- Self-Determination Theory Applied to Physical Education: A Systematic Review and Meta-Analysis
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Abstract

31 In this review we examined the evidence regarding self-determination theory within the school 32 physical education context. We applied a multilevel structural equation modelling approach to meta-33 analyze data from a systematic review that identified 265 relevant studies. In line with theory, 34 autonomous motivation was positively correlated with adaptive outcomes, and negatively correlated 35 with maladaptive outcomes. Introjected regulation was modestly correlated with both adaptive and 36 maladaptive outcomes. External regulation and amotivation both showed negative relationships with 37 adaptive outcomes, and positive relationship with maladaptive outcomes. Also supporting SDT, 38 autonomy, competence, and relatedness satisfactions were strongly correlated with autonomous student 39 motivation, and less strongly, but still positively, correlated with introjected regulation. Weak negative 40 correlations were found between autonomy, competence, and relatedness and external regulation. 41 Amotivation had moderate negative correlations with needs satisfaction. Findings further revealed that 42 teachers more greatly impact classroom experiences of autonomy and competence, whereas relatedness 43 in physical education is associated with both peer and teacher influences.

Keywords: classroom learning, physical education, motivation, meta-analysis, autonomy.

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Educational Impact and Implications Statement

We found that the different types of motivation identified in SDT differentially predict student outcomes in predicted ways, and that these motivations are systematically associated with instructor supports for students' basic psychological needs. Although teachers can support all three students' psychological needs, teachers appear to have greater influence on students' autonomy and competence, whereas peers seem to have more impact on students' relatedness. These results have implications for the design of teacher and peer focused interventions.

Self-Determination Theory Applied to Physical Education: A Systematic Review and Meta-Analysis

Introduction

A recent bibliometric study highlighted that motivation is the leading theme within the field of sport and exercise psychology across different contexts, such as sport, exercise, health psychology, and school physical education (Lindahl, Stenling, Lindwall, & Colliander, 2015). Understanding the processes concerning motivation is crucial to engaging students in activities from which they can benefit physiologically and psychologically. Self-determination theory (SDT; Deci & Ryan, 1985) is one theory that attempts to explain the processes of motivation. Although SDT has emerged as one of the most popular theories of motivation employed in physical education research (Lindahl et al., 2015), no systematic review of SDT-based research has been undertaken in this context. In this study, we systematically reviewed and meta-analyzed evidence from SDT-based research applied to the context of school physical education.

Most children and adolescents globally are insufficiently physically active, placing them at increased risk of ill-health and ill-being (Boddy, Fairclough, Atkinson, & Stratton, 2012; Cohen et al., 2011; Ekelund, Luan, Sherar, & et al., 2012; Spittaels et al., 2012). Physical education presents an opportunity to not only help students be active during the school day, but also acquire the knowledge, skills, and motivation to be active outside school hours and in later life (Cohen, Morgan, Plotnikoff, Callister, & Lubans, 2015; Gu & Solmon, 2015; Jaakkola & Washington, 2013; Lonsdale et al., 2017; Shen, 2014). Indeed, many government curricula highlight outcomes such as positive attitudes and motivation towards physical activity as important goals of physical education (e.g., Australian Curriculum, Assessment and Reporting Authority, 2016). Nonetheless, many students do not have positive experiences in physical education (Moreno-Murcia, Coll, & Pérez, 2009; Taylor & Ntoumanis, 2007), with many showing poor quality motivation towards physical activity and low physical selfconcept.

Self-determination theory is potentially a viable framework from which to understand student experiences in physical education and develop interventions that could enhance student learning and motivation towards physical activity. This review focuses specifically on SDT in physical education, rather than other educational contexts, because the strategies and contexts of physical education differ from many academic subject matter. For example, in many physical education lessons displays (and by extension, evaluations) of competence are typically public, whereas in academic lessons one's performance can be relatively more covert. Additionally, many of the learning goals of physical 90 education are qualitatively different from academic lessons, with healthy behaviors (e.g., physical 91 activity outside school) a common focus of empirical investigations.

92 In limiting our review to the physical education context and excluding research conducted on 93 motivational processes and outcomes in other subjects, we also sought to examine an illustrative model 94 of the motivational sequence outlined in SDT (i.e., need support \rightarrow need satisfaction \rightarrow motivation \rightarrow 95 outcomes). By understanding the potential effect needs support may have on students' outcomes, this 96 review will be able to help delineate what might optimally be a focus in physical education interventions 97 and training. 98

Theoretical Background

99 Self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2017) describes the 100 process through which motivation develops and how it influences human behavior and wellbeing. 101 Embedded within SDT, the basic psychological needs mini-theory states that for high quality 102 motivation to develop and for individuals to achieve optimal functioning, three fundamental needs must 103 be fulfilled – the need for autonomy, the need for competence, and the need for relatedness (Garn,

McCaughtry, Martin, Shen, & Fahlman, 2012; Standage, Duda, & Ntoumanis, 2005; Taylor & 104 105 Lonsdale, 2010; van Aart, Hartman, Elferink-Gemser, Mombarg, & Visscher, 2015). Autonomy can be defined as one's need to experience a sense of willingness in one's actions. Competence refers to one's 106 107 need to experience effectiveness in one's interactions with the world, while relatedness refers to a need 108 for connectedness with significant others, satisfaction with the social world, and a feeling of being 109 accepted (Ryan & Deci, 2017). If these needs are met, people are more likely to be well, and to be 110 autonomously motivated. In contrast, when these needs are not met (or only partially fulfilled), 111 individuals tend to regulate their behavior based on controlled reasons (McDavid, Cox, & McDonough, 112 113 2014; Mouratidis, Barkoukis, & Tsorbatzoudis, 2015; Ntoumanis, 2001; Standage et al., 2005).

SDT also postulates different types of motivation (Ryan & Deci, 2000a). Organismic 114 integration theory is a sub-theory within SDT that describes these different types of motivation, known 115 as behavioral regulations. SDT goes beyond a binary conceptualization of intrinsic and extrinsic 116 motivation as it outlines four different types of motivation under the broad category of extrinsic 117 motivation. Figure 1 depicts six types of regulation on what it is known as a self-determination 118 continuum, ranging from amotivation (i.e., lack of motivation) to the most autonomous forms of 119 motivation (e.g., intrinsic motivation, identification) (Ntoumanis, 2001; Standage et al., 2005). The four 120 different types of extrinsic motivation vary in their individual characteristics, as well as in the amount 121 of autonomy they represent (e.g., Litalien et al., 2017). The least autonomous form of extrinsic 122 motivation is external regulation (doing an activity for contingent rewards or punishments controlled 123 by others), followed by introjected regulation (acting to avoid sense of guilt or anxiety or to protect 124 contingent self-worth). On the more autonomous side are identified regulation (when the task is aligned 125 with personal values), and integrated regulation (when activity is fully assimilated with individual's 126 sense of self). Indeed, although these different types of motivation form a continuum, they have also 127 have been categorized in some analyses as autonomous motivations (intrinsic motivation, integrated, 128 and identified regulation; e.g., Cheon, Reeve, & Moon, 2012; Haerens, Aelterman, Vansteenkiste, 129 Soenens, & Van Petegem, 2015; Hagger et al., 2009; Shen, McCaughtry, Martin, & Fahlman, 2009; 130 Yoo, 2015) and controlled motivations (introjected and external regulation; e.g., Aelterman et al., 2012; 131 De Meyer et al., 2016; Gairns, Whipp, & Jackson, 2015; Karagiannidis, Barkoukis, Gourgoulis, Kosta, 132 & Antoniou, 2015; Lodewyk & Pybus, 2013; Mouratidis et al., 2015; van Aart et al., 2015).

Insert Figure 1 here

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134 Internalization is often considered one of the most challenging aims in teaching, because not 135 all tasks or activities are intrinsically motivating (Deci et al., 1991), and yet may be important to 136 students. Helping students develop more internalized value and autonomous motivation for such 137 activities is thus an aim of instruction. SDT hypothesizes that support form basic psychological needs 138 enhances internalization. In the field of physical education, social agents (e.g., teacher and peers) vary 139 in terms of how much they support or thwart students' basic psychological need satisfaction. SDT 140 predicts that this directly influences students' need satisfaction and frustration, which in turn, predicts 141 how autonomous or controlled students become in classrooms (Koka, 2013, 2014; Tessier, Sarrazin, & 142 Ntoumanis, 2010; Van den Berghe, Cardon, Tallir, Kirk, & Haerens, 2016). Finally, more autonomous 143 forms of student motivation are associated with more desirable cognitive, behavioral, and affective 144 outcomes for students (Ntoumanis, 2001; Ntoumanis, Taylor, & Standage, 2010; Standage et al., 2005). 145 This sequence is illustrated in Figure 2 – adapted from Vallerand (1997), in which support from social 146 agents is depicted as a direct predictor of students' perception of need satisfaction, and an indirect 147 predictor of motivation and adaptive experiences and/or learning outcomes.

148 A needs supportive environment encompasses support for autonomy, competence, and 149 relatedness. In the education context, supporting students' autonomy means nurturing their inner 150 motivational resources by respecting their attitudes and suggestions (e.g., adopting the students' 151 perspective to do an activity), providing rationales to attribute meaningfulness to learning (e.g., explaining why a task is important and where/when it could be used), relying on non-controlling 152 153 language, providing opportunities for choice, displaying patience to allow students the time they need 154 for self-paced learning to occur, and acknowledging and accepting expressions of negative affect 155 (Reeve, 2009). For example, an experimental study of 1,158 physical education students by Cheon et 156 al. (2012) found that students' autonomous motivation, amotivation, classroom engagement, skill development, future intentions to exercise, and academic achievement improved for students whose 157 158 teachers were more supportive of their autonomy.

159 Competence support refers to the way the teacher organizes and delivers the activities. 160 Competence support is seen in SDT as supported by structure. When teachers provide clear expectations of the students (e.g., sticking to the rules they have set in the class), demonstrate consistent 161 162 contingencies for behavior (e.g., not acting differently regardless of students' performance on a task), 163 offer efficacy-relevant feedback and help (e.g., showing different ways for the students to solve a 164 problem), and monitor during the lesson (e.g., checking if students are ready before he/she goes on) 165 (Belmont, Skinner, Wellborn, & Connell, 1992). Within the physical education context, for example, an empirical study by Sanchez-Oliva, Sanchez-Miguel, Leo, Kinnafick, and García-Calvo (2014), with 166 167 1,692 Spanish students, found that competence support from the teacher predicted students' autonomous motivation, which in turn positively predicted students' enjoyment, perceived importance 168 169 of physical education, and intentions to further participate in out of school physical activity.

170 Relatedness support (i.e., involvement) includes teachers taking time to express enjoyment in 171 their interactions with students, showing affection (e.g., demonstrating that he/she cares about the 172 students), displaying attunement (e.g., teacher showing that he/she knows the students well), being 173 dependable (e.g., being there for the students when needed), and dedicating resources (e.g., spending 174 time and talking with the students). For example, an experimental study by Sparks, Lonsdale, Dimmock, 175 and Jackson (2017) found teacher relatedness support predicted students' enjoyment, confidence in 176 their teacher's ability, and their estimation of their peers' confidence in their ability.

177 Teachers may also engage in controlling behavior, where they determine what students should 178 do during the lesson without considering students' perspectives or input, rely on pressure-inducing 179 language, and pressure students to think, feel, and behave in a specific ways (Reeve, 2009). In the school 180 physical education context, research has found that perceptions of controlling teaching predicted 181 undesirable outcomes, such as poor quality student motivation, fear of failure, and less engagement 182 (Bartholomew et al., 2018; De Meyer et al., 2016; De Meyer et al., 2014; Haerens et al., 2015; Van den 183 184 Berghe et al., 2016).

Insert Figure 2 here

185 **Previous Reviews**

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186 Researchers have reviewed some of the evidence involving SDT constructs and related 187 consequences in the context of school physical education (e.g., Chatzisarantis, Hagger, Biddle, Smith, 188 & Wang, 2003; Chen, Chen, & Zhu, 2012; Ntoumanis & Standage, 2009; Van den Berghe, 189 Vansteenkiste, Cardon, Kirk, & Haerens, 2014). However, none of these reviews have applied a meta-190 analytic approach to examine tenets of the SDT-based motivational sequence model in physical 191 education (Ryan & Deci, 2017; Vallerand, 1997). For example, Ntoumanis and Standage's (2009) 192 review was narrative, rather than systematic, and Van den Berghe et al.'s (2014) systematic review did 193 not include a meta-analysis. Other reviews included meta-analyses, but focused on a relatively narrow 194 aspect of the model. For example, Chatzisarantis et al. (2003) examined the associations among 195 perceived competence, self-determined motivation, and intentions towards physical activity in the 196 exercise, sport, and physical education settings, while Chen et al. (2012) reviewed the association 197 between motivation and competence-based outcomes. Our review includes a systematic approach 198 designed to include all relevant literature and:

- 1. use meta-analysis to quantify the mean associations proposed in the motivational sequence model,
- 201 2. explore moderating factors associated with heterogeneity in effect sizes among existing 202 studies. 203
 - 3. test the motivational sequence model using path analysis, and
 - 4. identify promising avenues for intervention to improve students' experiences in physical education.

206 **Purpose and Hypotheses**

The overarching purpose of this review was to examine the evidence regarding the tenets of 207 208 SDT within the physical education context. To achieve this aim, we first explored the strength of each 209 of the associations proposed in the SDT-based model summarized in Figure 2 – these meta-analytic 210 findings are the critical components of this study. Then, we examined potential demographic 211 moderators of these associations (i.e., age, sex, country, culture - to test the SDT tenet that such 212 associations are expected to be universal). SDT claims that the need for autonomy is a universal need. 213 As such it should be related to positive functioning in all countries. However, culture may play a 214 moderating role in the way in which basic needs are met (or not met) and the types of mechanisms by 215 which they effect well-being. For example, Hofstede's (2001) classification of individualism and 216 collectivism highlights that individual needs and goals are valued more in individualistic-oriented 217 cultures, than it is in collectivistic-oriented societies. The differential influence of the relationship 218 between social context and autonomy perceptions has yet not been tested in any synthesis of the SDT-219 physical education-based literature. Next, we conducted moderation analyses to examine the influence 220 that methodological study characteristics (i.e., risk of bias) had on the effect sizes. We then examined 221 an illustrative model outlined in Figure 2 - which represents the SDT motivational sequence and 222 provides the best overview complexity of the theory. In this model, teacher support is hypothesized to 223 predict students' motivation and functioning (i.e., needs satisfaction, motivation, and outcomes).

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Methods

Reporting in this review aligns with the Preferred Reporting Items for Systematic Reviews and
 Meta-analyses (PRISMA) statement (Moher, Liberati, Tetzlaff, & Altman, 2009).

227 Eligibility Criteria

228 Our review is limited to studies meeting the following criteria: (a) written in English and 229 published in peer-reviewed journals before January 2017; (b) included a sample of children or adolescents; (c) conducted in the physical education lesson context; (d) included quantitative 230 231 assessment and statistical analysis of the relationship between at least two of the following constructs 232 outlined in SDT: needs support (e.g., teacher support, peer support); needs satisfaction (e.g., autonomy, 233 competence, relatedness); motivation (at least one form of motivation outlined in SDT); or cognitive, 234 affective, or behavioral outcome related to physical education (e.g., experiences during physical 235 education lessons or physical education learning outcomes). Qualitative studies that were identified in 236 the search were kept aside for a separate review that is not reported here.

237 Information Sources

Studies were identified through four electronic databases PsychINFO, PubMed, Scopus, and
 SPORTDiscus. Potential studies were searched by using different combinations of two groups of
 keywords.

241 Search

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In January 2017, we conducted systematic searches of titles and abstracts to identify studies
that related to at least one of the following three topics:
a) Social environment in physical education ("need* support" or "autonomy support" or

- a) Social environment in physical education ("need* support" or "autonomy support" or "competence support" or "relatedness support" or "structure" or "involvement" or "control* teach*" or "motivational climate" or "motivational atmosphere" or "need* frustrat*" or "need* thwart*" or "hostil*" or "chaos" or "impersonal)" AND "physical education";
 - b) Needs satisfaction in physical education ("need* satisf*" or "need* fulfil*" or "autonomy" or "competence" or "relatedness" or "belonging*") AND "physical education";
 - c) Motivation in physical education ("self-determin*" or "intrinsic motivation" or "intrinsic interest" or "extrinsic motivation" or "autonomous motivation" or "controlled motivation" or "amotivation" or "amotivation" or "perceived locus of causality") AND "physical education".

254 Study Selection

The screening process began after the deletion of duplicate studies identified in the initial search. The titles and abstracts were independently screened for eligibility by three researchers, DV, RC and TH, with two researchers screening each record. Three researchers, DV, KO and TH, carried out the full-text review of the potentially eligible studies. Once again, two researchers independently reviewed each article. We included a fourth researcher (CL) to discuss any discrepancies regarding inclusion until consensus was reached (see Figure 3).

261 Data Collection Process

The first author extracted all the data, which were independently checked by four researchers (TH and GA each completed 70% of the checking process, and JL and DA verified the remaining 30%). Discrepancies between the data extraction table and the original article were discussed and then resolved by further review by the first author. Extracted data included descriptive study information (e.g., publication year, study design, sample size, school stage, age range, mean and standard deviation, and country of publication), measures of need support, measures of need satisfaction, measures of behavioral regulations, and measures of physical education outcomes, and the results of statisticalanalysis that examined the relations between two variables (as illustrated in Figure 2).

