1 **Abstract**

2 Few studies have attempted to identify distinct psychological correlates of different forms of

3 classroom disengagement. Drawing from basic psychological needs theory (Deci & Ryan,

4 2000), this study investigated two divergent mechanisms predicting active and passive

5 classroom disengagement. Pupils (N= 647; age = 11–14 years) and their respective teachers

6 completed a questionnaire measuring the study variables. Using structural equation

7 modelling, pupils' perceptions of teacher psychological control positively predicted pupils'

8 autonomy and competence frustration in class. Pupils' competence frustration indirectly and

9 positively associated with teacher-rated passive disengagement (e.g. daydreaming in class),

10 via reduced feelings of vitality. Pupils' autonomy frustration demonstrated positive

11 associations with both active disengagement (e.g. talking and making noise) and passive

12 disengagement but neither relationship was explained by feelings of vitality. These distinct

13 mechanisms may have implications for educators, identifying potential causes of different

14 forms of pupil disengagement and the importance of avoiding psychological control in

15 classrooms.

16 *Keywords:* teacher control, motivation, psychological needs, frustration, disengagement.

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1. Introduction

Engaging school pupils is a principal goal for most teachers in school classrooms. As such, theoretical and empirical research has investigated the adaptive teacher behaviours (e.g., Assor, Kaplan, & Roth, 2002) and pupil perceptions of learning contexts (e.g., Fall & Roberts, 2012; Patrick, Ryan, & Kaplan, 2007) that may effectively promote pupil engagement. Teachers are, however, often confronted with pupils that do not participate, become disruptive, and withdraw themselves from classroom activities. Despite the presence of these behaviours, there seems a lack of conceptual understanding and theoretical evidence concerning the negative processes underpinning classroom disengagement. In the present work, we investigated whether the frustration of two candidate basic psychological needs (i.e., autonomy and competence) could explain distinct disengagement processes.

Disengaged pupils are one of the biggest difficulties that teachers face in school classrooms and can be an indicator of prolonged academic and social pupil problems (Fredericks, 2014; Henry, Knight, & Thornberry, 2012). Classroom disengagement reflects negative classroom conduct and detachment from learning activities (Appleton, Christenson, & Furlong, 2008; Skinner, Furrer, Marchland, & Kindermann, 2008). Disengaged pupils will typically not try hard, give up when faced with challenging tasks, and alienate themselves in the classroom by withdrawing from learning activities (Reeve 2006; Skinner, Kindermann, & Furrer, 2009). Pupils are considered disengaged if they lose focus (e.g. daydream), or participate in off-task conversation or argument with classmates, instead of listening to the teacher or completing class activities (Gobert, Baker, & Wixon, 2015). In other words, pupils may be engaged in irrelevant behaviour or thought processes which constitute academic disengagement as they are disconnected from classroom activities.

A closer examination of maladaptive reactions in classrooms suggests two different forms of classroom disengagement. Pupils can *actively* disengage by detaching themselves

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from classroom activities in an animated and reactive manner, such as disrupting the class,

talking over or arguing with others, or disobeying the teacher (Way, 2011). These pupils

direct their behaviour towards irrelevant stimuli and away from instructional information or

classroom tasks. Such active detachment within the classroom should not be confused with

contrasting displays of interest and enthusiasm associated with classroom engagement, such

as passionate debating of learning material between pupils. Rather, our definition of active

disengagement refers to reactive and animated types of maladaptive behaviour that is both

non-compliant and off-task in nature.

Alternatively, pupils may *passively* disengage by withdrawing in an inactive manner,

signified by lethargy, daydreaming, and tiredness in class. These pupils will become

unresponsive to teacher or peer interactions that relate to classwork, often not attempting

tasks, and avoiding or refusing to answer questions. Pupils who passively disengage do not

impose an immediate problem in classrooms and often do not receive the same focus from

educators as actively disruptive pupils (Paulsen, Bru, & Murberg, 2006). Researchers have

not explored the distinction between active and passive types of pupil disengagement or the

associated social and cognitive correlates, despite the clear differences in their respective

characteristics. Adopting a generic disengagement perspective does not allow for targeted

interventions aimed at minimising passive or active disengagement and this may stunt

theoretical advancement.

When examining the social and intrapersonal processes associated with pupil

behaviour, self-determination theory (SDT; Ryan & Deci, 2002) has gained extensive

empirical support within the domains of education and human motivation. In particular, it is

posited within SDT that pupils will function less effectively in classroom environments that

are perceived as psychologically controlling (e.g., Hein, Koka, & Hagger, 2015).

Psychologically controlling teachers attempt to direct, manipulate or pressure pupils by

75   disregarding the pupils' perspective and adopting a teacher centred agenda, typically using

76   external sources to motivate pupil behaviour (e.g. deadlines, incentives, threats of

77   punishment, criticism; Reeve, 2009; Reeve & Jang, 2006). SDT posits that pupils' basic

78   psychological needs will be frustrated when they perceive their teacher as psychologically

79   controlling (Niemiec & Ryan, 2009; Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013). We

80   further propose that the frustration of two needs, namely autonomy and competence, may be

81   differentially associated with active and passive disengagement in the classroom. The need

82   for autonomy refers to the experience of volition and psychological freedom towards one's

83   behaviour (deCharms, 1968). Frustration of this need, therefore, concerns feeling oppressed

84   and pressured to behave in certain ways (Bartholomew, Ntoumanis, Ryan, Bosch, &

85   Thøgersen-Ntoumani, 2011). The need for competence refers to the experience of

86   effectiveness in one's pursuits (White, 1959). Thus competence frustration concerns feelings

87   of inadequacy or failure (Bartholomew et al., 2011).

