1 **The Role of PETE in Developing and Sustaining Physical Literacy Informed**

2 **Practitioners**

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12   **Abstract**

13   This paper discusses teacher preparation in relation to encouraging and empowering future

14   teachers to appreciate the potential and value of adopting physical literacy as the goal of PE.

15   The paper addresses the issue of the role of schools and teacher training programs in

16   developing the next generation of PE teachers entering PE Teacher Education (PETE) with

17   respect to thoughts, feelings, perceptions, and beliefs that underpin the concept of physical

18   literacy, and providing high quality learning experiences that are crucial to continuing

19   physical activity throughout the life course for all children, not just those that have a natural

20   aptitude in this area. Many advocates for radical change in physical education have

21   repeatedly argued that physical education curricula around the world are too focused on a

22   traditional, one size fits all, sport technique based, multi-activity form. Others have argued

23   that the traditional curricula have a primary focus on physical competence in running,

24   jumping, and balls skills rather than providing experience in a wide range of physical

25   activities including, inter alia, those with a focus on aesthetic awareness and those related to

26   outdoor adventure.

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28   *Keywords*: occupational socialisation, pre-service teachers, PE teacher education, models

29   based practise, physical literacy

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35   To design appropriate environments to foster physical literacy, prospective teachers of

36   PE need a sound theoretical understanding of the learner and of the philosophy of physical

37   literacy and need to appreciate the role of models based practices in promoting physical

38   literacy. By ensuring that the concept of physical literacy is appreciated and assimilated

39   within their teacher identity and belief system, pre -service teachers (PSTs) can become more

40   resistant to the challenges in the organizational phase such as the expectation of adopting a

41   pedagogy of necessity, driven by established school expectations (Tinning, 1988). These

42   future teachers will then have the opportunity to become sustainable practitioners who will

43   employ authentic teaching approaches in line with promoting physical literacy and hopefully

44   also influence the socialization process of future generations.

45   Lawson (1986) defined occupational socialization as "all of the kinds of socialization

46   that initially influence persons to enter the field of PE and that later are responsible for their

47   perceptions and actions as teacher educators and teachers" (p. 107). Using occupational

48   socialization as an appropriate theoretical framework to examine the socialization of teachers

49   in PE (Stroot & Williamson, 1993), this paper aims to discuss the role of schools and PETE

50   providers in developing and sustaining physical literacy informed practitioners. The first

51   section considers the influence and impact of socialization through the anticipatory phase

52   prior to entering PETE, and its effect on PSTs beliefs. The second section discusses what

53   should be taught during PETE to move PE away from traditional ideology and support PSTs

54   in developing their own teaching philosophy using the concept of physical literacy. Finally,

55   the third section addresses the pedagogical approaches considered in PETE to promote high

56   quality learning to foster physical literacy. In conclusion, the paper argues that teacher

57   educators need to facilitate the exploration of the anticipatory phase of PSTs in order to

58 ascertain how prospective teachers establish their identity as well as their underpinning

59 values and beliefs. PETE needs to support PSTs in becoming confident innovators and

60 pioneers of radical reform. They need to be equipped and empowered to break the recycling

61 of the traditional curricula, that may, as Kirk (2013) fears, lead to the extinction of PE. This

62 should provide a model for future practice in school PE that will become part of the PST

63 belief system and thus be more likely to be sustainable.

64   In summary, this paper will give recommendations for PSTs concerning the

65 acquisition of the skills, beliefs and the philosophical basis to work towards promoting

66 physical literacy and also enable these teachers to "plant the seed" for their pupils to adopt a

67 physically active life in the future (Gard, 2004a).

68 **Physical Literacy and PSTs' Beliefs**

69   This section considers how, through socialization, PSTs formulate their beliefs

70 surrounding teaching PE before they enter PETE. It also looks at how these beliefs impact on

71 their learning and ultimately on their teaching as sustainable and confident advocates of

72 physical literacy when they graduate. Matanin and Collier (2003) define a belief as a

73 proposition that individuals hold to be true. Beliefs, according to Pajares (1992), can be

74 learned implicitly or taught explicitly throughout one's life. An individual's beliefs act as

75 filters for teacher learning and are major determinants of a teacher's practice (Borko &

76 Putnam, 1996; Hodge, 1997; Stran & Curtner–Smith, 2009). It is therefore important to have

77 an appreciation of these beliefs in order to understand the need for value-added components

78 in PETE programs (Dewar & Lawson, 1984) and how these beliefs will have a significant

79 impact on how PSTs respond to their teacher education program (Everley & Flemons, 2014).

80 Investigating the reasons for why PSTs choose to undertake a PETE program can inform

81 teacher educators on how best to define teaching tasks, organize knowledge relevant to

82 student learning, and influence the perceptions of PSTs about teaching and learning

83 (Calderhead, 1987).

84   Socialization, defined broadly, is the process through which individuals internalise the

85 norms, cultures, and ideologies deemed important within a particular social setting

86 (Billingham, 2007). According to Stroot and Williamson (1993), occupational socialization

87 can be described as an appropriate theoretical framework that can be used to examine the

88 socialization of PE teachers. Lawson (1986) identified three distinct phases over time: the

89 anticipatory phase (birth to PETE), the professional phase (during PETE), and the

90 organizational phase (working in the field).

91   It is during this process that beliefs, attitudes, and teacher ideologies are fostered

92 (Hushman & Napper-Owens, 2012). Lortie (1975) estimated that in the anticipatory phase

93 children spent a total of 13,000 hours in direct contact with teachers, coaches, and

94 administrators within school and club settings prior to entering PETE. PSTs will experience

95 an "apprenticeship of observation" (Lortie, 1975, p61) during their formative years at school

96 whereby they become active participants observing their teachers' practices through lived

97 experiences. Interestingly, what PSTs often observe and experience may conflict with their

98 teachers' beliefs. Taylor, Ntoumanis, and Smith (2009) reported that teachers already in the

99 profession were influenced by an emphasis on student assessment and time constraints, and

100 were often compelled to use teaching strategies that conflict with their existing beliefs about

101 the most appropriate ways to engage all students. In the UK, secondary school PE courses are

102 heavily weighted towards theoretical knowledge and this can take precedence over other

103 aspects of the work. Teachers are under pressure to ensure that students can pass exams by

104 meeting the necessary criteria. Other significant lived experiences include strong

105 interpersonal relationships between PSTs and sports coaches and parents.