For our meta-analyses, we followed Cheung's (2014) recommendation and extracted relationships among scores derived from measures at baseline. This strategy allowed us to extract results from different study designs, including cross-sectional, longitudinal, and experimental and then combine them in the meta-analyses (see for example, Owen et al., 2016; Tod & Edwards, 2015; White et al., 2017). We also extracted coefficients from experimental studies so that we could compare these relationships with coefficients derived from cross-sectional studies.

276 Risk of Bias

Risk of bias was assessed using a tool that was based on items from two checklists: the 277 278 Strengthening the Reporting of Observational Studies in Epidemiology (STROBE: Von Elm et al., 279 2014) guide and the CONsolidated Standards of Reporting Trials (CONSORT) statement. Items 280 included: a) description of eligibility criteria and/or sufficient description of the sample such that the 281 population from which it was drawn can be determined; b) sampling procedures adequately described 282 and appropriate (i.e., likely to generate a representative sample of the population described in criterion 283 a); c) proportion (0 to 1) of variables that were measured using assessment tools with supportive 284 reliability and validity evidence reported in the article); d) power calculation reported and study adequately powered to detect hypothesized relationships; and e) analyses adjusted for covariates. Kappa 285 286 statistic (K) was employed to test interrater reliability of percentage agreement (Cohen, 1968). 287 Discrepancies were discussed until 100% consensus was reached. Studies were then classified with 288 either low risk of bias (>50%) or high risk of bias (<50%).

289 Summary Measures and Synthesis of Results

290 Commonly used summary measures in the retrieved studies included the correlation coefficient 291 (r), standardized regression analysis coefficient (β), and standardized mean difference (Cohen's d). All 292 results were first converted into a correlation effect size (r). Rosenthal's (1994) formula was used to 293 convert Cohen's d to r, while Peterson and Brown's (2005) formula allowed conversion from β to r. 294 Although the combination of beta coefficients with different metrics (e.g., correlations) may be a 295 limitation – as the number of covariates accounted for in multivariate analysis generally vary across 296 studies – a beta coefficient can still be converted to r if it ranges from -.50 to .50 (Hunter & Schmidt, 297 2004: Peterson & Brown, 2005; Bowman, 2012). We requested from the authors the correlations where 298 they were not reported in the original paper. We were successful in many cases, and only worked with 299 beta coefficients when we did not receive a response from the authors. Less than 0.4% effect sizes fell 300 outside the required range (-.50 to .50) and these correlations were, therefore, excluded from the main 301 analyses. We conducted sensitivity analyses to test whether the inclusion of these extreme effect sizes 302 (by rounding extreme values up to -.50 or down to .50) would affect the results, and no important 303 differences were found (contact the corresponding author for details). We then corrected the effect sizes 304 for attenuation (Charles, 2005) by using reported internal consistency for each measure (e.g., 305 Cronbach's alpha). If not reported, .70 was used as an estimate of reliability measure. Next, given that 306 the variance depends strongly on the correlation (Borenstein, 2009), we z-transformed the adjusted 307 effect sizes for analysis and reversed them back into r for presentation. We defined effect sizes as > 0.1308 (weak), > 0.3 (moderate), and > 0.5 (strong) (Cohen, 1988).

309 Statistical Analysis

310 Meta-analysis. We conducted main analyses and moderator analyses using a multilevel 311 structural equation modelling (SEM) approach (Cheung, 2014; Viswesvaran & Ones, 1995). The 312 multilevel SEM approach handles assumption of dependence among the effect sizes in cases where 313 multiple effect sizes are reported within a single study. In this review, the number of effect sizes within 314 each paper ranged from 1 to 273. Using the meta3 function of the MetaSEM package (Cheung, 2015) 315 in R version 3.3.2 (R Core Team, 2016), we employed three-level (effect size, within-study individual 316 differences, and between-study individual differences) random-effects models to meta-analyze 317 correlations in this study (Table 1). This technique allowed us to explore heterogeneity at the withinstudy level (Level 2) and between-study level (Level 3). We calculated heterogeneity in the effect sizes 318 319 using the Q statistic, which represents the weighted sum of squared deviations. We also considered the 320 I^2 statistic, which shows the proportion of the observed variance that reflects true difference in the effect 321 sizes (Borenstein, 2009), to explore the proportion of variability in effect sizes due to true heterogeneity. 322 For each effect size, we calculated 95% likelihood-based confidence intervals (CIs) (Cheung, 2014).

Based on Higgins' et al (2003) recommendations, when I^2 values were above .25, we considered effect 323 324 sizes to be moderately (between .25 and .50) or highly (above .75) heterogeneous, and we investigated potential moderators that could influence these associations. We carried out moderation analysis on 325 326 meta-analyzed correlations when there were at least two effect sizes in each subgroup (Borenstein & 327 Higgins, 2013). We calculated the proportion of variance (R^2) in effect sizes that could be attributed to 328 the inclusion of the moderator variable, as well the heterogeneity in effect sizes in each group (I^2) . 329 Potential moderators included demographic variables, such as age (children, mean age <10; 330 preadolescents 10.1 < to 14; adolescents, mean age >14), country (due to the large number of different 331 countries we decided to moderate by only the most popular countries, UK and USA), culture (individualistic or collectivistic; Hofstede, 2001) and sex, as well as methodological variables, such as 332 333 risk of bias within studies (see Table 3).

334 Path Analysis. After completing the meta-analyses to determine the strength of relations 335 between variables, we tested an illustrative structural model representing the motivational sequence 336 outlined in SDT (i.e., Figure 2, need support \rightarrow need satisfaction \rightarrow motivation \rightarrow outcomes). We 337 created a correlation matrix using meta-analyzed correlations from the 3-level models described above. 338 We used this correlation matrix input to fit the path model. As noted previously, these meta-analyzed 339 correlations were based on data from cross-sectional studies or from the baseline correlations in longitudinal or experimental studies. We were not able to test the full hypothesized path model using 340 341 longitudinal or experimental data due to the lack of matrix coverage in the data used to run the path 342 analysis. For the data we extracted, five of the 66 correlations did not have data from longitudinal or 343 experimental studies and a further four associations only had data from one longitudinal study.

For the path model, we estimated total, direct, and indirect effects via a structural equation modelling approach using the Lavaan package (Rosseel, 2012) in R (Cheung, 2014), with standard errors given via the delta method (Dowd, Greene, & Norton, 2014). Following Viswesvaran and Ones (1995) recommendation for calculating uncertainty estimates, we used the harmonic mean of the sample sizes across the different cells in the meta-analyzed correlation matrix.

The illustrative model's exogenous variables were the different types of support the physical education teacher can provide. In order to meaningfully compare autonomy support with other aspects of needs support, we only examined those studies that included all three types of needs support, plus studies in which the autonomy support measure was specifically designed to measure autonomy support only and not competence or relatedness.

354 Because very few studies have looked at peer support, we decided not to include this construct 355 in the model, even though it may be a source of support in physical education that is distinct from teacher influences (González-Cutre, Ferriz, et al., 2014; González-Cutre, Sicilia, Beas-Jiménez, & 356 357 Hagger, 2014; Koka, 2014). Next in the model, we analyzed the needs for autonomy, competence, and 358 relatedness separately. Then, we combined intrinsic motivation, integrated and identified regulation 359 into autonomous motivation for three reasons: (a) in order to have a parsimonious model that could be 360 feasibly estimated; (b) 32 studies (12.1%) included in our review combined the autonomous motivation constructs - we would not have been able to include these studies' data in our hypothesized model if we 361 362 did not combine these motives across all studies, because these studies did not provide information that enabled us to test each regulation separately; and (c) due to the strong associations found among these 363 364 motives (intrinsic motivation and integrated regulation r = .88, intrinsic motivation and identified regulation r = .88, integrated regulation and identified regulation r = .84; see Table 1). This decision 365 366 was also supported by the findings from Howard, Gagné, and Bureau's (2017) meta-analysis, in which 367 autonomous motivation constructs were more strongly inter-correlated than controlled motives. We 368 treated introjected regulation, external regulation and amotivation as distinct constructs for analysis 369 because their associations were not as strong (r = .530 to r = .576) as the associations among intrinsic motivation, integrated regulation and identified regulation. We examined the type of outcome as 370 adaptive and maladaptive rather than affective, behavioral, and cognitive. The reason for this was that 371 372 the associations involving this latter group of constructs were relatively similar. Due to the large number of different adaptive and maladaptive outcomes found in this study and the complexity of the model 373 374 tested in this meta-analysis, it was not feasible to present results associated with each outcome. Instead, 375 we present meta-analyzed correlations for the nine most frequently examined outcome variables (three 376 affective, three cognitive and three behavioral). For greater detail on the meta-analyses involving each 377 of the outcomes, please see the full dataset in supplemental material. We focused our analysis of indirect effects on the influence teachers could have on other variables. We made this decision because this
social agent represents a construct that could most directly be influenced in an intervention, as opposed
to needs satisfaction and motivation which would be influenced indirectly.

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Results

382 Study Selection

After duplicates were removed, 9,555 records remained for screening, of which 605 were
retained for full-text review. Of these, 265 articles met the criteria to be included in the review (see
Appendix). We tried to contact the authors of the 13 articles that did not provide sufficient information
to be included in the meta-analyses, but received no response (see Figure 3).

387 Study Characteristics

388 A table with all the data extracted from each study is available through Open Science 389 Framework (https://tinyurl.com/y8vehmsr). Most studies employed a cross-sectional design (k = 159), 390 followed by experimental (k = 62) and longitudinal (k = 44) designs. Of these studies, 64.8% provided 391 data from samples in Europe, 22.8% from North America, 8.2% from Asia, and 3.7% from Australia 392 and Oceania. No studies from South America or Africa were identified. In total, data from 133,958 393 students aged 13.92 years (SD = 1.64 years) were included (see supplementary material for detailed 394 study characteristics), yielding 6,570 effect sizes.

395 Risk of Bias Within Studies

396 Regarding risk of bias within individual studies, the kappa coefficient (K = 0.81) indicated **397** strong initial agreement between the two raters (Cohen, 1968; McHugh, 2012). Nearly all studies **398** (96.25%) exhibited low risk of bias. See supplementary material for details.

399 Synthesis of Results

400 Most research within physical education has involved older children and adolescents, with less
 401 attention paid to young children. As can be seen in Table 1, behavioral and affective outcomes of student
 402 participation in physical education have been studied extensively; cognitive outcomes have been
 403 examined less frequently.

Most of the evidence regarding social context and SDT constructs examined teachers' provision
 of autonomy support. There were almost three times more effect sizes relating to teacher autonomy
 support, than competence support, relatedness support or controlling behavior. Relatively few studies
 have looked at the association between peer support and constructs outlined in SDT (see Table 1).

In terms of the associations involving need satisfaction and motivation variables, competence has received substantially more empirical attention than autonomy or relatedness. Finally, the evidence involving the different forms of behavior regulations and outcomes in physical education shows that intrinsic motivation has been studied most extensively, followed by amotivation, external regulation, identified regulation and introjected regulation. The most autonomous form of extrinsic motivation, integrated regulation, has rarely been studied in this context (see Table 1).

414 Insert Figure 3 here

415 Meta-analyses. Table 1 shows the 319 meta-analytic correlations that emerged from the 416 dataset, of which 57 were strong, 127 were moderate, 124 were weak, and 11 correlations were very weak (<.1). Associations involving teachers' need support were mostly in the expected direction. The 417 418 meta-analyzed correlations between needs support factors were strong – all above .75. It is important 419 to note that 'autonomy support' has often been conceptualized and measured as an omnibus term for 420 'needs support' (which could include competence and relatedness items). As a result, comparisons 421 between 'teacher autonomy support' and other aspects of needs support can be difficult to make. Teacher's relative need support (i.e., a combination of autonomy, competence and relatedness support, 422 423 and controlling behavior) had a strong positive association with autonomy, and a moderate positive 424 association with relatedness, and competence. While the meta-analyzed correlation between teacher's 425 relative need support and autonomous motivation was positive, teacher's relative need support 426 correlated negatively with external regulation and amotivation.

427 Although the number of studies investigating peer support was small (k = 5), the associations 428 involving peer support followed a largely similar pattern to the correlations involving teacher's relative 429 need support. Peer support was negatively correlated with amotivation and maladaptive outcomes, and 430 positively associated with all other variables. Notably, these positive meta-analyzed correlations 431 included controlled forms of motivation – introjected regulation and external regulation. The meta-analyzed correlations between social context factors and outcomes in physical
education ranged from -.35 to .39. Both teacher's relative need support and peer support in physical
education were positively associated with adaptive outcomes, and negatively associated with
maladaptive outcomes.

Autonomy, competence, and relatedness were strongly correlated with autonomous motivation,
 and not so strongly, but still positively correlated with introjected regulation. Weak negative meta analyzed correlations were found between autonomy, competence, and relatedness and external
 regulation. Amotivation had moderate negative correlations with needs satisfaction.

Autonomous motivation was positively correlated with adaptive outcomes, and negatively correlated with maladaptive outcomes. External regulation had a weak negative association with adaptive outcomes and a weak-to-moderate positive association with maladaptive outcomes. In contrast, amotivation had a moderate relationship with adaptive outcomes, and a strong positive relationship with maladaptive outcomes. Introjected regulation was positively correlated with both adaptive and maladaptive outcomes, a finding expectable given its place as a partial internalization, still entailing inner conflict.

447 Inter-factor meta-analyzed correlations among motivation constructs supported the presence of 448 the ordering of self-regulatory motives proposed by SDT. We found strong meta-analyzed correlations 449 between intrinsic motivation and integrated regulation, intrinsic motivation and identified regulations, 450 and between integrated regulation and identified regulation. In contrast, relatively weaker meta-451 analyzed correlations among introjected regulation, external regulation, and amotivation indicated these 452 constructs were more distant from one another on a continuum of motivation.

453 Insert Table 1 here

458

Table 2 compares the results of three-level meta-analyses using data from cross-sectional and experimental studies that examined the relationship between teacher behavior and SDT variables and student outcomes. The pattern of associations from cross-sectional and experimental studies were similar.

Insert Table 2 here

459 Moderator Analyses. Moderator analyses were conducted on the 66 associations in the path 460 model (Figure 4) to investigate whether study characteristics influenced these effects. Significant 461 moderator effects at both within-study (Level 2) and between-study (Level 3) levels are presented in 462 Table 3. Results of all moderator analyses are available in the supplementary material. Significant 463 moderation effects were found in seven of the 66 associations.

464 Sex. Sex accounted for a large portion of the within-study (Level 2) heterogeneity in studies that investigated the association between autonomy and competence ($R^2 = .57$, p < .001). Effect sizes 465 466 were stronger in studies that reported combined results for boys and girls (r = .67, 95% CI [.60, 73]), 467 than they were in studies reporting them separately for boys (r = .28, 95% CI [-.03, .54]) or girls (r = .28, 95% CI [-.03, .54]) 468 .38, 95% CI [.26, .50]). Sex also explained heterogeneity at the between-study level associations 469 between introjected regulation and amotivation, and between introjected regulation and adaptive 470 outcomes. Stronger effect sizes were found in studies that reported combined results for boys and girls 471 than separate sexes between introjected regulation and amotivation. In contrast, effect sizes were found 472 to be stronger for boys in the association between introjected regulation and adaptive outcomes than 473 they were in studies that reported combined results for boys and girls, or girls only.

474 *Age.* In studies that investigated the association between introjected regulation and maladaptive 475 outcomes, age explained 71% (p = .035) of the heterogeneity in effect sizes at the between-study level 476 (Level 3). The effect sizes were stronger for preadolescents (r = .28, 95% CI [.11, .43]) than they were 477 for adolescents (r = .04, 95% CI [-.09, .16]).

478 *Culture.* Culture accounted for significant and large portions of the heterogeneity in effect sizes 479 at the between-study level (Level 3) in six associations (see Table 3). Effect sizes were stronger for 480 individualistic cultures regarding the negative relationships between: (a) autonomy and external 481 regulation, and (b) relatedness and external regulation. Compared with individualistic-oriented countries, we found stronger positive effect sizes in collectivistic-oriented countries for the associations 482 483 between: (a) peer support and adaptive outcomes, (b) autonomy and competence, (c) introjected 484 regulation and external regulation, and (d) introjected regulation and maladaptive outcomes. The 485 analysis pertaining to introjected regulation and maladaptive outcomes revealed that introjected 486 regulation was not associated with maladaptive outcomes for students from individualistic countries,

- 487 whereas there was a significant positive relationship between introjection and maladaptive outcomes (r 488 = .239) in collectivistic countries.
- 489 Country. Country did not moderate any of the associations investigated.
- 490 Insert Table 3 here 491
 - **Risk of Bias Across Studies**

492 Egger's tests revealed non-significant results, which indicated low asymmetry and suggested 493 low risk of publication bias across the studies. For example, studies that examined the association 494 between perceived competence and external regulation had a non-significant Egger's test (t = 0.8841, 495 p = .381; please contact authors for details on other test results).