88   Recent research findings have helped to expand knowledge of this 'darker side',

89   postulating that need frustration may be distinct from need dissatisfaction, and is associated

90   with ill-being and comprised interpersonal functioning (Bartholomew, Ntoumanis, Cuevas, &

91   Lonsdale, 2014; Costa, Ntoumanis, & Bartholomew, 2015; Gunnell, Crocker, Wilson, Mack,

92   & Zumbo, 2013). Attempts to cope with experiences of need frustration typically provoke

93   defensive and compensatory behaviours such as passivity, alienation, misbehaviour,

94   resistance, and defiance (Vansteenkiste & Ryan, 2013). In line with this evidence,

95   investigating classroom disengagement may be better understood by measuring competence

96   and autonomy frustration, rather than dissatisfaction, to appropriately tap into the intensity

97   associated with negative psychological experiences (Bartholomew et al., 2011). Indeed,

98   recent evidence demonstrated that pupils reported higher classroom disengagement and

99   bullying behaviours, when they perceived their psychological needs to be frustrated due to

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100   psychologically controlling teachers (Hein et al., 2015; Jang, Kim, & Reeve, 2016). This

101   evidence, in line with many other studies, adopted a composite approach whereby general

102   need frustration was measured. A more nuanced approach to psychological need frustration

103   may unearth new insight into maladaptive educational processes.

104   School classrooms represent contexts where learners face regular demands relating to

105   their performance and ability (Reis, Sheldon, Gable, Roscoe & Ryan, 2000). In such

106   environments, it will be difficult for pupils who experience competence frustration to

107   maintain active involvement in activities (Nicholls, 1989). In fact, when pupils perceive

108   themselves to lack competence in the classroom, they are likely to withdraw from class

109   activities in a passive manner. A lack of competence has been associated with greater

110   amotivation in education settings (e.g., Legault, Green-Demers & Pelletier, 2006), which is

111   characterised by an absence of effortful behaviour (Deci & Ryan, 2000). Similarly, students

112   that were passively detached from school have reported little belief in their capability of

113   being successful at school (Patrick, Skinner, & Connell, 1993). This process is analogous to

114   learned helplessness, where pupils develop a belief that they cannot influence or bring about

115   a desired outcome and develop self-defeating behaviour patterns, such as giving up,

116   withdrawing effort and passive avoidance of tasks (Abramson, Seligman, & Teasdale, 1978;

117   Elliot & Dweck, 1988). Collectively this evidence suggests that if competence is frustrated in

118   the classroom, it will result in learners withdrawing their effort and demonstrating passive,

119   avoidance type behaviours in attempts to evade demonstrating their perceived incapableness.

120   In contrast to the relationship between competence frustration and passive behaviours,

121   an active and disruptive response may be more likely associated with the frustration of ones'

122   autonomy. Research in the parenting domain indicates that children tend to have actively

123   adverse responses to an absence of autonomy, including higher levels of delinquency (Barber,

124   1996), problem behaviours (Pettit, Laird, Dodge, Bates & Criss, 2001), and aggressive

125   behaviour (Joussemet et al., 2008). Young adolescents have also been found to reject parental

126   authority when prevented from acting volitionally (i.e. in line with endorsed values and

127   interests; Van Petegem, Vansteenkiste, Soenens, Beyers, & Aelterman, 2014). Extrapolating

128   from this knowledge base, we propose that the frustration of autonomy in classrooms is likely

129   to lead to reactive disengagement and avoidance which manifests itself as making noise or

130   talking to other pupils. In contrast, frustrated competence may be a stronger correlate of

131   passive disengagement in class. No previous research has tested this important distinction

132   despite it being implied by the evidence described above. Exploring potentially distinct

133   correlates of autonomy and competence frustration is required to identify theoretical

134   mechanisms that explain different types of disengagement.

135   Our portrayal of active and passive types of disengagement suggests adverse

136   behaviours that are underpinned by different levels of subjective vitality, a feeling of

137   aliveness and energy (Ryan & Frederick, 1997). From a broad SDT perspective, the

138   frustration of autonomy and competence will deplete vitality (Ryan & Deci, 2008).

139   Nonetheless, research in adolescent athletes and physical education students has evidenced a

140   stronger association between competence and feelings of vitality, compared to autonomy

141   (Adie, Duda, & Ntoumanis, 2012; Reinboth, Duda, & Ntoumanis, 2004; Taylor & Lonsdale,

142   2010). These studies examined psychological (dis)satisfaction, rather than competence and

143   autonomy frustration. In an adult sample, competence but not autonomy frustration, was

144   associated with reduced vitality (Gunnell et al., 2013). It may be that frustration of the two

145   needs have unique depleting influences on pupils' vitality. Identifying processes that differ in

146   the reduction of subjective vitality may be fundamental in identifying underlying causes of

147   active and passive disengagement.