106   Significant others are key in influencing individuals as they prepare to join the

107   profession (Dewar & Lawson, 1984; Ralph & MacPhail, 2014) and many PSTs recall having

108   positive relationships with their PE teachers. There can be a motivation to emulate these

109   teachers, or perhaps a wish to try out other approaches. Even those who did not have positive

110   relationships with their PE teachers but still have a love of working with children and a love

111   of sport may enter PETE, perhaps, in these cases to effect change (Curtner–Smith, 2016).

112   Their own schooling provides PSTs with experiences that will shape their beliefs, values, and

113   assumptions about teaching PE long before entering the profession. Graber, Killian, and

114   Woods (2016) suggest that the anticipatory phase is far more influential than any others

115   throughout teacher socialization. Therefore, it could be argued that PSTs arrive in PETE with

116   already deeply embedded beliefs about what PE is or should be. Stran and Curtner–Smith

117   (2009) identify that this can act as a barrier or a facilitator to accessing and utilizing learning

118   opportunities given within PETE, depending on the beliefs PSTs hold. Those working in

119   PETE to promote physical literacy as the goal of PE will need to be mindful that PSTs may

120   not have experienced teaching focused on fostering this.

121   Most commonly, experiences of physical education during the anticipatory phase are

122   predominantly driven by traditional curricula that are based on ideology (a system of ideas)

123   rather than a philosophy (a theoretical underpinning that provides a guiding principal for

124   behavior; Green, 2002). This is influenced by intergenerational and interdependent links

125   (Brown, 1999; Green, 2002). Many PSTs encounter learning within a multi-activity, sport-

126   based form that first appeared in government run schools in the 1950s. (Kirk, 1992). Kirk

127   (2005) later described this as being characterized by "relatively short units of activity…an

128   overwhelming focus on technical development; a lack of accountability for learning and little

129   progression of learning; and the almost exclusive use of a directive teaching style" (p. 246).

130   Even PSTs themselves stated that their PE classes were structured on a multi-activity model

131 and that there was little emphasis on instruction to promote physical competence in PE

132 (Curtner-Smith, 2001; Hutchinson, 1993; Matanim & Collier, 2003). Evidence from studies

133 conducted by Curtner–Smith (1999) and Penney and Evans (1994) indicated that this

134 traditional form of PE was not meeting the needs of many young people. Fairclough, Stratton,

135 and Baldwin (2002) suggested that there is very little transference of learning from secondary

136 school PE into physical activity in later life. If the purpose of PE is to promote lifelong

137 engagement in physical activity for all children, then PE as it stands does not always fulfil its

138 potential to fully promote physical literacy. Currently, its focus is dominated by traditional

139 sports and meeting the criteria set by the exam boards.

140   Those who do flourish in school PE face two separate issues. The first is a possible

141 lack of experiences and encounters with a wide range of activities that make varied demands

142 on movement in response to the changing and challenging environments, particularly if they

143 have experienced a traditional curriculum oriented towards competitive team games. Often

144 the PE ideology will override the concept of physical literacy. Although physical literacy is

145 not described as a philosophy in its own right, its existentialist (Sartre, 1957) and

146 phenomenological positioning within a monist perspective (Whitehead, 2010) can provide a

147 solid foundation for PE to be built upon. Traditional PE ideologies can often mean that other

148 activity areas such as dance, gymnastics, health fitness and wellbeing, adventurous activities,

149 and aquatics can be overlooked in favor of the more traditional sport based activities.

150   The second of the two issues faced by PSTs is that they may hold a particular position

151 concerning their orientation towards teaching, dependent on their experiences (Curtner–

152 Smith, 2016). Given that those who enjoy school PE are more likely to pursue similar

153 activities outside of school at a higher competency level, they will possibly encounter a

154 mastery climate. The longer individuals spend in a mastery environment for a particular

155 sport, the more likely they will espouse conservative, didactic views of PE (Curtner–Smith,

156   Hastie, & Kinchin, 2008; Lee & Curtner–Smith, 2011; Richards & Templin, 2012). What the

157   PSTs described here is nothing new. Dewar and Lawson (1984) also suggested that these

158   students would hold more custodial, sport activity focused orientation towards learning.

159   Students who had less involvement with sport outside school and perceived themselves as

160   less able may experience more learner centered lessons, sometimes defined as teacher

161   orientated. More recently, Richards, Templin, and Graber (2014) described PSTs as sitting on

162   a continuum between coach and teacher orientation. Drawing from this idea, the real focus

163   should not be placed on the label coach or teacher, but on the pedagogical orientation they

164   may foster. Those with a moderately custodial to teacher orientation are more likely to

165   implement change in PE, whereas those that hold a highly custodial and conservative

166   orientation are more likely to resist any change in the professional phase (during PETE).

167   Graber (1991) believed that the professional phase had the least impact on PSTs. Knowing

168   that many PSTs may enter PETE from a background, the anticipatory phase (MacPhail &

169   Hartley, 2016) socialized through competitive sport can provide further explanation to why

170   PE has continued to produce what Kirk (2013, p2) describes as a "traditional 'one-size-fits-

171   all', sport techniques based, multi-activity form".

172   Tsangaridou (2006) suggests PSTs' beliefs shape the professional knowledge

173   acquired through teacher education programs rather than beliefs being established initially in

174   the professional phase. If recruits have no knowledge or understanding of physical literacy

175   prior to starting PETE, this provides a real challenge for teacher educators. It will be essential

176   that PSTs have sufficient time to grasp the concept so that this can play a part in shaping their

177   growing professional knowledge.

178   Having an appreciation of recruits' pre-conceived ideas can ensure PETE programs

179   impact on teacher pedagogy and beliefs (Hutchinson, 1993) and teacher attitudes (OCED,

180   2006) which influence teacher behavior (Calderhead, 1996). The peregrination of PSTs

181 beliefs was noted by Philpot and Smith (2011). They reported that there was a change

182 between the beginning of the course, when recruits aligned PE with sport, and their views

183 following graduation, where they perceived PE as more than sport. However, PETE

184 graduates felt that the curriculum still needed to be made up of, and heavily influenced by,

185 sport. This is not conducive to a curriculum that focuses on promoting physical literacy in

186 learners. Tinning (1988) suggests that teachers adopted a pedagogy of necessity in order to

187 survive their first year of teaching and fit into the department in which they were employed.