496 **Additional Analysis**

497 Path Analysis. We used 66 of the meta-analyzed correlations from Table 1 to create an input matrix (Table 4) for path analyses. The illustrative model tested teacher's need support as predictors of 498 499 students' outcomes in physical education, with students' needs satisfaction and motivation as mediators 500 of this process. Given that moderators only influenced nine out of 66 possible associations, and these 501 effects were not consistent across associations, we decided to test a single path model (i.e., we did not 502 test separate models divided according to levels of the moderators).

- 503 Among the different types of support from the physical education teacher, autonomy support 504 was found to be a stronger predictor of autonomy ($\beta = .50$), while competence and relatedness were 505 strongly predicted by competence support ($\beta = .57$) and relatedness support ($\beta = .58$), respectively.
- 506 Direct paths from needs satisfaction to motivation variables were all significant (p < .001). 507 Among the needs satisfaction constructs, competence was the strongest predictor of both autonomous 508 motivation ($\beta = .23$) and amotivation ($\beta = -.34$). Autonomy was the strongest predictor of introjected 509 regulation ($\beta = .39$) and relatedness was the strongest predictor of external regulation ($\beta = .09$).
- 510 There was evidence of an indirect effect of competence support on adaptive outcomes (indirect 511 effect, $\beta = .41$), but little evidence of an indirect effect on maladaptive outcomes (indirect effect, $\beta = -$ 512 .15). As seen in Table 5, the proportion of the total effect that was indirect (i.e., indirect effect/total 513 effect) in these associations through the hypothesized mediators (needs satisfaction and motivation) 514 was very low. The indirect proportion of overall effect for the association between competence support 515 and adaptive outcomes was 54%. For competence support and maladaptive outcomes this proportion 516 was 49%. On the other hand, there were substantial indirect effects between teacher relatedness support 517 and adaptive outcomes ($\beta = .10, 87\%$ of total effect) and maladaptive outcomes ($\beta = -.16, 44\%$ of total 518 effect).
- 519 Insert Table 4 here
- 520 Insert Figure 4 here
- 521 Insert Table 5 here 522

Discussion

523 **Meta-Analyses and Path Analysis**

524 **Discussion of main findings**. This review presents a meta-analytic synthesis of the evidence 525 regarding the application of SDT in physical education. Overall, the patterns of correlations align with 526 theoretical postulates (Deci & Ryan, 1985; Ryan & Deci, 2017; Vallerand, 1997). SDT proposes that social environments can affect students' perceptions of psychological needs satisfaction. The evidence 527 528 supported this postulate, yet also revealed that teachers and peers likely have differential impact on 529 these needs. Indeed, meta-analyzed correlations indicated that, compared with peers, perceived teacher 530 support appears more beneficial for autonomy and competence, while perceived peer and teacher 531 support were similarly associated with relatedness. The very uneven number of studies involving 532 teachers and peers (see Table 4) could partially explain this finding. Another possibility would be that 533 the teacher is in control, so it is not surprising that autonomy for physical education activities is 534 primarily influenced by teachers. Also, feedback comes from the teachers mainly, not peers, hence the effect from teachers on competence (e.g., Cheon & Reeve, 2013; Koka, 2014; Zhang, Solmon, Kosma, 535 536 Carson, & Gu, 2011). Compared with autonomy and competence, relatedness is perhaps most 537 influenced by peers because they interact with their peers throughout the day, not just during classroom 538 time.

539 The findings in this study largely supported the existence of a continuum of self-regulation 540 motives in physical education. Students appear, however, to have some difficulty in differentiating 541 between autonomous forms of motivation in physical education (i.e., intrinsic motivation, integrated 542 regulation, and identified regulation), as demonstrated by the strong inter-factor correlations. With 543 regards to the different forms of motivation proposed by SDT, one has to consider, that intrinsic 544 motivation and identified regulation can often not be empirically distinguished from each other. In 545 addition, some adolescents may not differentiate intrinsic motivation (i.e., what they enjoy) and 546 identified regulation (i.e., what they value) (Lonsdale, Sabiston, Taylor, & Ntoumanis, 2011). However, 547 introjected regulation and external regulation, which are often combined into controlled motivation 548 (Aelterman, Vansteenkiste, Soenens, & Haerens, 2016; De Meester et al., 2016; De Meyer et al., 2016; 549 Gairns, Whipp, & Jackson, 2015), and amotivation, were all found to be distinct constructs. The simplex 550 structure of different self-regulations has been tested in a recent meta-analysis by Howard et al. (2017), 551 which showed results similar to ours across different domains, such as work, sport, exercise, education, 552 and physical education. The proximity of autonomous forms of regulation, as well as the distance among introjected regulation, external regulation, and amotivation has also been confirmed in a meta-553 554 analysis in the health domain (Ng et al., 2012), and in other areas of education such mathematics (e.g., 555 Brandenberger, Hagenauer, & Hascher, 2018; Lohbeck, 2018), science (e.g., Lavigne, Vallerand, & 556 Miquelon, 2007; Salmi & Thuneberg, 2018), and physics (e.g., Byman, Lavonen, Juuti, & Meisalo, 557 2012).

558 Introjected regulation, a self-regulatory way of engaging in behaviors by feelings of internal 559 pressure and obligation, correlated with other variables in ways predicted by the theory, in that its effects 560 lay somewhere between the relatively positive effects of intrinsic motivation and identification, and the 561 largely null or negative effects of external regulation and amotivation. Within SDT, introjection 562 represents a "partial or incomplete" internalization that, on the positive side can foster behavioral 563 compliance, as well as "certain forms of self-esteem, satisfaction, and feelings of pride about oneself" 564 (Ryan & Deci, 2017, p. 185). Yet, because of its controlling elements it can also foster anxieties and 565 self-criticism that negatively affect motivation, persistence and wellness. In this review, introjected 566 regulation was associated with both adaptive and maladaptive outcomes in physical education. In 567 particular, introjection was positively associated with need satisfaction, suggesting that this partial 568 internalization is facilitated by support. Interesting too was that introjection was positively correlated 569 with both teacher autonomy support and teacher control, suggesting that both elements may contribute 570 to this type of motivation.

571 Positive and negative correlations have been found between introjected regulation and SDT 572 constructs, as well as different types of outcomes. These variable patterns of relationships have been 573 found in the exercise (Gillison, Osborn, Standage, & Skevington, 2009), education (Can, 2015), public 574 health (Verloigne et al., 2011), work (Slemp, Kern, Patrick & Ryan, 2018) and sport (Pelletier, Fortier, 575 Vallerand, & Brière, 2001) settings. Some research has found introjected regulation to be associated 576 with both adaptive and maladaptive outcomes in other academic domains, such as mathematics 577 (Brandenberger et al., 2018; Lohbeck, 2018) and science (Lavigne et al., 2007; Salmi & Thuneberg, 578 2018), for example. Introjected regulation can enhance behavioral outcomes, especially in the short 579 term (e.g., promoting effort on a task). Yet, as a partial internalization, introjection may not sustain 580 behavior over time. For instance, Pelletier et al. (2001) found positive correlations of introjection with 581 sport persistence at baseline, but these effects disappeared over time, whereas the effects of autonomous motives on persistence remained positive over time. Because our review is based on cross-sectional 582 583 data, it does not address the potential for such maladaptive long-term outcomes.

584 Moderator analysis revealed substantial heterogeneity in some of the associations investigated; 585 some of this heterogeneity could be explained by study characteristics. Sex, for example, moderated 586 three out of 66 associations in this study - autonomy and competence, introjected regulation and 587 amotivation, and introjected regulation and adaptive outcomes. Unfortunately, there were a small 588 number of studies in which data were analyzed separately for boys and girls (e.g., only 4 studies broke 589 down by sex the relationship between autonomy and competence) precludes further exploration of this 590 finding. Future physical education-based research should consider providing separate data on boys and 591 girls, in order for sex differences to be investigated.

592 Age was found to be a moderator of the association between introjected regulation and 593 maladaptive outcomes in one of 66 associations. Results suggested that introjected reasons, such as to 594 avoid punishment from the teacher or to avoid a sense of guilt, lead to undesired outcomes in students 595 aged 10-14, but not for older adolescents. Indeed, this correlation was seven times stronger for 596 preadolescents (r = .28) than it was for adolescents (r = .04). These results suggest that preadolescents

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and adolescents may not experience guilt/shame the same way. Research in the educational context examining academic motivation has shown a decrease in students' introjected regulation as a function of age (Gillet, Vallerand, & Lafrenière, 2012; Otis, Grouzet, & Pelletier, 2005). Ryan and Deci (2000b) pointed out that externally motivated behaviors (e.g., introjected regulated) are often performed in order to satisfy significant others (parents, teacher). Our finding could, therefore, support previous research indicating that preadolescents are more affected by significant other's influence (parents, teacher) than adolescents (Chan, Lonsdale, & Fung, 2012; Horn & Weiss, 1991; McKiddie & Maynard, 1997).

604 Lastly, the inclusion of Hofstede's classification of individualistic and collectivistic cultures 605 provided insights to the SDT tenet of cross-cultural invariance. In individualistic cultures, individuals' needs are seen as more important than a group's needs. In the education context, it could therefore be 606 607 argued that students from individualistic or collectivist countries could experience needs support from 608 the teacher differently (Awang-Hashim, Thaliah, & Kaur, 2017). Yet in our review, culture was not 609 found to moderate any relationship involving perceptions of teacher support. Thus, it appears that students from across cultures experience similar benefits from need supportive teaching. Also, filial 610 611 piety feelings (e.g., endorsing parents' values) found in collectivistic-oriented countries could also explain why introjected regulation might be different for different cultures, as in collectivistic-oriented 612 613 cultures individuals are likely to engage in behaviors because they think they should, and not because they want to (Hui, Sun, Chow, & Chu, 2011; Tam, 2016). In our review, the significant positive 614 615 relationship found between introjected regulation and maladaptive outcomes indicated that introjected 616 regulation likely has negative consequences for collectivistic students, but perhaps less so for 617 individualistic cultures. Sources of these different effects warrant further study.

618 **Overall Implications**

619 With only a few exceptions discussed previously, the results of our meta-analysis align with 620 the motivational processes proposed by SDT in the school physical education setting. Most of the effect 621 sizes were moderate and in the expected direction. Autonomous motivation and amotivation are the types of motivation that have the strongest associations with students' outcomes in physical education. 622 623 Autonomously motivated students are more likely to have more positive experiences in physical 624 education, whereas amotivated students are more likely to report negative experiences. Teachers 625 appeared to have greater influence on students' perceptions of autonomy and competence, whereas 626 peers appear to have more impact on feelings of relatedness. Among the basic need satisfactions, 627 competence satisfaction was most strongly associated with students' self-determined motivation, 628 suggesting that a sense of efficacy in physical education is particularly associated with more willing 629 participation. In sum, support from a physical education teacher appears to motivate students to 630 experience adaptive outcomes through perceptions of autonomy and competence, while feelings of 631 relatedness are more strongly associated with peer support.

632 In terms of applied implications, this review could guide educators in their selection of 633 classroom strategies to employ in order to effectively motivate students and enhance student outcomes. 634 We sought to identify what teacher and peer focused interventions should focus on in order to foster an 635 environment where students' needs are supported. The effect of supportive teaching on autonomy and 636 competence highlights that these two needs can be influenced by certain strategies adopted by the teacher. According to Reeve (2009), students will experience autonomy when they perceive an 637 638 environment where they can perform tasks without feeling pressured, where the teacher welcomes 639 students' thoughts, feelings and actions, rely on non-controlling language, and where exploratory 640 rationale is given so the content is seen as meaningful to their lives (How, Whipp, Dimmock, & Jackson, 641 2013; Lonsdale et al., 2013; Perlman, 2011; Taylor & Ntoumanis, 2007). In addition, a number of 642 strategies can be implemented in order to support student's need for competence, such as planning and organizing activities according to the students' physical skills level, making it clear what is expected, 643 and praising and encouraging individual effort, instead of collective efforts (Almolda-Tomás et al., 644 645 2014; Taylor & Ntoumanis, 2007; Tessier et al., 2010).

646 We found good support for the process model suggested by Ryan and Deci (2000). The 647 question is, thus, whether the variables at the beginning of this process model (i.e., teacher behaviors) 648 are amenable to intervention. Su and Reeve's (2011) meta-analysis indicated that teachers' needs 649 support increased following intervention (d = .63). To examine intervention effectiveness in studies 650 from our review, we extracted 23 effect sizes from 16 intervention studies that attempted to modify 651 teacher support. We found interventions to be effective at increasing teacher needs support (d = .63; p 652 < .001) This is a moderate to large effect size and suggests training interventions can enhance teacher653 behaviors.

Peers likely influence each other's sense of relatedness in physical education . Although the 654 655 literature on how students can support each other's needs in physical education is limited - see Wallhead and Ntoumanis (2004) for an exception, there has been an increase in implementing peer-focused 656 657 methods in other areas of education (e.g., Lee & Lim, 2012; Slavin, 1996; Thalluri, Flaherty, & 658 Shepherd, 2014; Topping & Ehly, 2001, Nathan et al., 2017). Some of the strategies proposed by the 659 different methods involve both same level and higher-level students tutoring (Thalluri et al., 2014; 660 Topping & Bryce, 2004; Topping, Peter, Stephen, & Whale, 2004), one-to-one (i.e., mentoring) and group situations (e.g., Nixon & Topping, 2001), and cooperative learning (Slavin, 1990, 1996). 661 662 Teachers can also influence peer relatedness by organizing activities in small groups, in order to make 663 peer support more prominent. Indeed, simple strategies that are easy to be applied, such as modified 664 and small-sided games are features of two pedagogical models – Teaching Games for Understanding (TGfU; Bunker & Thorpe, 1982; Leary, 2014), and Sport Education (Siedentop, 1998) - that have been 665 666 shown to have positive impact on students' motivation. The main idea behind such strategies is the promotion of a supportive learning environment through social interactions among students. Perhaps 667 668 having peer support as a formalized intervention component would also lead to the satisfaction of other 669 students' needs in physical education, other than relatedness alone, in part by directing peer interactions 670 toward activities consistent with physical education goals.

671 Strengths and Limitations

672 The key strength of this review is that it is first to meta-analyze the large body of SDT research 673 within the physical education context. Apart from examining the strength and direction of the 674 associations proposed by the theory in physical education, we used path analysis to test a full model of 675 the motivational sequence (see Figure 2). The number of studies included, the number of effect sizes 676 analyzed, and the total sample size are strengths of this review. This study, however, also presents the 677 following limitations: The review is limited to peer-reviewed studies written in English, which could 678 omit some important contributions published in other languages. Most of the studies in this review 679 employed self-report measures, which can be a limitation due to such instruments measuring self-680 attributions and not objective needs or motivation. Recent advancements have been made in this area 681 by measuring implicit motives (Lang, 2014; McClelland, Koestner, & Weinberger, 1989; Sheldon & 682 Schüler, 2011) that are less subject to perceptions of social desirability (Boyle, 2015; Edwards, 1957; 683 Miller et al., 2015). Also, we did not complete moderator analysis for all 319 relationships presented in 684 Table 1. Instead, we investigated potential moderators on the 66 associations included in the path model we tested. Finally, we did not have matrix coverage to test our path model using longitudinal or 685 686 experimental data.

687 Future Directions

688 This systematic review raises a number of opportunities for future research. Although there are many elements involved in supporting students' psychological needs, much of the existing evidence 689 690 comes from the provision of autonomy support from the teacher (see Table 1). Relatively few SDT-691 based studies have investigated the impact of competence (i.e., structure) and relatedness (i.e., 692 involvement; Sparks et al., 2017) support from the teacher in physical education settings, and more 693 research is needed to understand how these teacher behaviors influence these student experiences. Our 694 review also found a relative lack of objective measures of social support in the literature, and thus more 695 research is needed to understand how observable teacher and peer behaviors influence motivational 696 processes and outcomes. Also, we found that peer support has been rarely studied in physical education, 697 and thus represents another promising area for future interventions.

Most research has focused on older children and adolescents. Additional research is needed
 with young children (<10 years of age) to better understand how the SDT model applies to physical
 education involving young children.

There is also a dearth of research on integrated regulation. While this form of regulation may not be relevant in younger students, older adolescents whose sense of self is more developed, are more likely to be able to express the extent to which their behavior is a good representation of their own personal values and beliefs (Deci et al., 1991). In these students, it may be important to investigate determinants and outcomes of integrated regulation in school physical education in order to understand how this form of motivation influences students' experiences. Give the wide scope of our review and the large number of meta-analyzed correlations, we did
 not test for the moderating role that different operationalizations of SDT may play. Future researchers
 could investigate the influence of the different SDT measures when examining specific relationships
 outlined in the theory.

Finally, we found that behavioral and affective outcomes have been extensively studied in physical education, but little attention has been paid to cognitive outcomes. Future research should also focus on how self-determined behaviors influence cognitive variables, such as the use of learning strategies, metacognitive processes (i.e., knowledge about and regulation of one's cognition), and inclass concentration.

716 Conclusion

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717 The overarching aim of this study was to synthesize results from studies underpinned by self-718 determination theory conducted in the school physical education context. Results of this meta-analytic 719 review support SDT's theoretical postulates, suggesting that it provides a useful theoretical framework 720 to understand motivational process in physical education, and a basis for effective interventions 721 designed to improve in-class experiences as well as physical education learning outcomes.