148   1.1. The present research

149   On the basis of the foregoing considerations, the aim of this study was to assess the

150   maladaptive processes that underlie active and passive disengagement in class. In accordance

151   with SDT (Bartholomew, et al., 2011; Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013), we

152   hypothesised that teacher psychological control will be positively associated with pupils'

153   perceived autonomy and competence frustration (hypothesis 1). Concordant with learned

154   helplessness processes (Abramson et al., 1978; Elliot & Dweck, 1988) and previous evidence

155   (Adie et al., 2012; Gunnell et al., 2013; Reinboth et al., 2004; Taylor & Lonsdale, 2010), we

156   proposed that the frustration of competence will be associated with teacher ratings of passive

157   disengagement via decreased feelings of vitality (hypothesis 2). In contrast, the frustration of

158   autonomy in class will be directly associated with teacher ratings of active disengagement

159   and not explained by pupils' subjective vitality (hypothesis 3). Reflecting our overall model,

160   we expected to observe significant indirect effects between teacher psychological control and

161   the two forms of disengagement (hypothesis 4).

162   **2. Method**

163   2.1.Participants

164   Six hundred and forty seven secondary school pupils (60% male, mean age = 12.59

165   years, $SD = 0.93$ years, age range = 11 – 14 years old) and their teachers ($n = 22$) participated

166   in the study, coming from three schools in the United Kingdom (two selective grammar

167   schools and one comprehensive school). A total of 29 different classrooms were used for the

168   study. All three schools catered for pupils ageing from 11-18 years of age, with class sizes

169   ranged from 17 to 31 pupils per class. Ethnicity data was not obtained for individual pupils,

170   however, the three schools ranged between 10% - 21% of their total number of pupils being

171   considered from ethnic minorities, which is below the UK average of 27% (Drake, 2015).

172   2.2. Measures

173   2.2.1. *Perceptions of teacher psychological control*.

174   Pupil perceptions of their specific teacher's psychological control were measured

175   using 10 items (e.g. "My teacher does not allow me to work at my own pace" and "My

176   teacher makes me feel guilty when I do not please them"), previously used by Madjar, Nave,

177   and Hen (2013). Items were rated using a 5-point scale ranging from 1 (*strongly disagree*) to

178   5 (*strongly agree*). The scale authors demonstrated satisfactory factorial structure and internal

179   consistency (α =.71 - .74; Madjar et al., 2013).

180   2.2.2.   *Autonomy and competence frustration.*

181   Pupil perceptions of autonomy and competence frustration during the class were

182   measured using the respective subscales of the Psychological Need Thwarting Scale

183   (Bartholomew, Ntoumanis, Ryan et al., 2011). Items were adapted to an educational context

184   with some words simplified for use with secondary school children. These items were also

185   checked by teachers and modified where necessary to ensure pupils' understanding of each

186   item's terminology and phrasing. For instance, the original questionnaire stem "In my sport"

187   was changed to "In this class", with any original item relating to training (e.g. "I feel

188   prevented from making choices with regard to the way I train") modified to represent

189   learning (e.g. "I feel prevented from making choices about the way I learn"). Both subscales

190   consisted of four items: autonomy (e.g. "I feel forced to follow decisions made for me,");

191   competence (e.g. "There are situations where I am made to feel I am not good enough").

192   Items were rated on a 7 point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

193   Both subscales have previously demonstrated satisfactory internal consistency (autonomy

194   frustration: α =.67; competence frustration: α =.79) and factorial validity (Bartholomew et al.,

195   2011).

196   2.2.3.   *Subjective Vitality.*

197   Pupils' feelings of subjective vitality in the class were measured using a five item

198   version of the Subjective Vitality Scale (Ryan & Frederick, 1997), previously used by

199   Bartholomew, Ntoumanis, Ryan, Bosch et al., (2011). Items were rated on a 7 point scale,

200   ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Example items include "I have

201   energy and spirit" and "I nearly always feel alert and awake". All original items demonstrated

202   good internal consistency ($\alpha = .92$) and factorial validity, with all items used in this study

203   loading above .50 onto their respective latent factor (Ryan & Frederick, 1997).

204   2.2.4.   *Pupil disengagement*.

205   Pupil disengagement can be measured in variety of different ways, such as pupil self-

206   report, school data, independent observations and teacher ratings. We obtained teacher ratings

207   of each pupil's active and passive classroom disengagement to avoid over-reliance on pupil

208   self-report and minimise measurement error associated with common method variance

209   (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Teacher perceptions of pupils' *active*

210   *disengagement* in class were assessed using two adapted items from the disrespect subscale

211   of the Pupil Behaviour Patterns Scale (Friedman, 1995; see Hastings & Bham, 2003, for

212   construct validity). These items were selected to measure classroom behaviour that was both

213   non-compliant and disruptive, assessing active disobedience (e.g. "*Student X* in my class

214   argues with other students") and active inattentiveness (i.e., "*Student X* in my class often

215   speaks over others and makes a lot of noise"). Both items were rated on a 6 point scale

216   ranging from 1 (*never*) to 6 (*always*). The original scale demonstrated good internal

217   consistency ($\alpha = .87$; Freidman, 1995), with the two items used in this study loading .60 and

218   .51 onto their respective latent factor (Hastings & Bham, 2003).

219   Teacher perceptions of pupils' *passive disengagement* in class were measured using

220   two items designed for the purpose of this study: "To what extent does *Student X* daydream"

221   and "To what extent does *Student X* switch off in class". Each item was rated on a 6 point

222   scale ranging from 1 (*never*) to 6 (*always*). These items were designed to reflect teachers'

223   general perceptions of pupils' withdrawal from both social and performance situations,

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224 typically associated with pupil passivity (Paulsen et al., 2006). We chose two items for each

225 type of disengagement to enable each teacher to feasibly rate each individual pupil in their

226 class. Internal consistency and factor loadings are presented in Table 1.