188 Sirna, Tinning, and Rossi (2010), drawing on the work of Bourdieu (1978), describe the

189 school as the "field" or social setting which is "infused with power struggles and organizing

190 structure" (p. 73) where PSTs and newly qualified teachers in particular continue to form

191 their beliefs and perceptions. The constraints in which they work can influence developing

192 teacher beliefs and can become naturalized, therefore cementing historical behaviors into the

193 present.

194   Although PSTs may start their teacher education with pre-conceived beliefs and

195 perceptions that will filter their learning (Borko & Putnam, 1996), there is no reason why

196 they cannot be introduced to the concept of physical literacy, its importance and value, and

197 subsequently build the concept into their own teaching of PE. Everley and Flemons (2014)

198 suggest that PSTs need to become reflective and reflexive in order to critically evaluate their

199 beliefs and the impact they have on their practice. Beliefs are important when interpreting

200 new information (Siedentop & Tannihill, 2000). PSTs need to examine their existing beliefs

201 and challenge them regularly throughout PETE. Teacher educators can facilitate this through

202 encouraging reflection, reflexion, and action relating to new ideas. An appreciation of their

203 own physical literacy journey can inform PSTs perception about the most appropriate way to

204 work with learners. (Everley & Flemons, 2014).

205   **How and What to Teach in PETE to Promote Physical Literacy**

206   This section discusses what should be taught during PETE to support PSTs

207   developing their professional knowledge using physical literacy as the concept that underpins

208   their own teaching philosophy. As suggested by Green and Leask (2016), teaching is a

209   comprehensive and multifaceted discipline involving a fixed pursuit of identified objectives.

210   The process has inter-related and interdependent stages designed to contribute to the overall

211   goal of supporting long term individual development. How teachers approach the planning

212   and delivery of their lesson, where their personal values surround their subject, and where the

213   wider educational agendas are situated are important starting points. As discussed in the

214   previous section, encouraging PSTs to reflect on their own past physical literacy journey is an

215   important starting point for PETE providers. This form of reflective practice, underpinned by

216   the philosophical teachings of monism, existentialism and phenomenology, provide the

217   foundations for the concept of physical literacy as a critical starting point to identify what

218   good pedagogical practice in the teaching of PE looks like and ensure PSTs become

219   practitioners promoting a physically active life for all (Dyson et al., 2004).

220   While it should be acknowledged that PSTs may still run the risk of adopting a

221   pedagogy of necessity (Tinning, 1998) to fit in and feel accepted into the PE department to

222   which they are attached, challenging PSTs to do more than recycle a traditional curriculum

223   (Green, 2002) is vital. Time and space needs to be provided to allow them to examine and

224   reflect on their own past experiences (Fletcher, 2012).

225   Teacher educators need to facilitate PSTs in understanding and establishing the

226   connections between classroom pedagogy and the concept of physical literacy and develop

227   independent lifelong physical activity habits in children independent of the governance of the

228   school environment (Lawson, 1984; Stran & Curtner-Smith, 2009). PSTs need to be able to

229   understand the distinct difference between PE and sport; sport is based on learning activities

230   whereas PE underpinned by physical literacy is focused on educating a child through physical

231   movement.

232   For PST's to adopt physical literacy as a theoretical concept to teaching PE, there are

233   specific implications for how this knowledge and understanding should be nurtured during

234   their pre-service years. Firstly, within PETE, it is accepted that a PST needs to develop

235   different forms of professional knowledge (see Table 1). Green and Leask (2016) suggest that

236   the combined nature of varying types of knowledge and the ability to take this knowledge and

237   place it in context of tasks that will lead to learning. Furthermore, they believed that simply

238   knowing a lot about your subject does not automatically make you an effective teacher.

239   Secondly, education practitioners from different fields bring together different aspects of

240   professional knowledge into what Banks et al (1999) define as one's personal subject

241   construct. Learning from a range of other people allows PSTs to start forming their own

242   unique teaching philosophy connected to their personal values and assumptions about PE.

243   From a PE perspective, subject content knowledge (SCK) is much more than knowledge of

244   basic activities (syntactic). It is a deeper understanding of the core knowledge of physical

245   literacy as the underpinning concept (substantive) (Banks et al, 1999). This allows the PSTs

246   to start forming their own personal subject construct linked to the concept of physical

247   literacy.

248   Table 1

249   Forms of Professional Knowledge for Teaching (Green & Leask, 2016)

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Form of professional knowledge	Description
Subject content knowledge (SCK)	The content that is being taught. Schwab (1964) identifies two components of content knowledge: • substantive: core concepts and skills in the subject • syntactic: the way these concepts and skills are

	structure and organize within the subject.
General pedagogic knowledge (GPK)	Broad principles and strategies of classroom management and organization that apply irrespective of the subject
Pedagogical content knowledge (PCK)	Knowledge of what makes for effective teaching and deep learning, providing the basis for teachers' section, organization and presentation of lesson content, that is, the integration of subject content and its related pedagogy. Grossman (1990) break PCK into for components: • knowledge and beliefs about the *purposes* of teaching a subject at different levels; • knowledge of pupils' understanding, *concepts and misconceptions* of subject matter; • knowledge of *instructional strategies* and representations for teaching particular topics.
Curriculum knowledge	Materials and programmes that serve as 'tools of the trade' for teachers.
Knowledge of learners and their characteristics	This comprises of a variety of issues- how learners develop with age; leaners' cognitive development; child development; and knowledge of the needs of particular individuals or groups of learners.
Knowledge of educational contexts	Political, curricular, sociological, cultural, geographical, historical and psychological factors may all be important here
Knowledge of education ends (aims) purpose, values and philosophical and historical influences:	Both short and long-term goals of education in general and of particular the subject.

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252   *Note.* Adapted from Shulman, 1986 and 1987

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255   It is of value for PETE courses to include a review of the forms of knowledge

256   presented in Table 1 above to identify knowledge in each category that would support the

257   fostering of physical literacy. Within the context of what is taught in a PE curriculum it is

258   important for PSTs to realize that central to the concept of physical literacy is the process of

259   cultivating interest, engagement, and reflection (Almond & Whitehead, 2012). Almond and

260   Whitehead believe that the engagement of young people in physical education needs to go

261   beyond a range of purposeful physical pursuits. The authors suggest that they need to learn

262   from their engagement in order to appreciate the value the different types of activities offer.

263   Furthermore, Almond and Whitehead stress that individuals need to be able to make informed

264   choices about the activities they pursue; allowing informed and intelligent use of their time

265   and efforts.