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Figure 1. The Self-determination continuum



Figure 2. Model of motivational sequence in the context of school physical education, adapted from Vallerand (1997)



Figure 3. Flow diagram of literature search results


Figure 4. Motivational sequence as proposed by SDT applied to physical education (harmonic mean of the sample sizes, N = 18,947)

Note. All paths are significantly different from zero, p < 0.001.

Meta-Analyzed Correlations Involving Teacher Support, Peer Support, Needs Satisfaction, Motivation, and Student Outcomes in the Physical Education Context

	Teacher Autonomy Support	Teacher Competence Support	Teacher Relatedness Support	Teacher Controlling Behavior	Teachers' Relative Need Support	Peer Support	Autonomy	Competence	Relatedness	Total Needs Satisfaction	Total Needs Frustration
Teacher Competence Support	.76(12)										
Teacher Relatedness Support	.82(14)	.79(12)									
Teacher Controlling Behavior	19(1)	(0)	(0)								
Teachers' Relative Need Support	.76(16)	.76(12)	.80(15)	40(2)							
Peer Support	.42(2)	.45(1)	.44(2)	(0)	.41(6)						
Autonomy	.70(29)	.60(7)	.65(9)	.16(2)	.61(47)	.39(4)					
Competence	.46(30)	.62(6)	.52(9)	.45(4)	.37(52)	.27(4)	.65(54)				
Relatedness	.53(27)	.61(6)	.67(12)	08(2)	.49(47)	.69(5)	.60(51)	.58(50)			
Total Needs Satisfaction	.57(36)	.61(7)	.62(14)	.37(5)	.48(63)	.51(5)	(0)	(0)			
Total Needs Frustration	16(2)	(0)	(0)	.80(2)	55(3)	(0)	(0)	(0)			
Intrinsic Motivation	.52(25)	.62(6)	.53(13)	.25(3)	.46(49)	.29(1)	.61(33)	.62(53)	.55(34)	.59(55)	45(1)
Integrated Regulation	(0)	(0)	(0)	(0)	(0)	(0)	.66(1)	.78(2)	.30(1)	.66(2)	(0)
Identified Regulation	.49(18)	.61(4)	.51(10)	19(1)	.48(33)	.41(1)	.54(27)	.60(38)	.52(30)	.56(40)	39(1)
Introjected Regulation	.20(17)	.32(4)	.24(10)	.28(1)	.19(28)	.32(1)	.35(28)	.27(39)	.27(30)	.29(41)	07(1)
External Regulation	11(18)	08(4)	15(9)	.41(1)	07(34)	.25(1)	13(29)	10(41)	07(32)	10(43)	13(1)
Amotivation	25(26)	35(7)	28(11)	.37(2)	24(39)	12(1)	29(26)	42(32)	30(28)	32(39)	.32(3)
Autonomous Motivation	.50(37)	.63(6)	.53(13)	.12(4)	.47(64)	.34(2)	.57(42)	.60(66)	.51(45)	.56(73)	13(3)
Controlled Motivation	.04(22)	.12(4)	.07(10)	.36(2)	.05(40)	.29(1)	.08(32)	.07(46)	.09(36)	.09(52)	.08(3)
Self-determination Index	.17(45)	.13(8)	.17(18)	.17(8)	.21(90)	.23(4)	.31(55)	.32(80)	.27(59)	.33(94)	10(3)
Outcomes within PE	.36(44)	.33(8)	.29(15)	.20(9)	.33(73)	.21(2)	.48(38)	.53(83)	.45(41)	.52(96)	.48(6)
Outcomes outside PE	.25(20)	.34(2)	.22(5)	(0)	.25(25)	.36(3)	.34(20)	.47(38)	.35(21)	.41(40)	(0)
Affective Outcomes	.45(40)	.23(5)	.27(12)	.38(5)	.34(60)	.42(3)	.48(38)	.56(70)	.47(42)	.54(78)	.48(3)
Behavioral Outcomes	.29(44)	.43(8)	.29(13)	.04(7)	.29(70)	.26(4)	.33(34)	.48(70)	.35(34)	.45(83)	.47(4)
Cognitive Outcomes	.28(31)	.30(6)	.26(10)	(0)	.26(36)	.55(1)	.40(19)	.50(34)	.39(19)	.46(36)	.41(1)
Adaptive Outcomes	.37(56)	.38(9)	.38(18)	27(7)	.39(89)	.33(5)	.44(50)	.52(105)	.43(53)	.51(117)	37(4)
Maladaptive Outcomes	25(13)	26(3)	14(9)	.45(3)	26(25)	35(1)	26(16)	27(31)	32(19)	26(37)	.53(5)
Outcomes (overall)	.33(58)	.34(9)	.33(18)	.20(9)	.31(92)	.31(5)	.43(50)	.51(107)	.41(53)	.49(120)	.48(6)
Total studies (k)	68	13	26	13	121	5	85	152	87	167	6

Continued

	Intrinsic	Integrated	Identified	Introjected	External	Amotivation	Autonomous	Controlled	Self-
	Motivation	Regulation	Regulation	Regulation	Regulation		Motivation	Motivation	determination
					-				Index
Integrated Regulation	.88(4)								
Identified Regulation	.88(65)	.84(4)							
Introjected Regulation	.48(57)	.65(4)	.62(57)						
External Regulation	08(69)	.19(4)	02(64)	.56(56)					
Amotivation	47(57)	02(4)	38(52)	.05(44)	.58(52)				
Autonomous Motivation	.89(49)	.84(4)	.85(22)	.56(58)	03(69)	43(62)			
Controlled Motivation	.30(51)	.45(4)	.67(45)	.58(37)	.52(21)	.37(59)	.25(83)		
Outcomes in PE	.47(69)	54(1)	.42(47)	.24(39)	02(52)	20(58)	.44(83)	.09(62)	.47(107)
Outcomes out of PE	.42(31)	.48(1)	.38(22)	.25(18)	03(24)	26(20)	.42(43)	.10(27)	.38(54)
Affective Outcomes	.43(54)	25(2)	.35(38)	.22(34)	.04(44)	11(43)	.40(70)	.12(49)	.48(88)
Behavioral Outcomes	.48(52)	.59(1)	.40(40)	.21(34)	08(42)	27(40)	.44(68)	.05(49)	.39(93)
Cognitive Outcomes	.49(31)	.47(1)	.52(24)	.28(22)	05(23)	34(25)	.50(44)	.11(28)	.43(55)
Adaptive Outcomes	.57(84)	.48(1)	.53(60)	.26(51)	07(65)	37(63)	.54(105)	.06(75)	.44(139)
Maladaptive Outcomes	26(31)	54(1)	23(25)	.13(22)	.25(29)	.45(30)	25(38)	.20(35)	.37(45)
Outcomes (overall)	.54(86)	.50(2)	.50(61)	.29(52)	.27(66)	.40(67)	.51(108)	.27(77)	.43(142)
Total studies (k)	145	4	103	92	118	112	108	77	108
Note. Each data point repres	ents the meta-a	analyzed corre	lation, with th	e number of s	tudies (k) liste	ed in parenthe	ses. A (0) she	ows an abse	nce of studies

examining that particular relationship. The last row shows the total number of studies per construct. Composite measures displayed in the table are: Teachers' Relative Need Support (Autonomy Support, Competence Support, Relatedness Support, and Controlling Behavior [multiplied by -1]). Total Needs Satisfaction (Autonomy, Competence, and Relatedness). Autonomous motivation (Intrinsic Motivation, Integrated Regulation, and Identified Regulation). Controlled motivation (Introjected Regulation and External Regulation). Self-determination Index (SDI) was calculated using the formula: SDI = 2(Intrinsic Motivation) + 1(average of Integrated Regulation) – 2(Amotivation).

Comparison of Meta-Analyzed Relationships from Cross-Sectional and Experimental Studies

Cross-sectional				Experimental			
Relationship	Coef.	Lower	Upper	Relationship	Coef.	Lower	Upper
	(<i>r</i>)	95% CI	95% CI		(<i>r</i>)	95% CI	95% CI
Need support – need support	NA	NA	NA	Intervention – need support	.53	0.34	0.68
Need support – need satisfaction	NA	NA	NA	Intervention – need satisfaction	.33	0.16	0.48
Need support – Autonomy	.61	0.51	0.69	Intervention – Autonomy	.51	0.38	0.61
Need support – Competence	.37	0.28	0.44	Intervention – Competence	.31	-0.07	0.61
Need support – Relatedness	.49	0.42	0.56	Intervention – Relatedness	.21	0.07	0.26
Need support – Autonomous Motivation	.47	0.42	0.51	Intervention – Autonomous Motivation	.26	0.16	0.34
Need support – Introjected Regulation	.19	0.12	0.26	Intervention – Introjected Regulation	.20	0.05	0.34
Need support – External Regulation	07	-0.18	0.05	Intervention – External Regulation	.19	-0.05	0.21
Need support – Amotivation	24	-0.29	-0.18	Intervention – Amotivation	.08	-0.01	0.16
Need support – Adaptive Outcomes	.39	0.34	0.43	Intervention – Adaptive Outcomes	.33	0.20	0.45
Need support – Maladaptive Outcomes	26	-0.32	-0.20	Intervention – Maladaptive Outcomes	25	-0.38	-0.12

Summary of Significant Moderation Effects

			Sampl	e size	Carffiniant	T	I.I					
	k	#ES	Total	Harmonic Mean	(r)	95% CI	95% CI	R^{2}_{2}	R^{2}_{3}	I^{2}_{2}	I^{2}_{3}	Q statistic
Autonomy – Competence	54	66	32833	271	.65	0.58	0.71			0.08	0.91	5854.978
Culture $(p < .001)$								0.00	0.22			
Individualistic	32	39	17894	281	.54	0.44	0.63			0.04	0.94	
Collectivistic	21	26	14224	285	.78	0.70	0.84			0.15	0.84	
Sex (<i>p</i> <.001)								0.57	0.01			
Both	50	59	29969	295	.67	0.60	0.73			0.03	0.96	
Male	4	4	1482	191	.28	-0.03	0.54			0.48	0.48	
Female	3	3	1382	275	.38	0.26	0.50			0.40	0.40	
Autonomy – External Regulation	29	36	14082	220	13	-0.23	-0.03			0.13	0.84	912.3109
Culture ($p=.012$)								0.06	0.21			
Individualistic	18	23	9294	260	22	-0.32	-0.12			0.19	0.76	
Collectivistic	11	13	4788	164	.03	-0.13	0.18			0.09	0.86	
Relatedness – External Regulation	32	39	15192	223	07	-0.14	0.00			0.00	0.94	592.9022
Culture (p =.037)								0.01	0.11			
Individualistic	19	24	8928	250	14	-0.22	-0.05			0.14	0.79	
Collectivistic	13	15	6264	190	.02	-0.11	0.14			0.00	0.94	
Introjected Regulation – External	56	66	26196	228	.56	0.48	0.63			0.84	0.14	3777.35
Regulation $(n = 0.25)$								0.00	0.51			
P=0.053	25	12	15799	224	40	0.28	0.50	0.00	0.31	0.02	0.06	
	21	43	10/08	224	.49	0.56	0.39			0.93	0.00	
Conecuvisue	21	25	10408	255	.00	0.55	0.74			0.71	0.27	
Introjected Regulation – Amotivation	44	65	26437	255	.05	-0.03	0.14	0.00	0.00	0.40	0.58	1817.888
Sex $(p < .001)$	10	~ ^ ^		2.17	0.6	0.02	0.15	0.00	0.08	0.44	0.54	
Both	43	64	26337	247	.06	-0.02	0.15			0.41	0.56	
Male	1	1	100	100	39	0.54	-0.21			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Introjected Regulation – Adaptive Outcomes	51	125	49964	253	.26	0.18	0.31			0.37	0.59	2966.77
Sex (<i>p</i> =.017)								0.00	0.24			
Both	49	121	49321	262	.25	0.19	0.31			0.43	0.53	
Male	1	3	300	100	.66	0.58	0.72			0.16	0.00	
Female	1	1	343	343	21	-0.31	-0.10			0.50	0.50	

Introjected Regulation – Maladaptive	22	31	11837	212	.13	0.01	0.24			0.69	0.28	1033.303
Outcomes												
Culture $(p=.049)$								0.00	0.62			
Individualistic	14	19	6853	273	.05	-0.06	0.17			0.96	0.00	
Collectivistic	8	12	4984	156	.24	0.02	0.44			0.20	0.78	
Age (<i>p</i> =.035)								0.00	0.71			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	8	13	6663	215	.28	0.11	0.43			0.98	0.00	
Adolescents	14	18	5174	210	.04	-0.09	0.16			0.32	0.62	

Note. k = number of studies, #ES = number of effect sizes, r = population effect size, R^2_2 and $R^2_3 =$ proportion of variance explained by the moderator

variable at Level 2 (within study) and Level 3 (between study), respectively. I^2_2 and I^2_3 = proportion of variability in effect sizes at Level 2 and 3,

respectively.

Correlation Matrix for the Path Analysis

	1	2	3	4	5	6	7	8	9	10	11	12
1.Autonomy support	-	12	14	29	30	27	37	17	18	26	56	13
2.Competence support	.76	-	12	7	6	6	6	4	4	7	8	3
3.Relatedness support	.82	.79	-	9	9	12	13	10	9	11	18	9
4.Autonomy	.70	.60	.65	-	54	51	42	28	29	26	50	16
5.Competence	.46	.62	.52	.65	-	50	66	39	41	32	105	31
6.Relatedness	.53	.61	.67	.60	.58	-	45	30	32	28	53	19
7. Autonomous Motivations	.50	.63	.53	.57	.60	.51	-	58	69	62	105	38
8.Introjected Regulation	.20	.32	.24	.35	.27	.27	.56	-	56	44	51	22
9. External Regulation	11	08	15	13	10	07	03	.56	-	52	65	29
10.Amotivation	25	35	28	29	43	30	43	.05	.58	-	63	30
11.Adaptive Outcomes	.37	.40	.38	.44	.52	.43	.54	.26	07	37	-	53
12.Maladaptive Outcomes	25	26	14	26	27	32	25	.13	.25	.45	21	-

Note. Lower diagonal = meta-analyzed correlations. Upper diagonal = corresponding number of studies.

Path Analysis Direct and Indirect Effects

	Direc	ct effect		Indirect	Effect	
	Estimate	SE	p value	Estimate	SE	p value
Adaptive outcomes						
Autonomous motivation	.32	.011	.000			
Introjected regulation	04	.011	.000			
External regulation	.09	.010	.000			
Amotivation	16	.009	.000			
Autonomy	.01	.012	.324			
Competence	.26	.010	.000			
Relatedness	.10	.009	.000			
Teacher autonomy support	.14	.014	.000	.13	.014	.000
Teacher competence support	19	.012	.000	.41	.013	.000
Teacher relatedness support	.02	0.14	.267	.10	.013	.000
Maladaptive outcomes						
Autonomous motivation	17	.011	.000			
Introjected regulation	.41	.012	.000			
External regulation	21	.011	.000			
Amotivation	.41	.010	.000			
Autonomy	17	.012	.000			
Competence	.10	.010	.000			
Relatedness	32	.009	.000	00	014	000
Teacher autonomy support	23	.014	.000	08	.014	.000
Teacher competence support	16	.013	.000	15	.013	.000
Leacher relatedness support	.55	.014	.000	.16	.015	.000
Autonomous motivation	10	010	000			
Autonomy	.19	.010	.000			
Dalatadraas	.23	.009	.000			
Teacher autonomy support	.08	.009	.000			
Teacher autonomy support	04	.012	.002			
Teacher relatedness support	.39	.011	.000			
Introjected regulation	05	.012	.000			
	30	012	000			
Competence	.39	.012	.000			
Relatedness	07	.011	.000			
Teacher autonomy support	- 31	.011	.000			
Teacher competence support	51	.015	.000			
Teacher relatedness support	- 04	.014	.000			
External regulation	04	.015	.015			
Autonomy	- 08	013	000			
Competence	- 06	012	000			
Relatedness	09	012	000			
Teacher autonomy support	.05	016	000			
Teacher competence support	13	015	000			
Teacher relatedness support	- 28	017	000			
Amotivation	.20	.017	.000			
Autonomy	.03	.012	.009			
Competence	34	.011	.000			
Relatedness	04	.011	.000			
Teacher autonomy support	.02	.015	.295			
Teacher competence support	16	.014	.000			
Teacher relatedness support	.02	.015	.209			
Autonomy						
Teacher autonomy support	.50	.010	.000			
Teacher competence support	.09	.010	.000			
Teacher relatedness support	.17	.011	.000			
Competence						
Teacher autonomy support	09	.011	.000			
Teacher competence support	.57	.011	.000			
Teacher relatedness support	.15	.012	.000			
Relatedness						
Teacher autonomy support	12	.011	.000			
Teacher competence support	.24	.010	.000			
Teacher relatedness support	.58	.011	.000			

Self-Determination Theory Applied to Physical Education: A Systematic Review and Meta-Analysis

These online supplements are to be posted on the journal website and hot-linked to the manuscript. If the journal does not offer this possibility, these materials can alternatively be posted on one of our personal websites or an open science framework website (we will adjust the in-text reference upon acceptance).

We developed these materials to provide additional technical information and to keep the main manuscript from becoming needlessly long. We would, however, be happy to have some of these materials brought back into the main manuscript, or included as published appendices if the editor deems it useful.

