of student-
713 designed games. *Physical Education and Sport Pedagogy*, 16, 331-350.
- 714 Denzin, N.K., & Lincoln, Y.S. (2003). *The landscape of qualitative research: Theories and*
715 *issues* (2nd edition). Thousand Oaks, Ca: Sage Publications Inc.
- 716 Ennis, C.D. (2000). Canaries in the coal mine: responding to disengaged students using
717 theme-based curricula. *Quest*, 52, 119-130.
- 718 Evans, J. (2013). Physical Education as porn! *Physical Education and Sport Pedagogy*, 18, 1,
719 75-89.
- 720 Hastie, P. A. (2010). *Student designed games: Strategies for promoting creativity,*
721 *cooperation, and skill development*. Champaign, IL: Human Kinetics.
- 722 Hastie, P. A., & Andre, M.H. (2012). Game appreciation through student designed games and
723 game equipment. *International Journal of Play*, 1(2), 165-183.
- 724 Jones, R., Harvey, S., & Kirk, K. (2014). Everything is at stake; yet nothing is at stake:
725 exploring meaning-making in game-centred approaches, *Sport, Education and*
726 *Society*, DOI: 10.1080/13573322.2014.965138
- 727 Kirk, D. (2009). A physical education for the future or a future for physical education? In
728 L.D. Housner, M.W. Metzler, P.G. Schempp, & T.J. Templin, (eds.), *Historic*

- 729 *Traditions and Future Directions on Teaching and Teacher Education in Physical*
730 *Education* (pp. 137-148). Morgantown, WV: Fitness Information Technology.
- 731 Kirk, D. (2010). *Physical education futures*. London: Routledge.
- 732 Kretchmar, R. S. (1994). *Practical philosophy of sport*. Champaign, IL: Human Kinetics.
- 733 Kretchmar, R. S. (2001). Duty, habit, and meaning: Different faces of adherence. *Quest*, 53,
734 318-325.
- 735 Kretchmar, R. S. (2005). *Practical philosophy of sport and physical activity* (2nd ed.).
736 Champaign, IL: Human Kinetics.
- 737 Kretchmar, R. S. (2007). The normative heights and depths of play. *Journal of the*
738 *Philosophy of Sport*, 34, 1-12.
- 739 Lawson, H. A. (2009). Paradigms, exemplars and social change. *Sport, Education and*
740 *Society*, 14, 97-119.
- 741 Lincoln, Y.S. and E. Guba. 1985. *Naturalistic inquiry*. Newbury Park, CA: Sage.
- 742 Mitchell, S. A., Oslin, J. L., & Griffin, L. L. (2013). *Teaching sport concepts and skills: A*
743 *tactical games approach for ages 7 to 18*. Champaign, IL: Human Kinetics.
- 744 Morgan, W. J. (2006). Philosophy and physical education. In D. Kirk, D. Macdonald, & M.
745 O'Sullivan (eds.), *Handbook of physical education* (pp. 97-108). London: Routledge.
- 746 Peters, R. (1996). *Ethics and education*. London: Allen & Urwin.
- 747 Rovegno, I. (2008). Learning and instruction in social, cultural environments: Promising
748 research agendas. *Quest*, 60, 84-104.
- 749 Siedentop, D. (1982). Movement and sport education: Current reflections and future images.
750 In M. Howell, & J. E. Saunders (eds.), *VII Commonwealth and International*
751 *Conference on Sport, Physical Education, Recreation and Dance* (pp. 3-13).
752 Brisbane: University of Queensland Press

- 753 Siedentop, D. (1994). *Sport education: Quality PE through positive sport experiences*.
754 Champaign, IL: Human Kinetics.
- 755 Siedentop, D. (2009). Research on teaching physical education: Celebrating our past and
756 focusing on our future. In L.D. Housner, M.W. Metzler, P.G. Schempp, & T.J.
757 Templin, (eds.), *Historic Traditions and Future Directions on Teaching and Teacher*
758 *Education in Physical Education* (pp. 3-14). Morgantown, WV: Fitness Information
759 Technology.
- 760 Suits, B. (1978). *The Grasshopper: Games, life and utopia*. Toronto: University of Toronto
761 Press.
- 762 Tinning, R. (2009). Who pushed Humpty Dumpty? Dilemmas in Physical Education circa
763 2007? In L.D. Housner, M.W. Metzler, P.G. Schempp, & T.J. Templin, (eds.),
764 *Historic Traditions and Future Directions on Teaching and Teacher Education in*
765 *Physical Education* (pp. 149-154). Morgantown, WV: Fitness Information
766 Technology.
- 767