227 2.3. Procedure

228   Full ethical approval was obtained from the principal researcher's university ethics

229 committee. Pupils and teachers were provided with details of the study both verbally and in

230 writing prior to the study commencing. All teachers provided written consent, with parental

231 opt-out forms provided to enable parents to indicate if they did not wish for their child to

232 participate. Four pupils opted out of the study. All pupils were instructed that they did not

233 have to complete the questionnaire if they did not wish to. The pupil questionnaire was

234 administered by the principal researcher at the beginning of a school lesson and collected

235 once each pupil had completed the questionnaire. The taught subject varied between classes

236 (Physical Education = 41%; Humanities = 24%; Citizenship = 21%; Sciences = 14%)[1].

237   Prior to administering the questionnaire, it was explained to the pupils and teachers

238 that all items referred to the specific class that the questionnaire was administered in. Once

239 the questionnaires had been administered, the principal researcher explained the instructions

240 to each class and allowed the opportunity for pupils to ask any additional questions. The pupil

241 questionnaire took approximately ten minutes for pupils to complete. To ensure

242 confidentiality, pupils were asked to direct any questions regarding the study to the principal

243 researcher and not the class teacher (who remained a passive observer during data collection).

244 The teacher rated pupil disengagement questionnaires were provided to teachers at the end of

245 the school lesson, subsequent to pupils completing the questionnaire, and were completed and

246 returned to the principal researcher within a week of being administered.

247 2.4. Data Analysis

248   Preliminary analysis involved calculation of descriptive statistics, Cronbach's alpha

249   coefficients, and bivariate correlations (see Table 1). We also conducted confirmatory factor

250   analysis using Mplus software (Version 7:2; Muthén & Muthén, 1998 - 2012) to test the item

251   factor loadings on their respective latent factor. Each item was used as an indicator of its

252   respective subscale latent factor (e.g. the four autonomy items were indicators of the

253   *autonomy frustration* latent factor). We used maximum likelihood estimation with robust

254   standard errors and the TYPE = COMPLEX command in Mplus. These analytical steps

255   meant that calculation of standard errors was robust to deviations from normality (Olsson,

256   Foss, Troye, & Howell, 2000) and accounted for potential clustering effects associated with

257   pupils being nested within different classrooms (Hox, 2010). A full multi-level model was

258   unfeasible as our sample size did not contain enough Level 2 units (i.e. classrooms; $n = 29$) to

259   meet suggested guidelines (i.e. $n > 50$; Maas & Hox, 2005).

260   After the confirmation of acceptable factorial structure for all latent variables, we

261   tested a fully forward model, depicting all paths between every latent factor as a baseline to

262   compare subsequent models (Model 1). We then systematically removed non-hypothesised

263   paths to arrive at our proposed model (for similar procedures see Marshall, Parker, Ciarrochi,

264   & Heaven, 2013). We removed the non-hypothesised direct paths from teacher control to

265   each disengagement and vitality (Model 2). Next, we removed non-hypothesised direct paths

266   between competence frustration and both types of disengagement (Model 3) and the non-

267   hypothesised path between autonomy frustration and passive disengagement (Model 4).

268   Finally, we tested our hypothesised model (shown in Figure 1) by removing the non-

269   hypothesised paths between autonomy frustration and vitality, and vitality and active

270   disengagement (Model 5).

271   Each model was evaluated to clarify if the solution was well defined, the size and

272   direction of the regression paths were conceptually plausible and model fit indices were

273   acceptable. The indices used for estimating goodness of fit of the models were the

274   Standardised Root Mean Square Residual (SRMR < .06), Root Mean Square Error of

275   Approximation (RMSEA < .08; along with 90% confidence intervals) and Comparative Fit

276   Index (CFI > .90). Although CFI values greater than .90 are considered representative of a

277   well-fitting model (Bentler, 1992), values closer to .95 have been recommended as indicative

278   of good model fit (Hu & Bentler, 1999). If the more parsimonious model did not show

279   reduced fit to the data compared to the previous model (i.e., ΔCFI < .01 and ΔRMSEA <

280   .015; Chen, 2007; Cheung & Rensvold, 2002) then we accepted the parsimonious model.

281   Satorra-Bentler scaled chi-square difference tests are also reported, however, these tests have

282   been shown to be overly strict with large sample sizes, therefore, more emphasis was placed

283   upon the interpretation of delta CFI and RMSEA (Brown, 2006; also see Gunnell, Bélanger,

284   & Brunet, 2016 for a comparable analytical procedure).

285   **Results**

286   2.5. Descriptive statistics

287   　　Means, standard deviations, and internal consistency values for all measurement

288   scales are presented in Table 1. All mean values, with the exception of subjective vitality,

289   were below the midpoint of their scales. Cronbach's alpha values all demonstrated

290   satisfactory internal consistency ($\alpha > .70$).

291   　　　　　　　　　　**INSERT TABLE 1 HERE**

292   2.6. Measurement model

293   　　Confirmatory factor analysis specified a measurement model (i.e., no paths between

294   latent factors), with all indicator items predicting their respective latent factor. Model fit

295   indices produced a well-fitting measurement model: $\chi^2 = 633.63$; $df = 309$; SRMR = .05; CFI

296   = .94; RMSEA = .04; (90% confidence intervals: 0.036 - 0.045). Correlations between latent

297   factors are presented in Table 1. Teacher control was found to correlate positively with the

298 frustration of both needs and both types of disengagement, and negatively with vitality. In

299 accordance with SDT, autonomy and competence frustration positively correlated with each

300 other. Both autonomy and competence frustration negatively correlated with vitality and

301 positively correlated with passive disengagement. Active and passive disengagement were

302 moderately and positively correlated with each other. Standardised factor loadings and

303 residual variances are presented in Table 2. All items were included in the subsequent

304 analyses.