266   There is a general acceptance that due to concerns with child safety and therefore

267   reduced free play (Docherty & Morton, 2008) young people today have less opportunity for

268   physical activity with more time being spent on engagement in technology and social media

269   inside the home after school hours (Atkin, Gorely, Biddle, Marshall, & Cameron, 2008). For

270   many children, PE lessons have become the only form of physical activity undertaken. It is

271   also acknowledged that within physical education lessons pupils' confidence, motivation to

272   be active, positive attitudes to participation in a range of physical competences, and a

273   commitment to be active can be made or broken by the nature of experiences in school

274   (Rupprich, Lunger, Raue, Jaiger, & Knisel, 2016).

275   The "how" of any teaching is at the crux of learning, but all too often in PE we see the

276   "what" (subject knowledge and skills) at the center. The way PSTs are trained is critical in

277   both changing practice and developing and sustaining physical literacy informed

278   practitioners. As Whitehead (2015) suggests, the adoption of physical literacy as the

279   underlying aim of PE has a number of implications for the way PE is conducted in schools.

280   These implications relate to sensitive teacher-learner interaction, appropriate differentiated

281   pedagogy and carefully selected content.

282   Children need to see PE as a place where they are being educated in a secure

283   environment where there is oneness of body and mind as they interact with a wide variety of

284   activity contexts. PSTs need to challenge the traditional curricula by utilizing the concept of

285   physical literacy as a philosophical basis and apply it to their practice through sound

286   pedagogical principles underpinning the delivery of high quality PE. Drawing from Smith

287   and Karp's (1996) work, the activities taught can influence marginalization in PE. The

288   authors classified children in a PE class into different categories: the powers (high ability in

289   the activity offered and highly motivated), the others (the 'middle' group – at risk of

290   becoming marginalized) and the marginalized (disengaged). Broadening the types of

291   activities offered in PE can create a more even playing field and therefore encourage the

292   engagement of all children. For example, utilizing activities such as aquatics, dance,

293   gymnastics and outdoor education activities on a broader scale could potentially support this.

Pedagogical Practice and Physical Literacy in PETE

295   The question of "what" knowledge, attitudes, behaviors, and skills PSTs should

296   possess has been debated extensively within the literature (Grimmett & MacKinnon, 1992;

297   Rovegno, 2003; Shulman, 1987; Tindall & Enright, 2013; Tinning et al, 1993). Yet the

298   realities of what and how to teach in PE differ between academics, practitioners, and National

299   Curriculum guidance. This section will focus on the practical knowledge required within

300   PETE courses to ensure future teaching practitioners are equipped to develop both an

301   understanding of physical literacy and their own philosophy of PE. Teachers are active agents

302   within PSTs' socialization, therefore they can promote change within the field (Curtner-

303   Smith, 2016). The pedagogical approaches used in PETE need to promote high quality

304   learning underpinned by the concept of physical literacy. This can be used as a tool not only

305   to deliver materials but also provide live experiences for PSTs to reflect upon. By ensuring

306   that teacher educators are modelling good practice, PSTs "apprenticeship of observation"

307   (Lortie, 1975, p61) will continue. Experiencing successful learning through innovative

308   practices may aid PSTs in assimilating these practices into their belief system, therefore

309   contributing to the development of sustainable practitioners.

310   PSTs' socialization experiences can lead to a disconnection between perceived PE

311   curriculum and a curriculum designed to foster physical literacy. A curriculum designed to

312   foster physical literacy must offer a central perspective that PE should be fully inclusive and

313   allow the learner to appreciate a variety of activities on a much deeper level by learning from

314   their engagement and appreciate the value of different activities (Almond & Whitehead,

315   2012). PETE needs to provide learning experiences that will promote a breadth of learning in

316   the physical domain not limited to an "education -sport –as- technique" approach (Kirk,

317   2013, p222). Casale-Giannola and Schwartz-Green (2012) refer to this as physical learning

318   which they describe as an active form of connecting learners to the content through

319   movement, reflection, or discussion, making the learners the center of the learning process as

320   they take the initiative to learn. Physical learning in this definition would seem to align with

321   physical literacy, suggesting that the teacher needs to possess the confidence to allow learners

322   to take responsibility for their own actions, moving away from teacher-led activities. This

323   enables learners to become active practitioners of movement with an understanding that by

324   completing a given task they can feel a sense of accomplishment and satisfaction for a

325   particular activity (Roorda, Koomen, Spilt, & Oort, 2011).

326   Talbot (2007) had previously acknowledged difficulties associated with the delivery

327   of PE stating that a focus simply on pupil participation and enjoyment was to blame for

328   failings in pupil learning. Turner, Gray, Anderman, Dawson, and Dunderman (2013)

329   recognized that teacher knowledge and confidence is currently an issue within the delivery of

330   PE observing that teaching strategies employed by teachers have a direct bearing on pupil

331   learning and attainment. It also needs to be understood that each pupil has a preferred way of

332   learning and teachers must ensure that they use a range of teaching methods to give every

333   pupil the opportunity to make progress. It was previously suggested by Knowles (1970) that

334   teacher behavior influences the character of the learning climate more than any other single

335   factor. As different teaching approaches work for different pupils, it is important that teachers

336   ensure they use a variety of teaching methods (e.g., demonstration, think pair share,

337   reciprocal teaching, self-check, learning teams) to meet the learning needs of individual

338   pupils (Armour, 2011; Capel & Whitehead, 2010; Megay-Nespoli, 2001).

339   Recent reviews of the current state of PE have indicated that current practices are not

340   fit for purpose in the context of facilitating life-long participation in physical activity (Kirk,

341   2013). The teaching of decontextualized movements such as passing, dribbling, shooting,

342   rather than "thoughtful application" in the context of activities or sports needs to be

343   challenged (Kirk, 2013). This type of teaching (i.e., decontextualized teaching) may not

344   promote progress in learning (Lounsbery & Coker, 2008) and may result in the repetition of

345   units of work which can blunt motivation (Almond & Whitehead, 2012; Siedentop &

346   Tannehill, 2000). Ideologies and practices such as these are transferred via interdependent

347   and intergenerational links (Brown, 1999; Green, 2002), providing some explanations for the

348   resistance to a transition away from a traditional form of PE. If approaches to PE continue to

349   be recycled, pupils will not be given opportunities to make choices about what they can do

350   physically. According to Tinning (2015), having these opportunities can directly lead to an

351   informed and intelligent use of their physical efforts through activity. To develop and sustain

352   physical literacy informed practitioners, PETE needs to challenge existing beliefs

353   surrounding how PE can be delivered and advocate the use of a range of approaches rather

354   than perpetuating a teacher directed "education-as-sport-as-techniques" (Kirk, 2013, p222)

355 approach. PETE coordinators need to create a meaningful framework to enable PSTs to

356 develop their practice for the delivery of effective PE and strive for excellent pedagogical

357 practice. Effective content delivery will ensure all learners have the opportunity to move

358 towards a physically active lifestyle (Almond & Whitehead, 2012). PETE should provide

359 opportunities for PSTs to continue their own physical literacy journey and become effective

360 facilitators of others, furthering their pupils' physical literacy journeys (Dyson et al., 2004).