Meta-analyzed correlations involving teacher support, peer support, needs satisfaction, behavioral regulations, and student outcomes in the physical education context.

	k	#ES	S	ample size	Coefficient	Lower	Upper	I^{2}_{2}	I ² _3	Q statistic
		_	Total	Harmonic Mean	(r)	95% CI	95% CI			
Teacher autonomy support and social context constructs										
Teacher autonomy support – Teacher competence support	12	13	6313	313	.757	0.62	0.85	0.75	0.03	1181.203
Teacher autonomy support – Teacher relatedness support	14	14	10487	327	.817	0.69	0.90	0.46	0.46	2362.787
Teacher autonomy support – Teacher controlling behavior	1	1	499	499	188	-0.27	-0.10	0.46	0.46	0
Teacher autonomy support – Teacher's relative support	16	28	17299	324	.756	0.63	0.85	0.46	0.46	4182.156
Teacher autonomy support – Peer support	2	4	2347	562	.422	NA	NA	0.70	0.00	26.28821
Teacher autonomy support and psychological needs										
Teacher autonomy support – Autonomy	29	34	15919	227	.704	0.61	0.78	0.09	0.90	2458.197
Teacher autonomy support – Competence	30	35	15897	227	.458	0.38	0.53	0.00	0.96	695.8443
Teacher autonomy support – Relatedness	27	32	15524	256	.533	0.46	0.60	0.01	0.97	1011.23
Teacher autonomy support – Total needs satisfaction	36	105	50343	241	.568	0.49	0.64	0.50	0.49	7117.522
Teacher autonomy support – Total needs frustration	2	2	1516	670	160	-0.37	-0.07	0.47	0.47	36.27193
Teacher autonomy support and motivation										
Teacher autonomy support – Intrinsic Motivation	25	31	13625	234	.523	0.47	0.58	0.40	0.53	414.7777
Teacher autonomy support - Integrated Regulation	0	0	-	-	-	-	-	-	-	-
Teacher autonomy support – Identified Regulation	18	22	9625	242	.490	0.41	0.56	0.27	0.68	353.0336
Teacher autonomy support – Introjected Regulation	17	21	8336	231	.199	0.12	0.28	0.15	0.77	192.1669
Teacher autonomy support – External Regulation	18	22	9625	242	109	-0.22	0.00	0.40	0.56	825.4535
Teacher autonomy support – Amotivation	26	60	25164	266	247	-0.32	-0.18	0.27	0.67	1085.847
Teacher autonomy support – Autonomous motivation	37	68	28697	242	.501	0.45	0.55	0.16	0.78	1194.218
Teacher autonomy support - Controlled motivation	22	46	19367	243	.040	-0.12	0.20	0.97	0.00	1578.95
Teacher autonomy support - Self-determination Index	54	201	83475	242	.191	0.12	0.26	0.91	0.08	15580.0
Teacher autonomy support and student outcomes										
Teacher autonomy support – Affective outcomes	40	91	42318	218	.445	0.36	0.52	0.49	0.50	6426.868
Teacher autonomy support – Behavioral outcomes	44	84	25774	197	.294	0.25	0.38	0.43	0.52	1929.396
Teacher autonomy support – Cognitive outcomes	31	87	26856	170	.283	0.22	0.35	0.72	0.22	1624.485
Teacher autonomy support – In PE outcomes	44	105	51449	245	.359	0.26	0.45	0.44	0.55	7557.209
Teacher autonomy support – Out of PE outcomes	20	136	34005	157	.250	0.18	0.31	0.80	0.14	2073.121
Teacher autonomy support – Adaptive outcomes	56	241	87478	201	.374	0.32	0.44	0.42	0.55	8205.038
Teacher autonomy support – Maladaptive outcomes	13	21	7470	136	250	-0.36	-0.14	0.04	0.90	109.8943
Teacher autonomy support – Outcomes (overall)	58	262	94948	193	.326	0.26	0.39	0.46	0.52	10349.31
Teacher competence support and social context constructs										
Teacher competence support – Teacher relatedness support	12	12	5749	302	.792	0.67	0.87	0.46	0.46	1499.346
Teacher competence support – Teacher's relative support	12	13	6313	313	.757	0.62	0.85	0.5	0.03	1818.203
Teacher competence support – Peer support	1	3	1947	649	.449	0.33	0.55	0.72	0.00	30.14666
Teacher competence support and psychological needs										
Teacher competence support – Autonomy	7	7	4391	422	.601	0.49	0.69	0.48	0.48	137.3371
Teacher competence support – Competence	6	6	4144	478	.616	0.50	0.71	0.48	0.48	135.0711
Teacher competence support – Relatedness	6	6	4144	478	.608	0.50	0.69	0.48	0.48	118.0848
Teacher competence support - Total needs satisfaction	7	19	12679	456	.608	0.53	0.68	0.58	0.38	390.968

Teacher competence support – Total needs frustration	0	0	-	-	-	-	-	-	-	-
Teacher competence support and motivation										
Teacher competence support – Intrinsic Motivation	6	6	4144	478	.623	0.55	0.68	0.45	0.45	58.67413
Teacher competence support – Integrated Regulation	0	0	-	-	-	-	-	_	-	-
Teacher competence support – Identified Regulation	4	4	2166	473	.608	0.50	0.70	0.46	0.46	55.04766
Teacher competence support – Introjected Regulation	4	4	2166	473	.317	0.19	0.43	0.45	0.45	49.37274
Teacher competence support – External Regulation	4	4	2166	473	080	-0.28	0.12	0.48	0.48	104.8497
Teacher competence support – Amotivation	7	14	6932	298	351	-0.44	-0.26	0.23	0.68	186.2875
Teacher competence support – Autonomous motivation	6	10	6310	476	.627	0.55	0.69	0.00	0.97	117,4986
Teacher competence support – Controlled motivation	4	8	4332	473	.123	-0.06	0.30	0.97	0.00	344,9873
Teacher competence support – Self-determination Index	8	33	18361	383	.133	-0.09	0.34	0.83	0.16	4613.904
Teacher competence support and student outcomes										
Teacher competence support – Affective outcomes	5	7	6333	466	.229	-0.34	0.71	0.99	0.00	1448.152
Teacher competence support – Behavioral outcomes	8	8	2811	306	430	0.33	0.56	0.45	0.45	99.27441
Teacher competence support – Cognitive outcomes	6	8	4088	354	304	0.18	0.50	0.91	0.00	109 4845
Teacher competence support – In PE outcomes	8	20	10826	349	329	0.19	0.45	0.98	0.00	1643 388
Teacher competence support $-$ Out of PE outcomes	2	20	2120	683	342	015	0.15	0.70	0.47	30 5602
Teacher competence support – Adaptive outcomes	8	10	10282	342	307	0.30	0.31	0.47	0.47	549 1612
Teacher competence support – Maladaptive outcomes	3	3	2422	481	- 260	-0.41	-0.10	0.71	0.24	/1 82589
Teacher competence support – Outcomes (overall)	9	23	13232	361	200	-0.41	-0.10	0.40	0.40	1679 876
Teacher relatedness support and social context constructs		25	15252	501	.555	0.22	0.45	0.90	0.00	1079.070
Teacher relatedness support Teacher's relative support	15	26	16236	315	705	0.60	0.87	0.57	0.34	1248 002
Teacher relatedness support – Teacher's Telative support	15	20	2221	519	.195	0.09	0.87	0.37	0.04	5 817070
Teacher relatedness support and psychological needs	2	4	2321	540	.436	0.40	0.48	0.32	0.00	5.017272
Teacher relatedness support and psychological needs	0	0	4004	284	616	0.51	0.75	0.40	0.40	207 4502
Teacher relatedness support – Autonomy	9	9	4994 5726	364	.040	0.31	0.75	0.49	0.49	220 7260
Teacher relatedness support – Competence	12	9	5750	441	.522	0.57	0.05	0.49	0.49	320.7309
Teacher relatedness support – Tetal needs satisfaction	14	22	17407	320	.070	0.50	0.70	0.59	0.39	403.3030
Teacher relatedness support – Total needs satisfaction	14	32	1/49/	370	.020	0.54	0.09	0.98	0.00	1275.205
Teacher relatedness support – Total needs frustration	0	0	-	-	-	-	-	-	-	-
Teacher relateaness support and motivation	12	12	0706	200	521	0.42	0.62	0.40	0.40	140 2265
Teacher relatedness support – Intrinsic Motivation	13	15	8/80	300	.551	0.43	0.62	0.49	0.49	449.2305
Teacher relatedness support – Integrated Regulation	0	10	-	-	-	-	-	-	-	-
Teacher relatedness support – Identified Regulation	10	10	4640	323	.514	0.44	0.58	0.45	0.45	72.42099
Teacher relatedness support – Introjected Regulation	10	11	4806	298	.242	0.15	0.33	0.90	0.00	141.2983
Teacher relatedness support – External Regulation	9	10	4557	303	153	-0.31	0.01	0.00	0.96	309.8564
Teacher relatedness support – Amotivation	11	27	10549	258	281	-0.38	-0.17	0.16	0.78	414.1287
Teacher relatedness support – Autonomous motivation	13	24	13592	331	.527	0.44	0.60	0.05	0.90	534.4104
Teacher relatedness support – Controlled motivation	10	21	9363	300	.074	-0.05	0.20	0.97	0.00	860.793
Teacher relatedness support – Self-determination Index	18	76	35097	290	.165	0.06	0.27	0.91	0.08	6581.58
Teacher relatedness support and student outcomes	10	~~	1.550.4	0.51	250	0.10	0.40	0.00	0.00	1010 150
Teacher relatedness support – Affective outcomes	12	22	15724	371	.270	0.13	0.40	0.99	0.00	1919.459
Teacher relatedness support – Behavioral outcomes	13	16	5313	360	.293	0.18	0.40	0.94	0.14	195.0896
Teacher relatedness support – Cognitive outcomes	10	15	9327	405	.261	0.15	0.37	0.97	0.00	669.5587
Teacher relatedness support – In PE outcomes	15	41	22063	322	.288	0.31	0.42	0.98	0.00	2247.577
Teacher relatedness support – Out of PE outcomes	5	10	7766	433	.220	0.07	0.36	0.98	0.00	581.6534
Teacher relatedness support – Adaptive outcomes	18	41	23960	339	.383	0.32	0.44	0.96	0.00	1118.155
Teacher relatedness support – Maladaptive outcomes	9	12	6404	324	137	-0.25	-0.02	0.43	0.51	209.515
Teacher relatedness support – Outcomes (overall)	18	53	2120	336	.327	0.19	0.35	0.98	0.00	2941.327
Teacher controlling behavior – Teacher's relative support	2	2	1999	749	399	-0.63	-0.10	0.45	0.45	78.83368

Teacher controlling behavior and psychological needs										
Teacher controlling behavior – Autonomy	2	2	127	60	.159	0.18	0.33	-	-	0
Teacher controlling behavior – Competence	4	4	1693	111	.450	-0.09	0.78	0.50	0.50	165.488
Teacher controlling behavior – Relatedness	2	2	127	60	077	-0.25	0.10	0.00	0.00	0
Teacher controlling behavior – Total needs satisfaction	5	9	2446	86	.370	-0.09	0.70	0.05	0.94	792.4133
Teacher controlling behavior – Total needs frustration	2	5	2907	578	.796	0.78	0.81	0.98	0.00	216.2175
Teacher controlling behavior and motivation										
Teacher controlling behavior – Intrinsic Motivation	3	4	3416	848	.245	-0.16	0.58	0.06	0.93	497.3077
Teacher controlling behavior – Integrated Regulation	0	0	_	_	_	_	_	_	-	_
Teacher controlling behavior – Identified Regulation	1	2	1850	925	- 188	-0.23	-0.14	0.0	0.00	1.6596
Teacher controlling behavior – Introjected Regulation	1	2	1850	925	282	0.08	0.46	0.95	0.00	41.8999
Teacher controlling behavior – External Regulation	1	2	1850	925	409	0.00	0.59	0.96	0.00	56 47248
Teacher controlling behavior – Amotivation	2	3	2349	720	374	0.31	0.44	0.90	0.00	16 53106
Teacher controlling behavior – Autonomous motivation	4	7	5765	720	123	-0.25	0.44	0.03	0.00	638 3512
Teacher controlling behavior – Controlled motivation	2	5	/199	700	356	0.23	0.40	0.05	0.07	118 33/
Teacher controlling behavior - Controlled motivation	2	20	12108	790	.550	0.23	0.47	0.95	0.00	1284 442
Teacher controlling behavior and student outcomes	0	20	13108	219	.175	0.00	0.28	0.98	0.00	1204.442
Teacher controlling behavior and student outcomes	-	0	12(2	220	277	0.10	0.71	0.04	0.05	1069 460
Teacher controlling behavior – Affective outcomes	5	15	4203	220	.377	-0.10	0.71	0.04	0.95	1068.469
Teacher controlling behavior – Behavioral outcomes	/	15	8809	300	.039	-0.25	0.32	0.55	0.44	1/13.516
Teacher controlling behavior – Cognitive outcomes	0	0	-	-	-	-	-	-	-	-
Teacher controlling behavior – In PE outcomes	9	24	13072	264	.198	-0.15	0.50	0.22	0.78	2784.0.51
Teacher controlling behavior – Out of PE outcomes	0	0	-	-	-		-		-	-
Teacher controlling behavior – Adaptive outcomes	7	14	6257	187	274	-0.60	0.13	0.23	0.76	1641.606
Teacher controlling behavior – Maladaptive outcomes	3	10	6815	627	.448	0.24	0.62	0.17	0.80	140.4947
Teacher controlling behavior – Outcomes (overall)	9	24	13072	264	.198	-0.15	0.50	0.22	0.78	2784.051
Teacher's relative support – Peer support	6	14	7731	364	.410	0.34	0.48	0.92	0.00	167.8989
Teacher's relative support and psychological needs										
Teacher's relative support – Autonomy	47	71	33650	214	.607	0.51	0.69	0.46	0.53	6731.532
Teacher's relative support – Competence	52	76	38527	227	.367	0.28	0.44	0.65	0.33	6177.197
Teacher's relative support – Relatedness	47	70	33593	222	.493	0.42	0.56	0.09	0.89	2667.486
Teacher's relative support – Total needs satisfaction	63	225	111129	226	.483	0.41	0.55	0.53	0.46	19841.71
Teacher's relative support – Total needs frustration	3	7	4423	602	546	-0.82	-0.06	0.27	0.72	1230.108
Teacher's relative support and motivation										
Teacher's relative support – Intrinsic Motivation	49	89	46107	281	.459	0.40	0.51	0.70	0.28	4851.444
Teacher's relative support – Integrated Regulation	0	0	-		-	-	-	-	-	-
Teacher's relative support - Identified Regulation	33	47	21876	257	479	0.42	0.53	0.24	0.71	902 7806
Teacher's relative support – Introjected Regulation	28	43	19633	255	190	0.12	0.26	0.15	0.79	944 1823
Teacher's relative support – External Regulation	34	/0	22546	255	- 065	-0.18	0.05	0.16	0.82	2959 581
Teacher's relative support - Amotivation	30	113	48400	250	005	0.20	0.05	0.10	0.02	1017 356
Teacher's relative support – Antonvation	59	115	77645	201	235	-0.29	-0.18	0.22	0.72	6508 210
Teacher's relative support – Autonomous motivation	40	07	44414	272	.407	0.42	0.51	0.40	0.49	5100 201
Teacher's relative support – Controlled motivation	40	97	196505	201	.049	0.02	0.12	0.85	0.15	26650.61
Teacher's relative support – Sen-determination index	90	411	180393	233	.200	0.15	0.20	0.80	0.15	50059.01
Teacher's relative support and student outcomes	(0)	167	70242	220	240	0.25	0.40	0.46	0.52	12054 71
Teacher's relative support – Affective outcomes	60	157	79243	230	.340	0.25	0.42	0.46	0.53	13854./1
I eacher's relative support – Behavioral outcomes	70	155	62/33	213	.291	0.23	0.35	0.54	0.44	7220.462
I eacher's relative support – Cognitive outcomes	36	122	47622	206	.264	0.21	0.32	0.64	0.31	2746.72
Teacher's relative support – In PE outcomes	73	252	131160	250	.332	0.26	0.40	0.52	0.47	21201
Teacher's relative support – Out of PE	25	153	45429	167	.253	0.20	0.31	0.82	0.13	2793.535
Teacher's relative support – Adaptive outcomes	89	382	161496	216	.389	0.34	0.43	0.44	0.54	12754.95