305 **INSERT TABLE 2 HERE**

306 2.7. Primary Analysis

307 Model fit indices, standardised regression coefficients and standard errors for every

308 model are presented in Table 3. Model 1 (our fully forward model) showed acceptable fit to

309 the data; however, the inclusion of all paths led to several parameter estimates suggesting

310 relationships that were theoretically unlikely (possibly due to statistical suppression;

311 MacKinnon, Krull & Lockwood, 2000). For instance, teacher psychological control

312 positively predicted vitality, and autonomy and competence frustration both negatively

313 predicted active disengagement. Removal of the direct effects from teacher psychological

314 control to both disengagement types and vitality (Model 2) did not meaningfully reduce the

315 fit of the model to the data (based on ΔCFI and ΔRMSEA) and produced conceptually

316 defendable relationships; therefore, we rejected Model 1. Model 3 (removal of direct paths

317 between competence frustration and both types of disengagement), Model 4 (removal of the

318 path between autonomy frustration and passive disengagement), and Model 5 (our

319 hypothesised model) similarly led to well-defined solutions, defendable conclusions, and

320 limited reduction in model fit. As a result, we accepted our hypothesised model as the most

321 parsimonious model.

322   In our proposed model, teacher psychological control was positively associated with

323   autonomy and competence frustration (hypothesis 1). Based on criteria for establishing

324   magnitude of indirect effects (Cohen 1988; Preacher & Kelley, 2011), a small to moderate

325   indirect association was found between competence frustration and passive disengagement,

326   via reduced pupil vitality ($\beta = .08$, $p = .01$; hypothesis 2). Our proposed direct association

327   between autonomy frustration and active disengagement was found to only approach

328   conventional levels of statistical significance (hypothesis 3). Reflecting the overall

329   hypothesised process (hypothesis 4), a moderate indirect association between teacher

330   psychological control to active disengagement via autonomy frustration was found, although

331   only approaching conventional levels of statistical significance ($\beta = .09$, $p = .07$). The indirect

332   association between teacher psychological control and passive disengagement through

333   competence frustration and vitality was small to moderate ($\beta = .06$, $p = .01$).

334   **INSERT TABLE 3 HERE**

335   In models 2 and 3 we observed an unexpected direct association between autonomy

336   frustration and passive disengagement that led us to consider this pathway further in an

337   alternative model (see Model 6). This association is conceptually defendable, however, the

338   inclusion of this path did not improve model fit. Furthermore, across Models 2, 3 and 6, the

339   inclusion of this path led to other aspects of the model that were less theoretically defensible.

340   Specifically, competence frustration had no association with passive disengagement despite

341   considerable previous evidence suggesting the contrary (e.g., learned helplessness; Abramson

342   et al., 1978; Elliot & Dweck, 1988). Consequently, we did not include the path between

343   autonomy frustration and passive disengagement in our final model (Model 5) but could not

344   rule out the meaningfulness of this observed relationship (which is depicted in Figure 1).

345   **INSERT FIGURE 1 HERE**

346   **3. Discussion**

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347   The purpose of this study was to determine if passive and active disengagement were

348   associated with perceived teacher control, and to examine if the frustration of pupils' basic

349   psychological needs of autonomy and competence would associate differentially with

350   separate disengagement responses. No research to date has explored if the frustration of these

351   psychological needs may trigger different maladaptive processes in school settings. The

352   findings of the present study provide cross-sectional evidence for the potential association

353   between these needs and active and passive disengagement processes.

354   In line with extant evidence (Jang et al., 2016), the present findings demonstrate that

355   pupil disengagement is indirectly associated with teachers' psychological controlling

356   strategies, such as adopting guilt inducing tactics, disregarding pupil opinions and using

357   criticism to pressure pupils. The use of teacher psychological control has been associated

358   with a range of maladaptive learning outcomes including pupil amotivation and resistance to

359   authority (Haerens, Aelterman, Vansteenkiste, Soenens, & Van Petegem, 2015), decreased

360   academic engagement (Assor, Kaplan, Kanat-Maymon & Roth, 2005), and reduced

361   enjoyment (Reeve & Jang, 2006). Yet despite this evidence, educators still regularly

362   demonstrate, and often prefer, the use of psychological controlling strategies in the classroom

363   (Newby, 1991; Reeve, 2009; Reeve & Assor, 2011; Taylor, Ntoumanis & Smith, 2009). The

364   findings in the present study extend current knowledge by detailing potential mechanisms

365   which may explain how psychologically controlling teaching may lead to passive withdrawal

366   or active disengagement in classrooms. Specifically, the present study suggests that teachers'

367   use of psychological control will thwart, rather than support, pupils' needs for autonomy and

368   competence in the classroom. As a consequence, pupils that perceived their autonomy to be

369   frustrated may become disruptive and disobedient, whereas perceived competence frustration

370   may lead to pupil passivity in class.

371   Our findings illustrate that pupils who perceived that their competence was frustrated

372 were rated as passive, daydreaming pupils by their teacher. Low perceived competence has

373 been previously associated with feelings of learned helplessness (Elliot & Dweck, 1988),

374 amotivation (Legault et al., 2006), and passive detachment from school (Patrick et al., 1993).