361   Informed teaching approaches that are underpinned by effective pedagogical practices

362 are critical in achieving Almond and Whitehead's (2012) idea of how teachers should provide

363 opportunities to allow learning to occur. It is important to expose PSTs to different teaching

364 approaches in connection with expectations of good classroom pedagogy early in their

365 training years. This provides a platform for them to start to consider their own teaching

366 philosophy and question the ideologies they would have been exposed to during their

367 anticipatory phase and develop their teacher identity. Among the range of teaching

368 approaches are what are known as instructional models for PE (Dyson, Griffin & Hastie,

369 2004; Metzler, 2011). These were created to help teachers realize particular goals in PE by

370 explicitly focusing on and planning for the affective, social, cognitive and physical learning

371 domains as opposed to only focusing on the physical. They are intended to be used in specific

372 units of work, as appropriate. Physical literacy is not a pedagogical model but is the overall

373 aim of work in PE. However, some pedagogical models of teaching can be useful in

374 promoting aspects of physical literacy. For example, *Sport Education* can foster

375 responsibility. *Health Related Fitness* can support understanding in this area and *Games for*

376 *Understanding* can help learners gain a deeper understanding of games activities. A number

377 of pedagogical models can be utilized in the teaching of PE move the profession away from

378 the teaching of discrete sport-techniques. As Kirk (2013) points out pedagogical models of

379 practice build on the work of Jewett, Bain, and Ennis (1995), Metzler (2005), and Lund and

380 Tannehill (2005), who advocate the development of autonomy through the development of

381 independent learning. The IPLA's (2017) physical literacy attributes give clear guidance as to

382 how physical literacy can be fostered in PE lessons by explicitly planning for the three

383 essential elements embedded within the concept; affective, cognitive and physical. Models

384 Based Practice promotes the essential elements that are embedded within physical literacy;

385 recognizing their interdependence on each other and founded by the monist principles of

386 physical literacy (Whitehead, 2010). The benchmarks for each model ensure that PST's adopt

387 pedagogical practices that complement this.

388 From a PE context, it is vital to consider how teachers can scaffold the learning

389 process to empower and facilitate learning through constructive and informed pedagogies that

390 enable teachers to engage all learners in productive ways. This is important for physical

391 literacy because pedagogies need to be compatible with helping learners to get on the inside

392 of an activity, learn to appreciate what it can offer, and make informed decisions about the

393 kind of purposeful physical pursuits that will enrich their lives. (Almond & Whitehead,

394 2012).

395 PSTs also need practical experiences with bespoke and focused opportunities for

396 reflection to develop their pedagogical skills informed by the concept of physical literacy.

397 The skills needed are highlighted in Table 2.

398 Table 2: Pedagogical Skills Required of Pre-Service Teachers to Foster a Physical Literacy

399 Environment

400

Reaching out to learners	Connecting with individual learners	Engaging (enthusiasm and empathy)	Drawing out (challenges and practices that excite, engage interest and	Stretching (their attitudes and abilities, interests in purposeful

			allow the development of confidence)	physical activity and help them to love learning.
Developing a trusting learner-teacher relationship	Generating interest through relatedness, structure and autonomy (SDT theory)	Creating situations where learners can conquer, cope with or suppress negative feelings towards being involved	Listening, Observational Skills	Questioning – Open and closed (Andersons (2001) revised Taxonomy)
Creating an exciting/attractive learning environment	Involving learners, Giving students ownership of their learning	Generating practices create a positive and supportive environment	Prompting, leading and building up confidence and competence	Increasing complexity (stage not age)
Creating clear routines, structures and ground rules	Creating appropriate challenges	Student centered teaching and learning	Creating a safe environment where learners are confident to explore new situations	Encouraging them to dare to take risks in their learning and acquisition of abilities
Treating every learner as an individual	Focusing on the individual making personal progress (not measured against others)	Creative appropriate challenges (stage not age)	Allow learners the freedom to voice their ideas	Helping learners to move beyond personal standards by challenging them through a process of refining,

				sharpening and challenging their abilities.

401

402   *Note*. Adapted from Almond and Whitehead (2012).

403   In bringing together the concept of physical literacy and innovative pedagogical

404   practices, PETE can challenge existing practices of sport-technique based teaching and allow

405   for the development of physical literacy informed practitioners. Two critical elements are

406   needed to facilitate the physical literacy journey, these being, pupil intrinsic motivation and

407   perceived confidence. Evidence suggests that traditional approaches to teaching PE have not

408   always been successful in facilitating intrinsic motivation or developing perceived

409   competence in all pupils (Kirk, 2013) therefore PE has not yet reached its potential as a

410   catalyst to promote lifelong physical activity. Drawing from Nyberg and Larsson's (2012)

411   work, PETE needs to conceptualize PE through a language of learning and knowing rather

412   than developing knowledge of theory and practice of isolated activities or sports.

413   Table 2 also depicts the skills needed to be instilled in PSTs so that they can promote

414   physical literacy in an environment where there are high levels of support for each individual

415   learner. Realizing a nurturing environment with improved learner-teacher relationships

416   should allow the greatest opportunity for learners to engage within the learning process

417   (Arora, Leseane, & Raisinghani, 2011). Knowing the importance of a positive and nurturing

418   learning environment is a key attribute in securing a physically literate setting. Positive

419   learning experiences for pupils lead to an increase in motivation, physical competence, and

420   participation. Empowering PSTs to develop a PE curriculum enthused by the foundations of

421   the philosophical idea of physical literacy will ensure that all learners can become competent

422   movers in a range of purposeful physical pursuits.

423   Facilitating a commitment of PSTs to a set of shared determinants will allow pupils to

424   make knowledgeable choices about what to do with their lives. A collaborative understanding

425   about the creation of a positive learning environment will allow pupils to become perceptive

426   movers in their preferred physical activities. The acceptance of appropriate pedagogies will

427   lead to the creation of shared conditions that facilitate learning and the commitment for all

428   learners to be physically active for life, which lies at the very heart of physical literacy.