Teacher's relative support – Enjoyment	22	28	21540	182	442	0.33	0.54	0.08	0.90	1112.061
Teacher's relative support – Intentions	18	28	13199	218	.229	0.17	0.29	0.03	0.85	379.3334
Teacher's relative support – Leisure-time physical activity	19	26	7622	189	214	0.16	0.27	0.82	0.00	149.0411
Teacher's relative support – Maladaptive outcomes	25	52	28102	222	260	-0.32	-0.20	0.42	0.53	972,9953
Teacher's relative support – Boredom	6	10	7381	237	- 211	-0.35	-0.07	0.43	0.53	332, 3978
Teacher's relative support – Negative affect	1	3	906	302	- 261	-0.32	-0.20	0.00	0.00	0.976733
Teacher's relative support – Pressure	0	0	-	-	-	-	-	-	-	-
Teacher's relative support – Outcomes (overall)	92	434	189598	217	.310	0.26	0.36	0.53	0.46	24493.09
Peer support and psychological needs	/=		10,0,0	21,	1010	0.20	0.20	0.000	0110	2.1,010,0
Peer support – Autonomy	4	6	3398	537	389	0.23	0.52	0.00	0.94	64 7373
Peer support – Competence	4	6	3398	537	272	0.19	0.35	0.32	0.47	23 76874
Peer support – Relatedness	5	7	37772	505	.691	0.43	0.84	0.24	0.74	625.8202
Peer support – Total needs satisfaction	5	20	10942	514	505	0.37	0.62	0.99	0.00	1567.282
Peer support – Total needs frustration	0	20	10712	-	.505	-	-	-	-	-
Peers support and motivation	0	Ŭ								
Peer support and montation	1	3	1947	649	288	0.21	0.36	0.73	0.00	11 15426
Peer support Internste Notivation	0	0	1)+/	-	.200	0.21	-	-	-	-
Peer support Integrated Regulation	1	3	1947	649	408	0.33	0.48	0.74	0.00	11 67106
Peer support Introjected Regulation	1	3	1947	649	322	0.35	0.40	0.74	0.00	5 727865
Peer support – External Regulation	1	3	1947	649	251	0.20	0.30	0.40	0.00	0.3014666
Peer support - Amotivation	1	3	1047	649	123	0.17	0.08	0.00	0.00	1 205866
Peer support – Autonomous motivation	2	7	4550	650	123	-0.17	-0.08	0.00	0.00	1205800
Peer support - Controlled motivation	1	6	3804	649	.545	0.26	0.40	0.04	0.00	11 7240
Peer support – Controlled motivation	1	18	11186	607	.207	0.25	0.33	0.49	0.00	388 687
Pear support and student outcomes	-	10	11100	007	.232	0.15	0.51	0.75	0.00	500.007
Peer support and student outcomes	2	10	2007	200	417	0.10	0.66	0.58	0.40	620 8108
Peer support – Affective outcomes	3	10	2734	390 177	.417	0.10	0.00	0.58	0.40	80 27364
Peer support – Denavioral outcomes	4	3	1200	400	.257	0.11	0.59	0.01	0.00	2 1/38
Peer support – Cognitive outcomes	1	5	1626	400	.551	0.04	0.39	0.00	0.00	2.1438
Peer support – III FE outcomes	2	12	5020	145	.214	-0.04	0.44	0.90	0.00	210.433
Peer support – Out of FE outcomes	5	20	7467	265	.302	0.05	0.01	0.30	0.01	522 7074
Peer support – Adaptive outcomes	1	20	274	203	245	0.13	0.30	0.44	0.52	333.7074
Peer support – Waladaptive outcomes	1	21	7941	268	545	-0.43	-0.23	0.50	0.30	786 5100
Autonomy Competence	51	21	22022	208	.515	0.11	0.49	0.50	0.41	5964 079
Autonomy – Competence	51	60	32633	265	.031	0.58	0.71	0.08	0.91	2041 102
Autonomy – Relatedness	51	02	30482	280	.390	0.54	0.05	0.00	0.38	2941.103
Autonomy Una motivation	22	45	10627	246	608	0.55	0.66	0.15	0.81	1422 764
Autonomy Integrated Regulation	33	45	19037	1025	.008	0.55	0.00	0.15	0.81	1433.704
Autonomy – Integrated Regulation	27	24	12402	1055	.038	0.02	0.09	0.50	0.50	064 2072
Autonomy – Identified Regulation	27	25	13493	210	.539	0.47	0.00	0.09	0.87	904.3973
Autonomy – Introjected Regulation	20	33 26	12779	215	.540	0.20	0.42	0.22	0.75	012 2100
Autonomy – External Regulation	29	30	20058	220	131	-0.23	-0.03	0.15	0.64	1217 925
Autonomy – Amotivation	20	44	20058	288	288	-0.30	-0.20	0.54	0.62	1517.855
Autonomy – Autonomous motivation	42	91	39530	237	.303	0.52	0.61	0.19	0.77	2817.283
Autonomy – Controlled motivation	32	/4	2/5/2	215	.080	-0.01	0.17	0.98	0.00	3081.837
Autonomy – Self-determination Index	22	229	96239	242	.310	0.24	0.38	0.93	0.06	23141.9
Autonomy and student outcomes	20	0.4	20.479	0.02	400	0.41	0.54	0.52	0.45	1450 615
Autonomy – Affective outcomes	38	84	394/8	263	.480	0.41	0.54	0.53	0.45	4452.615
Autonomy – Benavioral outcomes	34	64	22696	234	.329	0.27	0.39	0.26	0.68	882.8606
Autonomy – Cognitive outcomes	19	31	13093	297	.403	0.32	0.48	0.29	0.67	/61.9699

Autonomy – In PE outcomes	38	96	41210	230	.478	0.42	0.53	0.56	0.42	4336.056
Autonomy – Out of PE outcomes	20	59	23389	273	.343	0.27	0.42	0.28	0.66	1074.389
Autonomy – Adaptive outcomes	50	157	64659	262	.439	0.35	0.49	0.27	0.71	7060.165
Autonomy – Enjoyment	13	14	5569	188	.626	0.55	0.69	0.01	0.93	328.5677
Autonomy – Intentions	13	13	5972	250	.412	0.32	0.50	0.47	0.47	255.796
Autonomy – Leisure-time physical activity	12	18	5451	216	.269	0.19	0.35	0.92	0.00	223.6504
Autonomy – Maladaptive outcomes	16	22	10608	226	262	-0.35	-0.17	0.56	0.40	597.3015
Autonomy – Boredom	6	6	3060	156	279	-0.47	-0.05	0.48	0.48	270.1471
Autonomy – Negative affect	4	4	1528	237	449	-0.49	-0.40	0.00	0.00	3.705079
Autonomy – Pressure	1	1	507	507	-	-	-	-	-	-
Autonomy – Outcomes (overall)	50	179	75267	257	.427	0.37	0.48	0.41	0.55	7081.651
Competence – Relatedness	50	62	29643	267	.584	0.54	0.62	0.41	0.55	1346.914
Competence and motivation										
Competence – Intrinsic Motivation	53	77	34717	278	.624	0.57	0.67	0.06	0.92	3999.749
Competence – Integrated Regulation	2	2	1155	215	.779	0.40	0.93	0.49	0.49	83.23875
Competence – Identified Regulation	38	46	19222	231	.600	0.53	0.67	0.05	0.93	2288.444
Competence – Introjected Regulation	39	46	18374	232	.272	0.19	0.34	0.11	0.85	1279.321
Competence – External Regulation	41	51	20863	237	104	-0.19	-0.01	0.21	0.76	1792.998
Competence – Amotivation	32	51	22444	276	426	-0.48	-0.35	0.40	0.55	1184.763
Competence – Autonomous motivation	66	140	61432	257	.597	0.55	0.64	0.16	0.81	7119.12
Competence – Controlled motivation	46	101	40225	232	.074	0.04	0.11	0.98	0.00	4985.708
Competence – Self-determination Index	82	319	138789	257	.320	0.26	0.38	0.95	0.04	41306.2
Competence and student outcomes										
Competence – Affective outcomes	70	151	79474	263	.560	0.51	0.60	0.77	0.21	10439.31
Competence – Behavioral outcomes	70	148	70641	269	484	0.43	0.54	0.30	0.67	5327,355
Competence – Cognitive outcomes	34	62	32244	264	498	0.43	0.56	0.70	0.27	2384 242
Competence – In PE outcomes	83	217	102554	234	.130	0.49	0.59	0.62	0.36	12750.56
Competence – Out of PE outcomes	38	103	58725	316	465	0.41	0.52	0.59	0.39	4202.792
Competence – Adaptive outcomes	105	314	160710	278	524	0.48	0.57	0.44	0.54	19172.39
Competence – Enjoyment	34	40	21363	202	649	0.59	0.70	0.18	0.80	1557 954
Competence – Intentions	22	27	16422	289	548	0.48	0.61	0.10	0.73	607 9957
Competence – Leisure-time physical activity	23	36	19452	302	402	0.32	0.48	0.42	0.55	889.1627
Competence – Maladaptive outcomes	31	47	21649	204	- 274	-0.39	-0.15	0.69	0.30	3092 718
Competence – Boredom	7	7	3818	176	- 389	-0.66	-0.04	0.50	0.50	787 484
Competence – Negative affect	4	4	1528	237	- 397	-0.50	-0.28	0.30	0.33	30 48893
Competence – Pressure	8	8	4757	183	- 418	-0.68	-0.06	0.50	0.50	832 3137
Competence – Outcomes (overall)	107	361	182359	266	513	0.00	0.55	0.50	0.30	19171 54
Relatedness and motivation	107	501	102337	200	.515	0.47	0.55	0.55	0.45	1)1/1.54
Relatedness – Intrinsic Motivation	3/	45	10730	245	546	0.49	0.60	0.00	0.96	1200 911
Relatedness – Integrated Regulation	1		1035	1035	300	0.42	0.00	0.00	0.50	1200.711
Relatedness – Identified Regulation	30	37	14603	220	513	0.24	0.50	0.06	0.50	710.084
Palatadness Introjected Pagulation	30	37	13508	215	.515	0.40	0.37	0.00	0.00	660 4537
Palatadness – External Pagulation	30	30	15102	213	.209	0.19	0.55	0.23	0.72	502 0022
Relatedness – External Regulation	32	39	20074	223	074	-0.14	0.00	0.00	0.94	502.9022 502.4190
Relatedness – Allouvalloli Relatedness – Autonomous motivation	20	40	41515	290	27/	-0.30	-0.23	0.17	0.77	272.4109 2222 129
Relatedness – Autonomous motivation	45	97	41313	237	.311	0.40	0.50	0.00	0.89	2223.138
Relatedness – Controlled motivation	50	244	29073	210	.000	0.02	0.15	0.97	0.00	2300.300
Relatedness – Self-determination index	59	244	101301	243	.271	0.21	0.55	0.88	0.10	17701.42
Relatedness and sudeni outcomes	40	06	12550	269	470	0.42	0.51	0.70	0.26	2060 201
ketatedness – Affective outcomes	42	96	43558	268	.470	0.42	0.51	0.70	0.26	3069.381

Relatedness – Rehavioral outcomes	34	66	22454	227	348	0.28	0.41	0.22	0.73	1337 632
Relatedness – Cognitive outcomes	19	31	13088	297	.387	0.30	0.46	0.17	0.77	603.6847
Relatedness – In PE outcomes	41	109	44974	231	454	0.41	0.50	0.65	0.32	3341 281
Relatedness – Out of PE outcomes	21	60	23932	277	.348	0.28	0.42	0.38	0.56	1178.01
Relatedness – Adaptive outcomes	53	167	67415	2.62	426	0.38	0.47	0.39	0.57	4849.132
Relatedness – Enjoyment	14	15	6149	202	601	0.51	0.68	0.00	0.96	334,3802
Relatedness – Intentions	12	12	5886	296	428	0.33	0.51	0.47	0.47	191.2753
Relatedness – Leisure-time physical activity	12	18	5722	226	.292	0.25	0.33	0.89	0.00	171.9011
Relatedness – Maladaptive outcomes	19	26	11685	224	318	-0.40	-0.24	0.41	0.54	565.2307
Relatedness – Boredom	5	5	2974	186	313	-0.45	0.16	0.46	0.46	113.3976
Relatedness – Negative affect	3	3	965	199	359	-0.41	-0.30	0.00	0.00	0.1413272
Relatedness – Pressure	1	1	507	507	-	_	-	-	-	-
Relatedness – Outcomes (overall)	53	193	79100	256	.414	0.37	0.46	0.49	0.47	5610.566
Total needs satisfaction and motivation										
Total needs satisfaction – Intrinsic Motivation	55	165	74785	270	.590	0.55	0.63	0.64	0.33	7079.43
Total needs satisfaction – Integrated Regulation	2	4	3225	356	.661	0.36	0.84	0.99	0.00	722.1565
Total needs satisfaction – Identified Regulation	40	115	48010	235	.561	0.52	0.61	0.66	0.31	4303.047
Total needs satisfaction – Introjected Regulation	41	116	45443	232	.288	0.22	0.35	0.20	0.76	2807.712
Total needs satisfaction – External Regulation	43	124	50829	239	101	-0.17	-0.02	0.18	0.79	3430.258
Total needs satisfaction – Amotivation	39	144	68087	306	315	-0.39	-0.23	0.24	0.74	5813.696
Total needs satisfaction – Autonomous motivation	73	329	147092	257	.562	0.53	0.60	0.59	0.39	13804.29
Total needs satisfaction – Controlled motivation	52	254	100800	234	.086	0.03	0.14	0.85	0.13	11465.61
Total needs satisfaction – Self-determination Index	94	793	348958	263	.330	0.28	0.38	0.89	0.10	89060.33
Total needs satisfaction and student outcomes										
Total needs satisfaction – Affective outcomes	78	332	165567	277	.537	0.49	0.58	0.60	0.38	20040.8
Total needs satisfaction – Behavioral outcomes	83	295	122822	249	.450	0.40	0.50	0.33	0.65	11700.11
Total needs satisfaction – Cognitive outcomes	36	126	62091	302	.461	0.41	0.51	0.57	0.40	4333.795
Total needs satisfaction – In PE outcomes	96	432	199157	243	.516	0.48	0.55	0.61	0.37	25055.88
Total needs satisfaction – Out of PE outcomes	40	228	108065	294	.407	0.36	0.46	0.57	0.39	7259.37
Total needs satisfaction – Adaptive outcomes	117	657	304399	276	.508	0.47	0.55	0.38	0.60	34950.67
Total needs satisfaction – Maladaptive outcomes	37	96	46081	230	262	-0.34	-0.18	0.54	0.44	4340.113
Total needs satisfaction – Outcomes (overall)	120	753	350480	269	.488	0.45	0.52	0.51	0.47	38140.38
Total needs frustration and motivation										
Total needs frustration – Intrinsic Motivation	1	3	258	86	449	-0.54	-0.34	0.00	0.00	1.150933
Total needs frustration – Integrated Regulation	0	0	-	-	-	-	-	-	-	-
Total needs frustration – Identified Regulation	1	3	258	86	388	-0.49	-0.28	0.00	0.00	-
Total needs frustration – Introjected Regulation	1	3	258	86	067	-0.19	0.06	0.00	0.00	0.171533
Total needs frustration – External Regulation	1	3	258	86	129	-0.25	-0.01	0.00	0.00	1.0126
Total needs frustration – Amotivation	3	5	1503	128	.319	0.01	0.57	0.00	0.94	77.74608
Total needs frustration – Autonomous motivation	3	8	1761	108	132	-0.37	0.12	0.00	0.89	83.35051
Total needs frustration – Controlled motivation	3	8	1761	108	.077	-0.04	0.20	0.00	0.69	26.79871
Total needs frustration – Self-determination Index	3	24	5283	108	100	NA	NA	0.97	0.00	420.3911
Total needs frustration and student outcomes										
Total needs frustration – Affective outcomes	3	15	5622	175	.484	0.43	0.54	0.87	0.00	133.2277
Total needs frustration – Behavioral outcomes	4	5	2758	459	.469	0.27	0.63	0.40	0.56	132.0665
Total needs frustration – Cognitive outcomes	1	3	258	86	.411	0.25	0.55	0.56	0.00	6.778333
Total needs frustration – In PE outcomes	6	23	8638	175	.481	0.42	0.54	0.91	0.00	273.5089
Total needs frustration – Out of PE outcomes	0	0	-	-	-	-	-	-	-	-
Total needs frustration – Adaptive outcomes	4	12	4105	148	371	-0.53	-0.18	0.85	0.12	465.0063

