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Abstract

Few studies have attempted to identify distinct psychological correlates of different forms of classroom disengagement. Drawing from basic psychological needs theory (Deci & Ryan, 2000), this study investigated two divergent mechanisms predicting active and passive classroom disengagement. Pupils ($N= 647$; age = 11–14 years) and their respective teachers completed a questionnaire measuring the study variables. Using structural equation modelling, pupils' perceptions of teacher psychological control positively predicted pupils' autonomy and competence frustration in class. Pupils' competence frustration indirectly and positively associated with teacher-rated passive disengagement (e.g. daydreaming in class), via reduced feelings of vitality. Pupils' autonomy frustration demonstrated positive associations with both active disengagement (e.g. talking and making noise) and passive disengagement but neither relationship was explained by feelings of vitality. These distinct mechanisms may have implications for educators, identifying potential causes of different forms of pupil disengagement and the importance of avoiding psychological control in classrooms.

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

25 1. Introduction

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

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

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

50 from classroom activities in an animated and reactive manner, such as disrupting the class,
51 talking over or arguing with others, or disobeying the teacher (Way, 2011). These pupils
52 direct their behaviour towards irrelevant stimuli and away from instructional information or
53 classroom tasks. Such active detachment within the classroom should not be confused with
54 contrasting displays of interest and enthusiasm associated with classroom engagement, such
55 as passionate debating of learning material between pupils. Rather, our definition of active
56 disengagement refers to reactive and animated types of maladaptive behaviour that is both
57 non-compliant and off-task in nature.

58 Alternatively, pupils may *passively* disengage by withdrawing in an inactive manner,
59 signified by lethargy, daydreaming, and tiredness in class. These pupils will become
60 unresponsive to teacher or peer interactions that relate to classwork, often not attempting
61 tasks, and avoiding or refusing to answer questions. Pupils who passively disengage do not
62 impose an immediate problem in classrooms and often do not receive the same focus from
63 educators as actively disruptive pupils (Paulsen, Bru, & Murberg, 2006). Researchers have
64 not explored the distinction between active and passive types of pupil disengagement or the
65 associated social and cognitive correlates, despite the clear differences in their respective
66 characteristics. Adopting a generic disengagement perspective does not allow for targeted
67 interventions aimed at minimising passive or active disengagement and this may stunt
68 theoretical advancement.

69 When examining the social and intrapersonal processes associated with pupil
70 behaviour, self-determination theory (SDT; Ryan & Deci, 2002) has gained extensive
71 empirical support within the domains of education and human motivation. In particular, it is
72 posited within SDT that pupils will function less effectively in classroom environments that
73 are perceived as psychologically controlling (e.g., Hein, Koka, & Hagger, 2015).

74 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 (Niemic & 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

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 schools
167 and one comprehensive school). A total of 29 different classrooms were used for the study. All
168 three schools catered for pupils ageing from 11-18 years of age, with class sizes ranged from
169 17 to 31 pupils per class. Ethnicity data was not obtained for individual pupils, however, the
170 three schools ranged between 10% - 21% of their total number of pupils being considered from
171 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 ($\alpha = .71 - .74$; 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: $\alpha = .67$; competence frustration: $\alpha = .79$) 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,

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., $\Delta\text{CFI} < .01$ and $\Delta\text{RMSEA} <$
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 $\Delta RMSEA$) and produced conceptually
316 defensible 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, defensible 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 defensible, 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**

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

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, & Leves, 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		Model 2		Model 3		Model 4		Model 5		Model 6	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	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 Fit 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. * $p < .10$, ** $p < .05$, *** $p < .01$, **** $p < .001$.

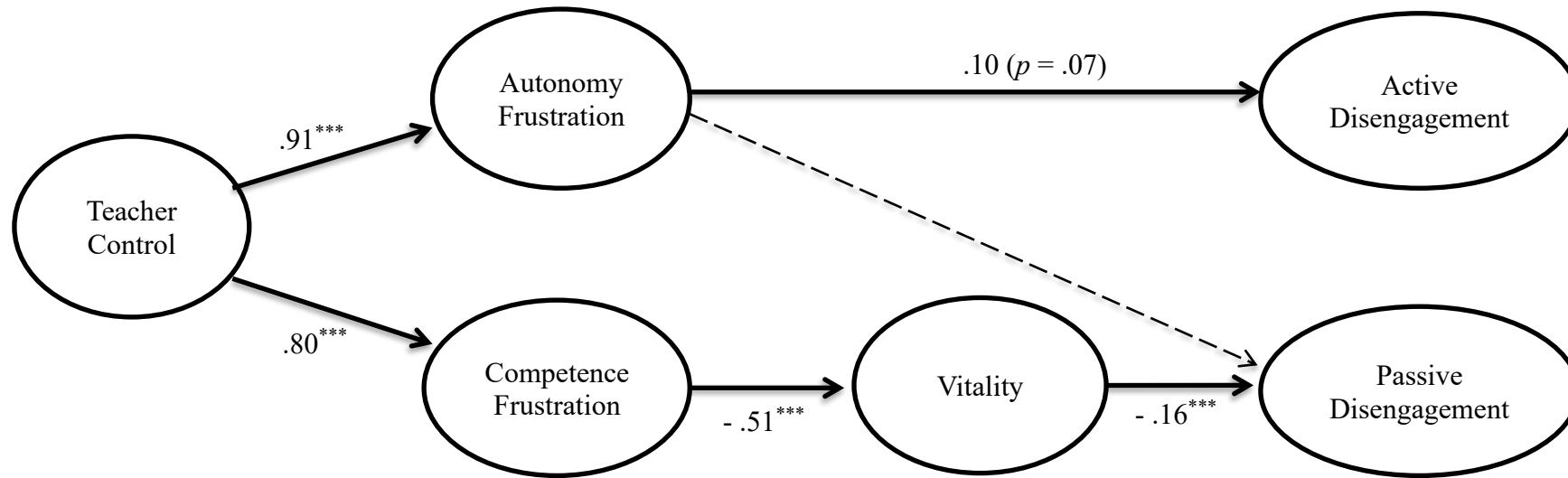


Figure 1. Structural equation model depicting our hypothesised model (Model 5) with separate processes predicting active and passive classroom disengagement. The dotted pathway depicts an unexpected association between autonomy frustration and passive disengagement. Full inclusion of this path resulted 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.

* $p < .05$, ** $p < .01$, *** $p < .001$.