429   **Conclusion**

430   There is a need for teacher educators to facilitate the exploration of the anticipatory

431   phase of PSTs. Describing their physical literacy journeys can be used as a means through

432   which they can make sense of life which is crucial to establishing identity (Fivush, Habermas,

433   Waters, & Zaman, 2011). This process should allow PSTs to examine their beliefs and begin

434   to establish their identity as prospective teachers and the values they have that underpin this.

435   By becoming reflective and reflexive practitioners during the professional phase of their

436   socialization will support and consolidate the application of new ideas that challenge their

437   existing beliefs. In turn, by continually questioning their experiences they will be able to

438   assimilate new beliefs and develop their own personal philosophy for teaching PE, which is

439   underpinned by the concept of physical literacy. PETE needs to facilitate PSTs in becoming

440   confident innovators and pioneers of radical reform. They need to be equipped and

441   empowered to break the recycling of the traditional curricula, that may, as Kirk (2013) fears,

442   lead to the extinction of PE.

443   By utilizing a variety of teaching strategies during a single lesson, PSTs will

444   compliment and support the individual pupil in their development of physical competence

445   (Blankenship & Ayers, 2010). This aspect of pedagogical practice was expanded by Capel

446   and Whitehead (2010), with the inclusion of a range of teaching approaches for example, via

447   an effective questioning and answering technique with the pupil regarding a performed

448   movement. It is also very important to acknowledge that teaching practitioners need to select

449   an approach which will allow children to successfully develop their motivation, confidence,

450   physical competence, and knowledge and understanding with respect to physical activities.

451   Children must be able to express themselves and learn about their movement, thus gaining an

452   understanding and awareness of the environment and how their actions can influence future

453   successful involvement in physical activity. By reinforcing the learning via directed

454   questions, the teacher can promote thought and discussion (Kucer & Silva, 2013). Promoting

455   physical literacy within PE, if presented confidently and competently, will help the learner to

456   value physical activity and to take responsibility for participation in physical activity for life.

457   If teachers are positive and adaptable, they can promote a positive relationship

458   between the learner and physical activity, focusing on the determinants of physical literacy.

459   To design appropriate environments for promoting motivation, confidence, and physical

460   competence, physical educators need a sound theoretical understanding of the learner and of

461   the philosophy of physical literacy.

462   Within the structure of a classroom or practical PE class environment, learners need to

463   perceive the full support of the teacher, which will enhance their learning (Egan & Webster,

464   2018). For this reason, effective teaching is key for pupil engagement and teachers need to

465   make their pupils feel that adults in the learning environment care about them. They also need

466   to understand that they can make important decisions and that the work they are doing

467   directly affects their future learning (Doyle, 1985).

468   For physical literacy to be embedded efficiently, all three phases of occupational

469   socialization will need to be addressed. Ultimately, by examining beliefs and supporting the

470   construction of teacher identity through the development of professional knowledge and

471   learning processes, PSTs should be able to promote "the motivation, confidence, physical

472   competence, knowledge and understanding to value and take responsibility for engagement in

473 physical activities for life" (Whitehead, 2016) in children within PE. By ensuring physical

474 literacy is a secure element of their teacher identity and belief system, PSTs will become

475 more resistant to the challenges in the organizational phase such as adopting a pedagogy of

476 necessity (Tinning, 1988) and "wash out" (Zeichner & Tabachnick, 1981). They will

477 therefore be sustainable practitioners who will advocate physical literacy and also influence

478 the socialization process of future generations.

479

480 **References**

481 Almond, L., & Whitehead, M. (2012). Translating physical literacy into practice for ALL

482   teachers. *Physical Education Matters*, *3*, 67-70.

483 Armour, K. M. (2011). *Sport pedagogy: An introduction for teaching and coaching*. Harlow,

484   UK: Prentice Hall.

485 Arora, A., Leseane, R., & Raisinghani, M. (2011). Learning and teaching styles for teaching

486   effectiveness: An empirical analysis. *International Journal of Web-Based Learning*

487   *and Teaching Technologies*, *6*(1), 1-13.

488 Atkin, A., Gorely, T., Biddle, S., Marshall, S., & Cameron, N. (2008). Critical hours:

489   Physical activity and sedentary behavior of adolescents after school. *Pediatric*

490   *Exercise Science, 20*, 446-456.

491 Banks, F., Leach, J., & Moon, B. (1999). *New understanding of teachers' pedagogic*

492   *knowledge*. In J. Leach & B. Moon (Eds.), *Learners and pedagogy* (pp. 293–329)*.*

493   London, UK: Paul Chapman.

494 Billingham, M. (2007). *Sociological perspectives.* In B. Stretch & M. Whitehouse (Eds.).

495   *Health and social care* (pp. 301-334). Oxford, UK: Heinemann.

496 Blankenship, B.T., & Ayres, S.T. (2010) The role of PETE in developing joy- orientated

497   physical educators. *Quest,* 62(2), 171-183.

498 Borko H., & Putnam, R. (1996). Learning to teach. In D. C. Berliner & R. C. Calfree (Eds.).

499   *Handbook of educational psychology* (pp. 673-708). New York, NY: MacMillan.

500 Bourdieu, P. (1978). Sport and social class. *Social Science Information, 17*, 819-840.

501 Brown, D. (1999). Complicity and reproduction in teaching PE. *Sport, Education and*

502   *Society, 4*, 143-159.

503 Calderhead, J. (1987). The quality of reflection in student teachers' professional learning.

504   *European Journal of Teacher Education, 10*, 269-678.

505 Calderhead, J. (1996). Teachers: Beliefs and knowledge. In D. C. Berliner & R. C. Calfree

506 (Eds.). *Handbook of educational psychology* (pp. 709-725). New York, NY:

507 Macmillan.

508 Capel, S., & Whitehead, M. (Eds.). (2010). *Learning to teach PE in the secondary school: A*

509 *companion to school experience* (3rd ed.). Abingdon, UK: Routledge.

510 Casale-Giannola, D. E. & Green, L. S. (2012). *Active Learning Strategies for the Inclusive*

511 *Classroom, grades 6-12,* Thousand Oaks, California: Corwin.

512 Curtner–Smith, M. D. (1999). The more things change, the more they stay the same: Factors

513 influencing teachers' interpretations and delivery of national curriculum PE. *Sport,*

514 *Education and Society, 4*, 75-97.