Total needs frustration – Maladaptive outcomes	5	11	4533	218	.531	0.42	0.63	0.61	0.33	170.7178
Total needs frustration – Outcomes (overall)	6	23	8638	175	.481	0.42	0.54	0.91	0.00	273.5089
Intrinsic motivation and motivation										
Intrinsic Motivation – Integrated Regulation	4	4	2019	239	.882	0.66	0.96	0.46	0.46	1017.219
Intrinsic Motivation – Identified Regulation	65	92	37946	232	.883	0.85	0.91	0.41	0.51	11366.15
Intrinsic Motivation – Introjected Regulation	57	80	31742	232	.479	0.36	0.58	0.38	0.53	11886.43
Intrinsic Motivation – External Regulation	69	96	41349	236	078	-0.19	0.04	0.12	0.70	14732.91
Intrinsic Motivation – Amotivation	57	95	42268	254	474	-0.56	-0.38	0.16	0.68	5130.822
Intrinsic Motivation – Autonomous motivation	49	103	43358	272	.885	0.85	0.91	0.53	0.39	13429.76
Intrinsic Motivation – Controlled motivation	51	131	55404	253	.299	0.16	0.42	0.57	0.33	27591.48
Intrinsic motivation and student outcomes										
Intrinsic Motivation – Affective outcomes	54	112	58885	271	.429	0.32	0.52	0.94	0.05	21708.38
Intrinsic Motivation – Behavioral outcomes	52	84	30667	204	.480	0.38	0.58	0.26	0.73	7555.852
Intrinsic Motivation – Cognitive outcomes	31	79	43415	384	490	0.42	0.56	0.71	0.27	4519.694
Intrinsic Motivation – In PE outcomes	69	173	83679	253	472	0.39	0.54	0.89	0.11	29654.8
Intrinsic Motivation – Out of PE outcomes	31	88	42885	284	416	0.35	0.48	0.74	0.24	3490 895
Intrinsic Motivation – Adaptive outcomes	84	229	111861	275	.571	0.52	0.62	0.46	0.53	17111.82
Intrinsic Motivation – Fniovment	22	222	11838	252	774	0.52	0.83	0.12	0.87	1974 567
Intrinsic Motivation – Intentions	19	28	16015	308	550	0.48	0.61	0.09	0.86	406 508
Intrinsic Motivation – Leisure-time physical activity	18	20	9541	200	356	0.40	0.01	0.84	0.00	120 2721
Intrinsic Motivation Meladantive outcomes	21	46	21106	200	.550	0.31	0.40	0.60	0.00	2072.89
Intrinsic Motivation – Maladaptive outcomes	51	40	21100	233	255	-0.38	-0.12	0.00	0.59	210 1599
Intrinsic Motivation – Boredoni	3	2	5656 797	204	420	009	-0.07	0.50	0.30	40.06105
Intrinsic Motivation – Negative affect	3	2	/0/	109	434	-0.00	-0.14	0.47	0.47	40.00193
Intrinsic Motivation – Pressure	2	275	092 122067	430	165	-0.41	0.00	0.40	0.40	20.01928
Intrinsic Motivation – Outcomes (overall)	80	215	132967	207	.542	0.49	0.59	0.54	0.45	20764.74
Integrated regulation and motivation	4	4	2010	220	940	0.00	0.02	0.46	0.46	202.0700
Integrated Regulation – Identified Regulation	4	4	2019	239	.840	0.69	0.92	0.46	0.46	283.9688
Integrated Regulation – Introjected Regulation	4	4	2019	239	.651	0.36	0.83	0.46	0.46	141.6663
Integrated Regulation – External Regulation	4	4	2019	239	.188	-0.28	0.58	0.46	0.46	422.3235
Integrated Regulation – Amotivation	4	4	2019	239	022	-0.46	0.43	0.46	0.46	409.1117
Integrated Regulation – Autonomous motivation	4	4	2019	239	.840	0.69	0.92	0.46	0.46	283.9688
Integrated Regulation – Controlled motivation	4	8	4038	239	.448	0.11	0.69	0.76	0.00	1387.851
Integrated regulation and student outcomes					2.17	0.40	0.10	0.00	0.00	0011015
Integrated Regulation – Affective outcomes	2	3	938	166	247	-0.18	0.13	0.99	0.00	234.1365
Integrated Regulation – Behavioral outcomes	1	1	698	698	.590	-	-	-	-	-
Integrated Regulation – Cognitive outcomes	1	2	1396	698	.474	0.43	0.51	0.00	0.00	0.31275
Integrated Regulation – In PE outcomes	1	2	240	120	544	-0.12	-0.06	0.95	0.00	37.44
Integrated Regulation – Out of PE outcomes	1	4	2792	698	.476	0.34	0.49	0.44	0.00	7.141125
Integrated Regulation – Adaptive outcomes	1	4	2792	698	.476	0.44	0.51	0.44	0.00	7.141125
Integrated Regulation – Enjoyment	0	0	-	-	-	-	-	-	-	-
Integrated Regulation – Intentions	1	1	698	698	-	-	-	-	-	-
Integrated Regulation – Leisure-time physical activity	0	0	-	-	-	-	-	-	-	-
Integrated Regulation – Maladaptive outcomes	1	2	240	120	544	-0.82	-0.06	0.95	0.00	37.44
Integrated Regulation – Boredom	0	0	-	-	-	-	-	-	-	-
Integrated Regulation – Negative affect	0	0	-	-	-	-	-	-	-	-
Integrated Regulation – Pressure	0	0	-	-	-	-	-	-	-	-
Integrated Regulation – Outcomes (overall)	2	6	3032	268	.497	0.36	0.61	0.95	0.00	46.42784
Identified regulation and motivation										

Identified Regulation – Introjected Regulation	57	66	26114	219	621	0.50	0.72	0.06	0.73	1/1300.9/
Identified Regulation – External Regulation	64	76	31058	215	- 022	-0.15	0.12	0.00	0.75	8632 913
Identified Regulation – Amotivation	52	75	31120	234	- 383	-0.50	-0.25	0.09	0.72	8843 167
Identified Regulation – Autonomous motivation	22	26	9675	191	854	0.79	0.90	0.18	0.67	2702.405
Identified Regulation – Controlled motivation	45	94	38650	230	670	0.26	0.52	0.73	0.07	26777.84
Identified regulation and student outcomes	10	<i></i>	50050	250	.070	0.20	0.52	0.75	0.07	20777.01
Identified Regulation – Affective outcomes	38	69	31074	237	352	0.21	0.45	0.99	0.00	8510 556
Identified Regulation – Behavioral outcomes	40	60	21550	198	.403	0.31	0.53	0.33	0.66	3050.027
Identified Regulation – Cognitive outcomes	24	52	24852	316	.522	0.39	0.63	0.67	0.32	5114.727
Identified Regulation – In PE outcomes	47	108	45333	227	.420	0.32	0.51	0.99	0.01	14352.04
Identified Regulation – Out of PE outcomes	22	60	26292	242	.382	0.30	0.46	0.92	0.05	2483.569
Identified Regulation – Adaptive outcomes	60	147	64175	245	.525	0.47	0.59	0.55	0.44	9512.899
Identified Regulation – Enjoyment	16	16	5019	193	.653	0.56	0.73	0.48	0.48	412.91
Identified Regulation – Intentions	13	14	6198	203	.570	0.51	0.63	0.00	0.91	118.1467
Identified Regulation – Leisure-time physical activity	14	19	7338	182	.336	0.27	0.40	0.89	0.00	126.3854
Identified Regulation – Maladaptive outcomes	25	34	13301	215	- 233	-0.36	-0.11	0.50	0.48	1801.857
Identified Regulation – Boredom	-20	7	2164	163	- 566	-0.69	-0.42	0.47	0.47	176.0817
Identified Regulation – Negative affect	2	2	402	150	461	-0.60	-0.30	0.31	0.31	5.339189
Identified Regulation – Pressure	1	1	507	507	-	-	-	-	-	-
Identified Regulation – Outcomes (overall)	61	180	77476	238	.501	0.45	0.55	0.58	0.40	9667.51
Introjected regulation and motivation										,
Introjected Regulation – External Regulation	56	66	26196	228	.560	0.48	0.63	0.84	0.14	3777.35
Introjected Regulation – Amotivation	44	65	26437	255	.053	-0.03	0.14	0.40	0.58	1817.888
Introjected Regulation – Autonomous motivation	58	152	60837	234	.564	0.47	0.65	0.31	0.68	26889.27
Introjected Regulation – Controlled motivation	37	44	17200	229	.576	0.47	0.68	0.68	0.16	3204.795
Introjected regulation and student outcomes										
Introjected Regulation – Affective outcomes	34	61	23019	226	.220	0.15	0.29	0.97	0.00	1714.272
Introjected Regulation – Behavioral outcomes	34	48	17693	221	.214	0.14	0.27	0.58	0.36	837.2092
Introjected Regulation – Cognitive outcomes	22	47	21089	307	.275	0.20	0.34	0.97	0.00	1387.55
Introjected Regulation – In PE outcomes	39	92	35551	227	.238	0.18	0.29	0.97	0.00	2531.136
Introjected Regulation - Out of PE outcomes	18	54	21181	252	.253	0.18	0.33	0.87	0.09	1375.673
Introjected Regulation – Adaptive outcomes	51	125	49964	253	.256	0.18	0.31	0.37	0.59	2966.77
Introjected Regulation – Enjoyment	15	15	4624	193	.350	0.18	0.50	0.49	0.49	477.1424
Introjected Regulation – Intentions	12	13	3861	186	.302	0.16	0.43	0.33	0.62	221.3374
Introjected Regulation – Leisure-time physical activity	10	15	4698	194	.209	0.08	0.33	0.06	0.86	179.2521
Introjected Regulation – Maladaptive outcomes	22	31	11837	212	.129	0.01	0.24	0.69	0.28	1033.303
Introjected Regulation – Boredom	7	7	2164	163	.002	-0.18	0.22	0.48	0.48	161.4044
Introjected Regulation – Negative affect	2	2	402	150	107	-0.45	0.26	0.45	0.45	21.35675
Introjected Regulation – Pressure	1	1	507	507	-	-	-	-	-	-
Introjected Regulation – Outcomes (overall)	52	156	61801	243	.291	0.26	0.33	0.77	0.16	2318.506
External regulation and motivation										
External Regulation – Amotivation	52	81	35238	250	.576	0.50	0.65	0.23	0.76	5116.771
External Regulation – Autonomous motivation	69	177	75060	235	025	-0.14	0.09	0.15	0.85	23818.91
External Regulation – Controlled motivation	21	24	9184	194	.522	0.41	0.62	0.75	0.00	581.1321
External regulation and student outcomes		62	20.522	<u> </u>	<u></u>	0.01	0.12	0.00	0.11	(10) 000
External Regulation – Affective outcomes	44	83	39522	258	.040	-0.04	0.13	0.88	0.11	6484.886
External Regulation – Behavioral outcomes	42	63	22760	201	079	-0.16	-0.02	0.26	0.69	11/2.345
External Regulation – Cognitive outcomes	23	50	24257	317	054	-0.17	0.06	0.54	0.39	2567.219
External Regulation – In PE outcomes	52	122	53737	241	018	-0.09	0.05	0.87	0.11	8473.384

External Regulation – Out of PE outcomes	24	63	27589	245	- 028	-0.12	0.07	0.59	0.38	1997.2
External Regulation – Adaptive outcomes	65	157	69410	251	073	-0.15	0.01	0.13	0.85	8237.723
External Regulation – Enjoyment	19	20	6980	217	- 127	-0.30	0.06	0.00	0.98	1245,393
External Regulation – Intentions	13	14	6198	203	152	-0.27	-0.03	0.10	0.85	284.8654
External Regulation – Leisure-time physical activity	15	21	8250	190	035	-0.14	0.07	0.00	0.93	283.5236
External Regulation – Maladaptive outcomes	29	39	17129	231	251	0.17	0.33	0.62	0.34	1443.061
External Regulation – Boredom	9	9	4924	201	236	-0.01	0.45	0.49	0.49	786.2404
External Regulation – Negative affect	3	3	787	189	294	0.06	0.50	0.45	0.45	35.63957
External Regulation – Pressure	2	2	892	438	264	0.18	0.35	0.23	0.23	3 672374
External Regulation – Outcomes (overall)	66	196	86539	247	269	0.24	0.31	0.49	0.45	3374 201
Amotivation and motivation	00	170	00557	217	.209	0.21	0.51	0.17	0.15	5571.201
Amotivation – Autonomous motivation	62	179	77805	256	434	-0.52	-0.34	0.29	0.70	14807.1
Amotivation – Controlled motivation	59	148	62203	242	367	0.30	0.43	0.76	0.00	11987.65
Amotivation and student outcomes		110	02200	2.2	1007	0.20	0110	0170	0.00	11907100
Amotivation – Affective outcomes	43	107	57361	296	- 106	-0.22	0.02	0.89	0.10	15704.09
Amotivation – Behavioral outcomes	40	72	30835	220	- 272	-0.37	-0.17	0.76	0.22	5411 252
Amotivation – Cognitive outcomes	25	54	26277	298	- 344	-0.43	-0.25	0.70	0.19	2754 312
Amotivation – In PE outcomes	58	188	91124	278	- 201	-0.28	-0.11	0.87	0.12	2734.312
Amotivation – Out of PE outcomes	20	33	17703	244	201	-0.23	-0.11	0.87	0.12	1449 627
Amotivation – Adaptive outcomes	63	187	91785	244	204	-0.37	-0.15	0.62	0.10	7598 631
Amotivation Enjoyment	14	107	5575	183	507	-0.42	0.38	0.02	0.30	622 0500
Amotivation Intentions	14	14	10381	251	519	-0.03	0.38	0.49	0.49	661 2006
Amotivation – Inclutions	10	10	10301	186	425	-0.32	0.21	0.41	0.37	30 61012
Amotivation – Leisure-time physical activity	30	10	22688	266	279	-0.35	-0.21	0.41	0.41	2211 101
Amotivation Boredom	11	40	7374	200	.430	0.54	0.33	0.27	0.71	600 5242
Amotivation – Boredoni	2	2	797	180	.030	0.32	0.72	0.49	0.49	21 86706
Amotivation Program	3	2	1105	281	.570	0.38	0.72	0.40	0.40	15 20845
Amotivation Outcomes (overall)	5	222	114473	301 277	.400	0.29	0.31	0.40	0.40	8207 346
Autonomous motivation Controlled motivation	82	235	14473	277	.400	0.55	0.44	0.50	0.42	60505.48
Autonomous motivation and at dout outcomes	85	545	140407	220	.234	0.10	0.55	0.57	0.55	09505.46
Autonomous motivation and student outcomes	70	220	102956	255	400	0.20	0.49	0.75	0.24	22012.90
Autonomous motivation – Affective outcomes	70	199	64261	233	.400	0.50	0.48	0.75	0.24	14915 22
Autonomous motivation – Benavioral outcomes	44	100	70042	204	.436	0.33	0.55	0.18	0.80	14013.22
Autonomous motivation – Cognitive outcomes	44	100	147716	320	.502	0.44	0.50	0.39	0.40	10202.05
Autonomous motivation – In PE outcomes	83	820	14//10	240	.440	0.36	0.51	0.77	0.22	51582.88
Autonomous motivation – Out of PE outcomes	43	215	85344	243	.410	0.36	0.47	0.69	0.27	0805.421
Autonomous motivation – Adaptive outcomes	105	480	207584	254	.540	0.50	0.58	0.44	0.54	31800.15
Autonomous motivation – Enjoyment	24	40	18085	232	./33	0.00	0.79	0.38	0.60	2500.034
Autonomous motivation – Intentions	28	54	20030	259	.511	0.45	0.57	0.03	0.93	779.0405
Autonomous motivation – Leisure-time physical activity	26	54	19538	197	.337	0.29	0.39	0.27	0.61	327.7702
Autonomous motivation – Maladaptive outcomes	38	94	39576	229	253	-0.35	-0.15	0.46	0.52	5162.495
Autonomous motivation – Boredom	10	1/	8052	192	494	-0.65	-0.29	0.80	0.19	1057.557
Autonomous motivation – Negative affect	3	2	1189	1/1	410	-0.61	-0.16	0.00	0.92	48.73911
Autonomous motivation – Pressure	2	5	1399	459	169	-0.36	0.04	0.13	0.78	27.45168
Autonomous motivation – Outcomes (overall)	108	513	24/160	249	.513	0.47	0.55	0.50	0.48	35849.44
Controlled motivation and student outcomes	10	154	(7100	250	11-	0.05	0.17	0.00	0.00	0001 001
Controlled motivation – Affective outcomes	49	154	67122	250	.116	0.06	0.17	0.98	0.00	9021.281
Controlled motivation – Behavioral outcomes	49	125	44831	210	.045	-0.01	0.09	0.96	0.00	2992.218
Controlled motivation – Cognitive outcomes	28	101	47530	316	.111	0.03	0.19	0.86	0.12	5035.653
Controlled motivation – In PE outcomes	62	239	99503	240	.088	0.04	0.13	0.94	0.04	12945.75

Controlled motivation – Out of PE outcomes	27	119	49421	249	.100	0.03	0.17	0.86	0.11	4045.843
Controlled motivation – Adaptive outcomes	75	302	126476	252	.064	0.00	0.12	0.66	0.32	14174.08
Controlled motivation – Enjoyment	20	36	12234	210	.098	0.05	0.24	0.97	0.02	2323.391
Controlled motivation – Intentions	15	28	10689	199	.072	-0.04	0.18	0.97	0.00	1013.077
Controlled motivation – Leisure-time physical activity	17	38	13599	196	.064	0.01	0.14	0.94	0.00	574.8757
Controlled motivation – Maladaptive outcomes	35	78	33007	234	.198	0.13	0.27	0.75	0.22	2740.874
Controlled motivation – Boredom	10	17	7718	190	.130	-0.05	0.30	0.98	0.00	958.1592
Controlled motivation – Negative affect	3	5	1189	171	.136	-0.13	0.39	0.95	0.00	80.83133
Controlled motivation – Pressure	2	3	1399	459	.248	0.20	0.30	0.35	0.00	4.60743
Controlled motivation – Outcomes (overall)	77	380	159483	248	.272	0.25	0.30	0.78	0.15	6027.292
Self-determination Index and student outcomes										
Self-determination Index – Affective outcomes	88	527	245454	261	.481	0.44	0.52	0.75	0.24	30046.44
Self-determination Index – Behavioral outcomes	93	469	168998	206	.390	0.34	0.44	0.42	0.55	20000.56
Self-determination Index – Cognitive outcomes	55	350	166640	295	.431	0.39	0.47	0.71	0.26	14320.47
Self-determination Index – In PE outcomes	107	828	360971	245	.469	0.43	0.50	0.68	0.30	49706.11
Self-determination Index - Out of PE outcomes	54	435	183276	231	.376	0.33	0.42	0.67	0.29	11601.55
Self-determination Index – Adaptive outcomes	139	1120	482168	247	.444	0.41	0.47	0.68	0.30	57605.89
Self-determination Index – Enjoyment	31	108	39984	220	.771	0.70	0.83	0.99	0.00	29320.68
Self-determination Index – Intentions	15	28	10689	199	.271	0.21	0.34	0.92	0.00	333.9236
Self-determination Index – Leisure-time physical activity	17	38	13599	196	.185	0.14	0.23	0.85	0.00	224.612
Self-determination Index – Maladaptive outcomes	45	226	98924	238	.369	0.31	0.42	0.65	0.32	7113.6
Self-determination Index – Boredom	10	17	7718	190	.315	0.24	0.39	0.79	0.13	171.5209
Self-determination Index – Negative affect	3	5	1189	171	.279	0.13	0.42	0.87	0.00	43.0516
Self-determination Index – Pressure	2	3	1399	459	.248	0.20	0.30	0.35	0.00	4.60743
Self-determination Index – Outcomes (overall)	142	1346	581092	245	.431	0.40	0.46	0.68	0.30	65455.3
Between student outcomes										
Adaptive outcomes – Maladaptive outcomes	53	231	109262	302	212	-0.33	-0.09	0.43	0.56	22247.34

Moderation Analysis on Each Association Included in the Model.