375 In other words, pupils that feel they do not have the ability to be successful in the classroom

376 may withdraw passively from learning activities in an attempt to hide their perceived

377 incompetency and avoid failure. These pupils may attempt to avoid attention by becoming

378 unwilling to answer questions, offer their opinion or attempt difficult tasks. Our results

379 suggest that this relationship between competence frustration and passive disengagement may

380 be a consequence of reduced vitality. That is, pupils that perceive themselves as a failure or

381 being incapable in class will likely experience reductions in their vitality, resulting in passive

382 classroom behaviour. These pupils will typically participate less in activities and may appear

383 tired in class. As a result, such passive behaviours may actuate as a helpless response which

384 may impede academic development and progression, often without the teacher's awareness

385 (Tam, Zhou, & Harel-Fisch, 2012).

386   In line with previous evidence found within the parenting domain (Barber, 1996;

387 Pettit et al., 2001), autonomy frustration positively predicted active disengagement, albeit the

388 relationship was borderline statistically significant considering conventional standards. Pupils

389 lacking in autonomy may struggle to apply social rules and standards to their behaviour in the

390 classroom (Ryan, Deci, & Vansteenkiste, 2016; Weinstein, Przybylski, & Ryan, 2012). For

391 instance, pupils that feel forced to behave in regimented ways may become restless,

392 disobedient and disruptive. Unlike competence frustration and passive disengagement,

393 vitality did not play a role in this process. Rather, a threat to a person's psychological

394 freedom may result in reactive attempts to gain independence away from the source of the

395 perceived threat and heteronomy (Pavey & Sparks, 2009). Therefore, pupils' experience of

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396   autonomy frustration manifests as active disengagement, disobedience and disruption. Pupils

397   that experience autonomy frustration may actively disengage as a method of distraction from

398   any negative feelings associated with perceived coercion (Skinner & Wellborn, 1997).

399   Throughout our analysis, support for an association between autonomy frustration and

400   passive disengagement was observed; however, inclusion of this path in analytic models

401   resulted in theoretically spurious associations among other variables. It may be that

402   classroom constraints that are perceived to be coercive may also cause some pupils to

403   passively switch off and daydream. Unlike competence frustration, this passive autonomy

404   process may not be driven by reduced feelings of vitality, but rather signify a simple

405   avoidance of the perceived heteronomous context and associated negative affect. Reasons

406   why the inclusion of this association led to potentially spurious conclusions among the other

407   variables remain unknown, but they were likely of a statistical nature.

408   3.1.Implications of the study

409   From a theoretical perspective, the different relationships of autonomy and

410   competence frustration with vitality and active disengagement are noteworthy. This study

411   represents the first empirical evidence that frustration of pupils' competence and not

412   autonomy may reduce vitality in the classroom. The obstruction of autonomy may potentially

413   manifest in pupils' reactance and rebellion towards the source of the perceived heteronomy

414   (i.e., oppositional defiance; Vansteenkiste & Ryan, 2013). In contrast, competence frustration

415   is not implicated in these rebellious processes and may manifest as passivity in the classroom.

416   In addition, we observed that autonomy frustration may be associated with both active and

417   passive disengagement. The concept of autonomy comprises affective and decisional

418   components (Houlfort, Koestner, Joussemet, Nantel-Vivier, & Lekes, 2002). Passive

419   reactions may represent avoidance of the negative affect associated with autonomy

420   frustration. In contrast, the active and rebellious reactions may be initiated as a response to

421 the frustration of decisional aspects of autonomy (e.g., experiences of overt force to control

422 behaviour, such as threats of punishment; see Haerens, Vansteenkiste, Aelterman, & Van den

423 Berghe, 2016 for comparisons with internally versus externally controlling teaching).

424   From an applied perspective, identifying different disengaging processes associated

425 with autonomy and competence frustration can inform educators of the underlying reasons

426 for specific types of classroom disengagement. Some teachers may interpret psychological

427 control as an effective method of engaging pupils (Reeve et al., 2014), as a response to poor

428 pupil behaviour (Reeve, 2009) or motivation (Pelletier, Séguin-Lévesque, & Legault, 2002).

429 The moderate indirect effects sizes observed in the present findings highlight why this

430 approach may be counterproductive and may result in both active and passive disengaged

431 pupils. Thus, teacher directed interventions may be required to help teachers understand the

432 consequences of employing psychological control and teach them methods to avoid such

433 strategies (Hospel & Galand, 2016; Reeve & Assor, 2011). Teachers should not force pupils

434 to do activities, but demonstrate the relevance of learning activities, and provide the

435 opportunity for pupils to give their opinion without using controlling language (e.g. "you

436 must" or "have to"; Assor, et al., 2002; Reeve, 2015; Reeve & Assor, 2011; Reeve & Jang,

437 2006).

438 3.2.Future Directions

439   This study presented a number of findings concerning maladaptive teacher behaviours

440 and internal processes that lead to different types of pupil disengagement. A particular

441 strength of this study is the use of teacher reported pupil disengagement as it provides an

442 observed assessment of pupil disengagement, rather than relying on a self-report measure.

443 Nevertheless, the addition of independent classroom observations in future research may also

444 offer an alternative and complementary account of pupil disengagement (e.g., Allen et al.,

445 2013). Furthermore, we acknowledge that our teacher measures of pupil disengagement were

446   limited to two items. This allowed teachers to provide ratings for every pupil, however, larger

447   multi-item scales (e.g. Caldwell, Rudolph, Troop-Gordon, & Kim, 2004; Jang, et al., 2016)

448   may provide a more detailed examination of different types of classroom disengagement.