515 Curtner–Smith, M. D. (2001). The occupational socialization of a first -year PE teacher with

516 a teaching orientation. *Sport, Education and Society, 6*, 81-105.

517 Curtner–Smith, M. D. (2016). Acculturation, recruitment, and the development of

518 orientations. In K. A. Richards & K. Lux Gaudreault (Eds.), *Teacher socialization in*

519 *PE: New perspectives* (pp. 33-46). London, UK: Routledge.

520 Curtner–Smith, M. D., Hastie, P. A., & Kinchin, G. D. (2008). Influence of occupational

521 socialization on beginning teachers' interpretation and delivery of sport education.

522 *Sport and Society, 13*, 97-113.

523 Dewar, A. M., & Lawson, H. A. (1984). The subjective warrant and recruitment into PE.

524 *Quest, 36*, 15-25.

525 Docherty, D. & Morton, A. (2008). A focus onskill development in teaching educational

526 gymnastics. *Physical and Health Education Journal*, Canadian Association for

527 Health, Recreation and Dance, summer, 40-44.

528 Doyle, W. (1985). Classroom organisation and management. In M. Wittrock, (Ed.),

529 *Handbook of research on teaching.* 3rd edn. New York: Macmillan.

530   Dyson, B., Griffin, L. L., & Hastie, P. (2004). Sport Education, tactical games and co–

531   operative learning: Theoretical and pedagogical considerations. *Quest, 56*, 226-240.

532   Egan, C. A. and Webster, C. A. (2018) Using theory to support classroom teachers as

533   physical activity promoters. *Journal of Physical Education, Recreation and Dance*

534   89(1), 23-29.

535   Everley, S., & Flemons, M. (2015). Teacher beliefs. In S. Capel & M. Whitehead (Eds.),

536   *Learning to teach PE in the secondary school* (4th ed.; pp. 256-270). London, UK:

537   Routledge.

538   Fairclough, S., Stratton, G., & Baldwin, G. (2002). The contribution of secondary school PE

539   to lifetime physical activity. *European PE Review, 8*, 69-84.

540   Fivush, R., Habermas, T., Waters, T. E., & Zaman, W. (2011). The making of

541   autobiographical memory: Intersections of culture, narratives and identity.

542   *International Journal of Psychology, 46*, 321-345.

543   Fletcher, T. (2012). Experiences and identities: Pre-service elementary classroom teachers

544   being and becoming teachers of PE. *European PE Review*, *18*, 380–395.

545   Gard, M. (2004a) Desperately seeking certainty: statistics, physical activity,and critical

546   enquiry, in J. Wright, D. Macdonald and L. Burrows (eds), *Critical Enquiry and*

547   *Problem Solving in Physical Education.* London: Routledge, 171-183.

548   Graber, K. C. (1991). Studentship in pre -service teacher education: a qualitative study of

549   undergraduate students in PE. *Research Quarterly for Exercise and Sport, 61*, 41-51.

550   Graber, K. C., Killian, C. M., & Woods, A. M. (2016). Professional socialisation, teacher

551   education programs, and dialectics. In K. A. Richards & K. Lux Gaudreault (Eds.),

552   *Teacher socialization in PE: New perspectives* (pp. 63-78). London, UK: Routledge.

553   Green, K. (2002). PE teachers in their figurations: A sociological analysis of everyday

554   philosophies. *Sport and Society, 7*, 65-83.

555   Green, A., & Leask, M. (2016). What do teachers do? In S. Capel, M. Leask, & S. Younie,

556   (Eds.), *Learning to teach in secondary school. A companion to school experience* (7th

557   ed.; pp. 1.1). Abingdon, UK: Routledge.

558   Grimmett, P. P., & Mackinnon, A. M. (1992). Craft knowledge and the education of

559   teachers. *Review of Research in Education, 18*, 385-456.

560   Grossman, P. L. (1990). *The making of a teacher: Teacher knowledge and teacher education.*

561   New York, NY: Teachers College Press.

562   Hodge, S. (1997). Mentoring: Perspectives of PE graduate students from diverse cultural

563   backgrounds. *Physical Educator*, 54, 181-195.

564   Hushman, G., & Napper–Owens, G. (2012). Strategies to reduce negative socialisation in the

565   first years of teaching. *Strategies*, *25*(7), 8-10.

566   Hutchinson, C. (1993). Prospective teachers' perspectives on teaching PE: An interview

567   study on the recruitment phase of teacher socialization. *Journal of Teaching in PE,*

568   *12*, 344-354.

569   International Physical Literacy Association (IPLA). (2017). Physical Literacy Attributes.

570   Retrieved from https://www.physical-literacy.org.uk/

571   Jewitt, A.E., Bain, L.L. and Ennis, C.D. (1995) *The Curriculum Process in Physical*

572   *Education,* 2nd edn. Madison, WI: Brown.

573   Kirk, D. (1992). PE, discourse, and ideology: Bringing the hidden curriculum into view.

574   *Quest, 44*, 35-56.

575   Kirk, D. (2005). PE, youth sport and lifelong participation: The importance of early learning

576   experiences. *European PE Review*, *11*, 239-255.

577   Kirk, D. (2013). Educational value and models based practice in PE. *Journal of Educational*

578   *Philosophy and Theory, 45*, 973-986.

579 Kirk, D. (2013). What is the future of physical education in 21st century? In. S. Capel & M.

580   Whitehead (Eds.) *Debates in Physical Education.*(pp.220-231). Routledge, London.

581 Knowles, M. (1970). *The modern practice of adult learning*. New York, NY: Association

582   Press.

583 Kucer, S. B. & Silva, C. (2013) *Teaching the Dimensions of Literacy.* 2nd edn. Routledge,

584   New York.

585 Lawson, H. (1986). Occupational socialization and the design of teacher education programs.

586   *Journal of Teaching in PE, 5*, 107-116.

587 Lee, H., & Curtner-Smith, M. (2011). Impact of occupational socialization on the

588   perspectives and practices of sport pedagogy doctoral students. *Journal of Teaching*

589   *in PE*, *30*, 296-313.

590 Lortie, D. (2002). *Schoolteacher: A sociological study* (2nd ed.). Chicago, IL: University of

591   Chicago Press.

592 Lounsbery, M., & Coker, C. (2008). Developing skill analysis competency in physical

593   education teachers. *Quest,* 60, 255-267.

594 Lund, J. and Tannihill, D. (2005) *Standards based Physical Education Curriculum*

595   *Development.* Sudbury, MA: Jones and Bartlett Publishers.