449   The cross-sectional nature of this study allowed us to explore associations with the

450   frustration of autonomy and competence. Future studies may adopt a longitudinal method to

451   explore if different disengaging processes are indicators of prolonged academic problems.

452   For example, longitudinal work could investigate if the passive responses associated with

453   competence frustration result in increased class truancy levels, school drop-out or decreased

454   performance expectations over a longer time period. Similarly, active disengagement

455   associated with autonomy frustration may be associated with increased classroom

456   punishments, school suspensions and even school exclusions.

457   Finally, the concept of engagement versus disengagement is considered as a

458   multidimensional paradigm comprising behavioural, cognitive, and emotional components

459   (Fredricks, Blumenfeld & Paris, 2004; Skinner, Kindermann, Connell & Wellborn, 2009;

460   Wang, Chow, Hofkens, & Salmela-Aro, 2015). The present study exclusively focused on

461   teacher perceptions of behavioural components. Previous work has found perceived

462   competence to be the only significant predictor of anxiety whereas autonomy was the only

463   significant predictor of frustration (Skinner et al., 2008). Building on these findings, and

464   previous research on achievement emotions and control-value theory (Pekrun, 2006), the

465   addition of emotional and cognitive components may provide educators and researchers with

466   an understanding of the negative feelings that may accompany these maladaptive behaviours.

467   **4. Conclusions**

468   The findings from the current study highlight distinct correlates of autonomy and

469   competence frustration with two separate types of pupil disengagement. Teacher

470   psychological control was found to be associated with both processes, stressing the

471   importance for schools and educators to avoid applying such psychological control in

472   classrooms. Although most teachers may apply controlling strategies with the well-meaning

473   intention of engaging pupils, the adoption of such control may promote pupils to become

474   passively or actively disengaged in classrooms.

475   **Notes**

476   [1] The processes under investigation are proposed to be universal (Deci & Ryan, 2000;

477   Niemiec & Ryan, 2009) and there is no evidence to suggest that the processes vary across

478   subjects. In addition, a MANOVA revealed very few subject differences in the mean levels of

479   the study variables, apart from higher vitality and lower active disengagement in Physical

480   Education classes, compared to the other classroom subjects. After controlling for these

481   differences in PE, all substantive conclusions remained the same as our reported model.

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Table 1

Descriptive Statistics and Latent Factor Correlations

Variable	Range	Mean	*SD*	α	1	2	3	4	5	6
1. Teacher Control	1-5	2.19	0.77	.84	-					
2. Autonomy Frustration	1-7	2.45	0.96	.78	.85***	-				
3. Competence Frustration	1-7	2.24	1.01	.81	.74***	.88***	-			
4. Vitality	1-7	4.69	1.36	.82	-.36***	-.47***	-.50***	-		
5. Active Disengagement	1-6	1.65	0.99	.84	.28***	.12*	.08	-.01	-	
6. Passive Disengagement	1-6	1.92	1.06	.84	.26***	.20***	.16***	-.13*	.56***	-

*Note: *p<.10, **p<.05, ***p<.001.*

Table 2
Standardised Factor Loadings and Residual Variances for Latent Variables

Variable	Factor Loading	Residuals
Teacher Control (TC)		
My teacher is only willing to listen to opinions that match their opinion	.37	.86
My teacher always tries to change me	.48	.78
My teacher stops me before I have finished saying what I wanted	.65	.58
My teacher clearly shows that I have hurt their feelings when I do not meet their expectations	.46	.79
My teacher often interrupts me	.70	.51
My teacher makes me feel guilty when I do not please them	.66	.57
My teacher does not allow me to work at my own pace	.71	.50
My teacher avoids talking to me when I have disappointed them	.63	.60
My teacher interrupts me in the middle of activities that interest me	.70	.51
My teacher tells me what to do all the time	.63	.60
Autonomy Frustration (AF)		
I feel prevented from making choices about the way I learn.	.69	.52
I feel pushed to behave in certain ways.	.67	.55
I feel forced to follow decisions made for me.	.71	.49
I feel under pressure to agree with the school activities I am given.	.68	.54
Competence Frustration (CF)		
There are situations where I am made to feel I am not good enough.	.73	.47
I don't feel good enough because I am not given opportunities to fulfil my potential.	.66	.57
Situations occur in which I am made to feel I am incapable.	.73	.47
There are times when I am told things that make me feel that I lack ability.	.77	.41
Vitality (Vit)		
I don't feel very energetic.	.55	.69
I have energy and spirit.	.70	.51
I look forward to this class.	.64	.60
I nearly always feel alert and awake.	.74	.46
I feel energised.	.84	.30
Active Disengagement (Active)		
In class, this student often speaks over others and makes a lot of noise	.83	.31
In class, this student argues with other students	.87	.25
Passive Disengagement (Passive)		
To what extent does this student daydream in class	.73	.47
To what extent does this student switch off in class	.99	.01

Table 3
Regression Coefficients, Standard Errors, and Model Fit Indices for Each Tested Model.

	Model 1 β	Model 1 SE	Model 2 β	Model 2 SE	Model 3 β	Model 3 SE	Model 4 β	Model 4 SE	Model 5 β	Model 5 SE	Model 6 β	Model 6 SE
TC > AF	.90****	0.03	.92****	0.03	.91****	0.02	.91****	0.03	.91****	0.03	.91****	0.03
TC > CF	.80****	0.04	.80****	0.04	.80****	0.04	.80****	0.04	.80****	0.04	.80****	0.04
TC > Vit	.41***	0.15	-	-	-	-	-	-	-	-	-	-
TC > Active	.96****	0.21	-	-	-	-	-	-	-	-	-	-
TC > Passive	.47**	0.23	-	-	-	-	-	-	-	-	-	-
AF > Vit	-.45**	0.22	.10	0.14	-.10	0.14	-.12	0.15	-	-	-	-
CF > Vit	-.48****	0.12	-.42***	0.13	-.41***	0.13	-.41***	0.13	-.51****	0.05	-.50****	0.04
AF > Active	-.51**	0.23	.32***	0.11	.24***	0.08	.12*	0.06	.10*	0.06	.19***	0.07
AF > Passive	-.14	0.19	.27**	0.11	.22***	0.07	-	-	-	-	.20***	0.06
CF > Active	-.30**	0.15	-.11	0.13	-	-	-	-	-	-	-	-
CF > Passive	-.15	0.13	-.06	0.11	-	-	-	-	-	-	-	-
Vit > Active	-.01	0.10	.07	0.10	.09	0.10	.03	0.09	-	-	-	-
Vit > Passive	-.09	0.08	-.05	0.08	-.04	0.08	-.15**	0.07	-.16***	0.07	-.08	0.06
$\chi^2_{(df)}$	697.23(310)		724.00(313)		724.11(315)		738.60(316)		734.27(318)		721.69(317)	
S-B$\Delta\chi^2_{(df)}$	-		32.939****(3)		0.751(2)		10.503***(1)		-4.330(2)		-	
SRMR	.053		.056		.056		.064		.064		.056	
CFI	.926		.922		.922		.920		.921		.923	
RMSEA	.044		.045		.045		.045		.045		.044	
RMSEA 90% CI	[.040, .048]		[.041, .049]		[.041, .049]		[.041, .050]		[.041, .049]		[.040, .049]	

Note. $\chi^2_{(df)}$ = Chi-square and degrees of freedom; S-B = Satorra-Bentler Scaled Chi-Square Difference; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Ft Index; RMSEA = Root Mean Square of Approximation; CI = confidence interval; TC = Teacher Psychological Control; AF = Autonomy Frustration; CF = Competence Frustration; Vit = Subjective Vitality; Active = Active Disengagement; Passive = Passive Disengagement. Chi-square difference was not reported between Model 5 and 6 as Model 6 was not nested within Model 5. *p <.10, **p <.05, ***p <.01, ****p <.001.
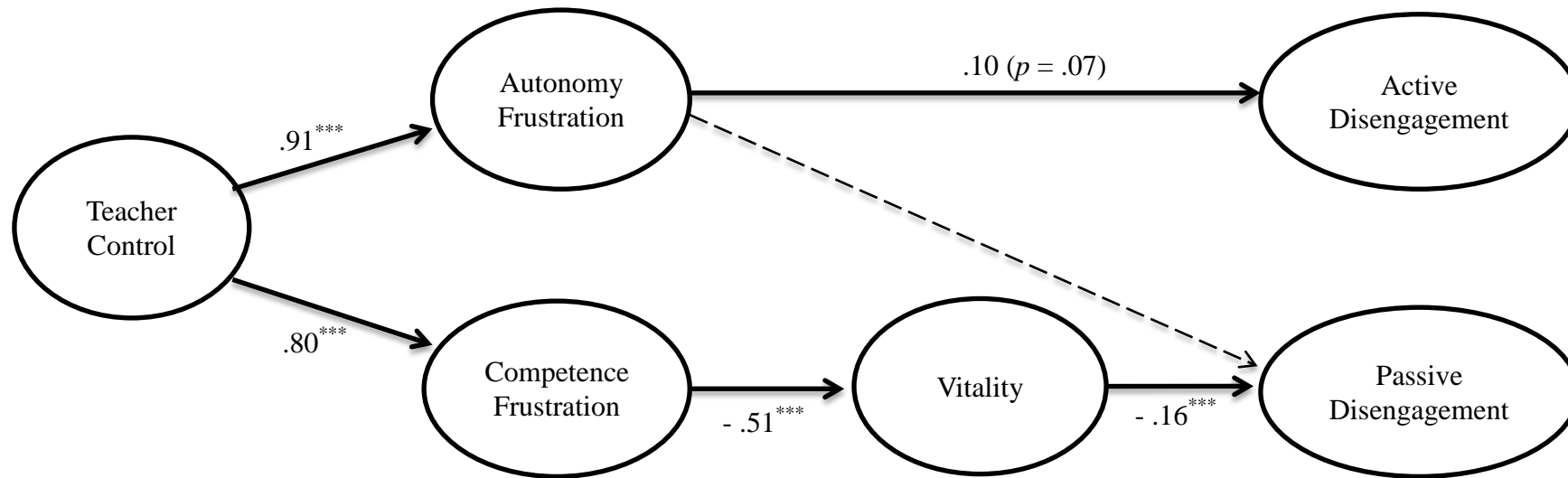
Figure 1. Structural equation model depicting our hypothesised model (Model 5) with separate processes predicting active and passive classroom disengagement. The dotted pathway depicts an unexpected association between autonomy frustration and passive disengagement. Full inclusion of this path resulted in other aspects of the model becoming less theoretically defensible but we acknowledge the potential meaningfulness of this observed relationship. For brevity, latent factor indicators are not shown.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.