596 MacPhail, A., & Hartley, T. (2016). Linking teacher socialisation research with a PETE

597   program: Insights from beginning and experienced teachers. *Journal of Teaching in*

598   *PE*, *35*, 169-180.

599 Matanin, M., & Collier, C. (2003). Longitudinal analysis of pre- service teachers' beliefs

600   about teaching PE. *Journal of Teaching in PE*, *22*, 153-168.

601 Megay-Nespoli, K., (2001). Beliefs and attitudes of novice teachers regarding instruction of

602   academically talented learners. *Roper Review*, *23*, 178-182.

603   Metzler, M. (2005) *Instructional Models for Physical Education,* 2nd edn. Scottsdale, AZ:

604   Holcombe Hathaway.

605   Metzler, M. (2011) *Instructional Models for Physical Education,* 3rd edn. Scottsdale, AZ:

606   Holcombe Hathaway.

607   Nyberg, G., & Larsson, H. (2012). Exploring 'what' to learn in PE. *Journal of PE and Sport*

608   *Pedagogy, 19*, 123-135.

609   OCED. (2006). *Education policy analysis: Focus on higher education*. OCED, Paris, France.

610   Pajares, M. (1992). Teacher beliefs and educational research: Cleaning up a messy construct.

611   *Review of Educational Research, 62*, 307-333.

612   Penney, D., & Evans, J. (1994). It's just not (at not just) cricket. *British Journal of PE, 25*(3),

613   9-12.

614   Philpot, R., & Smith, W. (2011). Beginning and graduating student–teachers' beliefs about

615   PE: A case study. *Asia–Pacific Journal of Health, Sport and PE, 2*, 33-50.

616   Ralph, A. M., & MacPhail, A. (2014). Pre–service teachers' entry onto a PE teacher

617   education programme, and associated interests and dispositions. *European PE*

618   *Review, 21*, 51-65.

619   Richards, K. A., & Templin, T. J. (2012). Toward a multidimensional perspective on teacher-

620   coach role conflict. *Quest*, *64*, 164 – 176.

621   Richards. K. A., Templin, T. J., & Graber, K. (2014). The socialization of teachers in PE:

622   Review and recommendations for future work. *Kinesiology Review, 3*, 113-134.

623   Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective

624   teacher-student relationships on students' school engagement and achievement: A

625   meta-analytic approach. *Review of Educational Research*, *81*, 493-529.

626   Rovegno, I., (2003). Teachers' knowledge construction: Student learning in PE. *Applying*

627   *Research to Enhance Instruction, 2*, 295-310.

628 Rupprich, H., Lunger, B., Raue, R., Jaiger, R., & Knisel, E. (2016). Students' physical

629   activity and teachers motivational styles in PE. *International Journal of PE, 53*(4),

630   11-23.

631 Sartre, J-P. (1957). *Being and nothingness* (translated by H. Barnes). London, UK: Methuen.

632 Schwab, J. J. (1964). *The structure of the disciplines: Meanings and significance*. In G. Ford,

633   & L. Purgo (Eds.), *The structure of knowledge and curriculum* (pp. 6-30). Chicago,

634   IL: Rand McNally.

635 Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational

636   Researcher*, *15*, 4-14.

637 Shulman, L. S. (1987). Knowledge and teaching: Foundation of a new reform. *Harvard

638   Educational Review*, *57*, 1-22.

639 Siedentop, D., & Tannehill, D. (2000). *Developing teaching skills in PE*. Mountain View,

640   CA: Mayfield.

641 Sirna, K., Tinning, R. I., & Rossi, T. (2009). Social processes of health and PE teachers'

642   identity formation: Reproducing and changing culture. *British Journal of Sociology of

643   Education, 31*, 74-84.

644 Smith, B., & Karp, G. (1996). Adapting to marginalisation in a middle school PE class.

645   *Journal of Teaching in PE, 16*, 30-47.

646 Stran, M., & Curtner-Smith, M. (2009). Influence of occupational socialization on two

647   preservice teachers' interpretation and delivery of the sport education model. *Journal

648   of Teaching in PE*, *28*, 38-53.

649 Stroot, S., & Williamson, K. (1993). Issues and themes of socialization into PE. *Journal of

650   Teaching in PE, 12*, 337-343.

651 Talbot, M. (2007). Valuing PE: Package or pedagogy? *Journal for the   Association for PE*,

652   *3*, 6-8.

653   Taylor, I., Ntoumanis, N., & Smith, B. (2009). The social context as a determinant of teacher

654   motivational strategies in PE. *Psychology of Sport and Exercise*, *10*, 235–243.

655   Tindall, D., & Enright, E. (2013). *Rethinking teacher knowledge in PE: What do PE teachers*

656   *need to know?* In S. Capel & M. Whitehead (Eds.), *Debates in Physical Education*

657   (pp. 107-119). London, UK: Routledge.

658   Tinning, R. I. (1988). Student teaching and the pedagogy of necessity. *Journal of Teaching in*

659   *PE*, *7*, 82-89.

660   Tinning, R. I. (2015). Commentary on research into learning in PE: Towards a mature field of

661   knowledge. *Sport, Education and Society*, *20*, 676-690.

662   Tinning, R. I., Kirk, D., & Evans, J. (1993). *Learning to teach PE*. London, UK: Prentice

663   Hall.

664   Tsangaridou, N. (2006). *Teacher beliefs*. In D. Kirk, D. MacDonald, & M. O'Sullivan (Eds.),

665   *Handbook of research in PE* (pp. 486-591). London, UK: Sage.

666   Turner, J. C., Gray, D. L., Anderman, L. H., Dawson, H. S., & Dunderman, E. M. (2013).

667   Getting to know my teacher: Does the relation between perceived mastery goal

668   structures and perceived teacher support change across the school

669   year? *Contemporary Educational Psychology*, *38*, 316-327.

670   Whitehead, M. (2010). *Physical literacy: Throughout the lifecourse*. Abingdon, UK:

671   Routledge.

672   Whitehead, M. (2015). Aims of PE. In S. Capel & M. Whitehead (Eds.), *Learning to teach*

673   *PE in the secondary school. A companion to school experience* (4th ed.; pp. 18-30).

674   London, UK: Routledge.

675   Zeichner, K.M., & Tabachnick, B.R. (1981). Are the effects of university teacher education

676   'washed out' by school experience? *Journal of Teacher Education, 3*, 7-11.