	1	WE G	S	ample size	Coefficient	Lower	Upper	D ² O	D ² O	r ² o	r2 o	0
	K	#ES -	Total	Harmonic Mean	(r)	95% CI	95% CI	\mathbf{R}^2 _2	R ² _3	12_2	1 ² _3	Q statistic
Teacher's autonomy support – Teacher's competence	12	13	6313	313	.757	0.62	0.85			0.75	0.03	1181.203
support												
Culture								0.02	0.00			
Individualistic	9	10	4185	319	.762	0.60	0.86			0.95	0.04	
Collectivistic	3	3	2128	296	.742	0.38	0.91			0.49	0.49	
Country								0.00	1.00			
UK	3	3	892	254	.741	0.39	0.91			0.49	0.49	
USA	5	6	2644	334	.729	0.50	0.86			0.99	0.00	
Sex								0.14	1.00			
Both	11	12	6151	340	.732	0.58	0.83			0.99	0.00	
Male	1	1	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	1.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	8	8	4276	301	.856	0.78	0.90			0.49	0.49	
Adolescents	4	5	2037	336	.478	0.24	0.62			0.97	0.00	
Risk of Bias								0.00	0.00			
Low Risk of Bias	12	13	6313	313	.757	0.62	0.85			0.75	0.03	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's autonomy support – Teacher's relatedness	14	14	10487	327	.817	0.69	0.90			0.46	0.46	2362.787
support												
Culture								0.03	0.03			
Individualistic	11	11	8358	336	0.832	0.67	0.92			0.50	0.50	
Collectivistic	3	3	2129	296	0.757	0.70	0.80			0.35	0.35	
Country								0.17	0.17			
UK	3	3	892	254	.819	0.52	0.94			0.49	0.49	
USA	4	4	1512	277	.906	0.67	0.98			0.50	0.50	
Sex								0.10	0.10			
Both	13	13	10325	354	0.799	0.66	0.87			0.50	0.50	
Male	1	1	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.20	0.20			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	10	10	5185	320	.863	0.74	0.93			0.50	0.50	
Adolescents	4	4	5302	345	.631	0.48	0.75			0.48	0.48	
Risk of Bias								0.00	0.00			
Low Risk of Bias	14	14	10487	327	.817	0.69	0.90			0.46	0.46	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's autonomy support-Autonomy	29	34	15919	227	.704	0.61	0.78			0.09	0.90	2458.197
Culture								0.01	0.00			
Individualistic	17	18	6994	193	.704	0.54	082			0.09	0.91	
Collectivistic	11	15	8210	274	.702	0.60	0.78			0.21	0.77	
Country								0.01	0.00			
UK	2	2	-	-	-	-	-			-	-	

USA	0	0	-	-	-	-	-			-	-	
Sex								0.01	0.03			
Both	28	33	15868	254	.711	0.61	0.78			0.09	0.90	
Male	1	1	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.20	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	16	19	9263	286	.697	0.61	0.77			0.18	0.80	
Adolescents	15	15	6656	180	.715	0.54	0.83			0.50	0.50	
Risk of Bias								0.00	0.00			
Low Risk of Bias	29	34	15919	227	.704	0.61	0.78			0.09	0.90	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's autonomy support – Competence	30	35	15897	227	.458	0.38	0.53			0.00	0.96	695.
Culture								0.38	0.05			
Individualistic	19	20	7218	196	.419	0.31	0.52			0.04	0.93	
Collectivistic	10	14	7964	276	.511	0.43	0.59			0.00	0.94	
Country	- 0							0.07	0.03			
UK	7	7	2782	205	400	0.36	0.40			0.11	0.11	
USA	2	2	1070	92	317	-0.29	0.74			0.47	0.47	
Sex	2	2	1070)2	.517	0.27	0.74	0.38	0.00	0.47	0.47	
Both	29	34	15846	253	452	0.38	0.52	0.50	0.00	0.00	0.97	
Male	1	1	15040	255	.+52	0.50	0.52			0.00	0.97	
Famala	1	0	-	-	_	-	-			-	-	
	0	0	-	-	_	-	-	0.32	0.04	-	-	
Children	0	0	_	_	_	_	_	0.52	0.04	_	_	
Dreadolescents	17	20	0601	201	413	0.32	0.50			0.00	0.95	
Adolescents	17	15	6206	176	.413	0.32	0.50			0.00	0.95	
Pick of Bias	15	15	0200	170	.507	0.40	0.00	0.38	0.00	0.40	0.48	
Low Pick of Bins	30	35	15807	227	158	0.38	0.53	0.50	0.00	0.00	0.96	
Low Risk of Dias	30	35	13097	221	.438	0.38	0.55			0.00	0.90	
Tassher's sutenemy support Palatadaas	27	22	15524	-	522	-	-			0.01	-	101
Culture	27	52	15524	230	.555	0.40	0.00	0.00	0.00	0.01	0.97	101
	16	17	69.45	222	520	0.42	0.02	0.00	0.09	0.01	0.05	
	10	1/	0845	233	.529	0.43	0.62			0.01	0.95	
Collectivistic	10	14	/964	276	.511	0.38	0.65	0.00	0.04	0.01	0.97	
Country	_	~	0.101	116	<i>.</i>	0.54	0.67	0.00	0.04	0.42	0.42	
	5	5	2431	446	.606	0.54	0.67			0.43	0.43	
USA	3	3	1323	116	.527	0.39	0.64	0.01	0.00	0.40	0.40	
Sex								0.01	0.00			
Both	27	32	15524	256	.533	0.46	0.60			0.01	0.97	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.03	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	17	20	9840	294	.507	0.41	0.60			0.02	0.95	
Adolescents	12	12	5684	210	.554	0.44	0.65			0.49	0.49	
Risk of Bias								0.00	0.00			
Low Risk of Bias	27	32	15524	256	.533	0.46	0.60			0.01	0.97	
High Risk of Bias	0	0	-	-	-	-	-			-	-	

Teacher's autonomy support – Autonomous	37	68	28697	242	.501	0.45	0.55			0.16	0.78	1194.218
Motivation												
Culture								0.01	0.01			
Individualistic	21	37	15595	312	.525	0.47	0.58			0.07	0.85	
Collectivistic	16	31	13102	191	.480	0.39	0.56			0.21	0.74	
Country								0.00	0.02			
UK	6	13	5392	327	.509	0.44	0.57			0.33	0.51	
USA	4	6	3773	455	.467	0.27	0.63			0.02	0.95	
Sex								0.00	0.00			
Both	36	66	26477	234	.506	0.46	0.55			0.16	0.78	
Male	0	0	-	-	-	-	-			-	-	
Female	1	2	-	-	-	-	-			-	-	
Age								0.11	0.03			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	24	45	20464	231	.485	0.42	0.55			0.09	0.86	
Adolescents	16	23	8233	268	.554	0.51	0.60			0.29	0.57	
Risk of Bias								0.00	0.00			
Low Risk of Bias	37	68	28697	242	.501	0.45	0.55			0.16	0.78	
High Risk of Bias	0	0	_	-	_	-	-			_	-	
Teacher's autonomy support – Introjected Regulation	17	21	8336	231	.199	0.12	0.28			0.15	0.77	192.1669
Culture								0.00	0.07			
Individualistic	10	10	4504	398	.233	0.11	0.35	0.00	0.07	0.47	0.47	
Collectivistic	7	11	3832	167	169	0.11	0.23			0.76	0.00	
Country			0001	107		0111	0.20	0.00	0.12	0170	0.00	
IK	5	5	2431	446	278	0.18	0.38	0.00	0.12	0.43	0.43	
USA	0	0	2131	-	.270	-	-			-	-	
Sex	0	0						0.00	0.00			
Both	17	21	8336	231	199	0.12	0.28	0.00	0.00	0.15	0.77	
Male	0	0	-	-	,,	-	-			-	-	
Female	0	0	_	_	_	_	_			_	_	
	0	0	-	-	-	-	-	1.00	0.00	-	_	
Children	0	0	_	_	_	_	_	1.00	0.00	_	_	
Preadolescents	13	15	5821	108	18/	0.07	0.20			0.00	0.94	
Adoloscents	15	6	2515	201	.164	0.07	0.29			0.00	0.94	
Pick of Pice	0	0	2313	391	.249	0.21	0.29	0.00	0.00	0.09	0.09	
Low Disk of Disc	17	21	0226	221	100	0.12	0.20	0.00	0.00	0.15	0.77	
LOW KISK OF Dias	17	21	8330	231	.199	0.12	0.28			0.15	0.77	
The show's sector sector and the Estermal Descalation	10	22	-	-	-	-	-			-	-	975 4525
reacher's autonomy support – External Regulation	18	22	9625	242	109	-0.22	0.00	0.00	0.02	0.40	0.56	825.4555
	1.1	1.1	5702	4.4.1	107	0.00	0.05	0.00	0.03	0.40	0.40	
	11	11	5/93	441	10/	-0.26	0.05			0.49	0.49	
Conectivistic	1	11	5852	10/	1//	-0.25	0.22	0.14	0.00	0.11	0.88	
Country			2102	100	217	0.41	0.00	0.14	0.60	0.40	0.40	
	4	4	2103	490	317	-0.41	-0.22			0.42	0.42	
USA	2	2	1617	696	.223	-0.22	0.59	0.00	1 00	0.49	0.49	
Sex			0515	224	150	0.00	0.05	0.00	1.00	0.01	0.04	
Both	17	21	8515	234	173	-0.28	-0.06			0.91	0.01	
Male	0	0	-	-	-	-	-			-	-	
Female	1	1	-	-	-	-	-			-	-	
Age								0.62	0.00			

Children	0	0	-	-	-	-	-			-	-	
Preadolescents	14	16	7110	212	085	-0.22	0.05			0.19	0.78	
Adolescents	6	6	2515	391	229	-0.35	-0.10			0.45	0.45	
Risk of Bias								0.00	0.00			
Low Risk of Bias	18	22	9625	242	109	-0.22	0.00			0.40	0.56	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's autonomy support – Amotivation	26	60	25164	266	247	-0.32	-0.18			0.27	0.67	1085.847
Culture								0.06	0.12			
Individualistic	16	30	10929	255	308	-0.38	-0.23			0.33	0.59	
Collectivistic	10	30	14235	279	144	-0.27	-0.01			0.24	0.72	
Country								0.00	0.09			
UK	6	10	3241	238	318	-0.41	-0.22			0.89	0.00	
USA	4	14	5217	241	662	-0.24	-0.12			0.79	0.00	
Sex								0.18	0.00			
Both	23	46	21908	316	245	-0.33	-0.16			0.22	0.73	
Male	2	9	1518	168	190	-0.635	-0.02			0.23	0.53	
Female	2	5	1738	190	300	NA	NA			0.57	0.00	
Age								0.02	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	18	36	16030	257	242	-0.33	-0.15			0.28	0.67	
Adolescents	10	24	9134	282	274	-0.37	-0.17			0.27	0.65	
Risk of Bias								0.00	0.00			
Low Risk of Bias	26	60	25164	266	247	-0.32	-0.18			0.27	0.67	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's autonomy support - Adaptive Outcomes	56	241	87478	201	.374	0.32	0.44			0.42	0.55	8205.038
Culture								0.01	0.02			
Individualistic	36	166	55080	231	.312	0.27	0.36			0.83	0.12	
Collectivistic	19	71	30724	153	.478	0.34	0.59			0.14	0.85	
Country								0.00	0.00			
UK	9	87	23918	188	.232	0.20	0.26			0.75	0.01	
USA	9	24	9609	304	.326	0.21	0.43			0.80	0.16	
Sex								0.00	0.01			
Both	51	229	85420	208	.372	0.31	0.43			0.46	0.51	
Male	4	7	1073	99	.491	0.07	0.71			0.28	0.70	
Female	3	5	985	169	.413	0.08	0.66			0.97	0.00	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	33	133	48476	190	.391	0.31	0.47			0.22	0.75	
Adolescents	28	108	39002	516	.378	0.29	0.46			0.62	0.36	
Risk of Bias								0.01	0.21			
Low Risk of Bias	55	239	87268	202	.368	0.31	0.42			0.49	0.48	
High Risk of Bias	1	2	-	-	-	-	-			-	-	
Teacher's autonomy support – Maladaptive Outcomes	13	21	7470	136	250	-0.36	-0.14			0.04	0.90	109.8943
Culture								0.00	0.01			
Individualistic	9	14	4899	272	254	-0.41	-0.08			0.03	0.93	
Collectivistic	4	7	2571	68	266	-0.34	-0.19			0.49	0.00	
Country								0.00	0.00			
UK	2	4	1910	476	218	-0.27	-0.16			0.46	0.00	
USA	0	0	-	-	-	-	-			-	-	

Sex								0.00	0.00			
Both	13	21	7470	136	250	-0.36	-0.14			0.04	0.90	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.02			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	7	14	5305	115	208	-0.27	-0.15			0.39	0.22	
Adolescents	6	7	2165	215	309	-0.53	-0.05			0.01	0.96	
Risk of Bias								0.00	0.00			
Low Risk of Bias	13	21	7470	136	250	-0.36	-0.14			0.04	0.90	
High Risk of Bias	-	-	-	-	-	-	-			-	-	
Teacher's competence support - Teacher's	12	12	5749	302	.792	0.67	0.87			0.46	0.46	1499.346
relatedness support												
Culture								0.00	0.00			
Individualistic	9	9	3619	304	.788	0.63	0.89			0.50	0.50	
Collectivistic	3	3	2130	297	.804	0.60	0.91			0.49	0.49	
Country								0.16	0.16			
UK	3	3	892	254	.644	0.43	0.79			0.48	0.48	
USA	5	5	2078	308	805	0.57	0.92			0.50	0.50	
Sex	U	U	2070	200	1000	0107	0.72	0.00	0.00	0.00	0120	
Both	11	11	5587	328	792	0.65	0.88	0.00	0.00	0.50	0.50	
Male	1	1	-	-		-	-			-	-	
Female	0	0	_	_	_	-				_	_	
Age	0	0						0.00	0.00			
Children	0	0	_	_	_	-		0.00	0.00	_	_	
Preadolescents	8	8	1278	301	877	0.83	0.91			0.48	0.48	
Adolescents	1	4	1471	305	.077	0.05	0.51			0.48	0.48	
Risk of Bias	-	-	1471	505	.471	0.20	0.04	0.00	0.00	0.40	0.40	
Low Risk of Bias	12	12	5749	302	792	0.67	0.87	0.00	0.00	0.46	0.46	
High Disk of Bigs	0	0	5747	502	.172	0.07	0.07			0.40	0.40	
Teacher's competence support_ Autonomy	7	7	/301	122	601	0.49	0.69			0.48	0.48	137 3371
Culture	/	,	4371	722	.001	0.47	0.07	0.00	0.00	0.40	0.40	157.5571
Individualistic	5	5	2452	/18	595	0.44	0.72	0.00	0.00	0.48	0.48	
Collectivistic	2	2	1020	410	.595	0.44	0.72			0.48	0.48	
Country	2	2	1939	431	.025	0.00	0.05	0.58	0.58	0.00	0.00	
	2	2	720	254	420	0.17	0.62	0.58	0.58	0.46	0.46	
	2	0	750	554	.420	0.17	0.02			0.40	0.40	
Say	0	0	-	-	-	-	-	0.00	0.00	-	-	
Deth	7	7	4201	422	601	0.40	0.60	0.00	0.00	0.49	0.49	
Doui	/	0	4391	422	.001	0.49	0.09			0.48	0.48	
Male	0	0	-	-	-	-	-			-	-	
	0	0	-	-	-	-	-	0.57	0.57	-	-	
Age	0	0						0.57	0.57			
Children	0	0	-	-	-	-	-			-	-	
Preadoiescents	5	5	3001	457	.658	0.60	0.71			0.44	0.44	
Addiescents	2	2	/30	354	.420	0.17	0.62	0.00	0.00	0.46	0.46	
KISK OI BIAS	7	7	4201	100	(01	0.40	0.00	0.00	0.00	0.40	0.40	
LOW KISK OF BIAS	1	1	4391	422	.601	0.49	0.69			0.48	0.48	
High Risk of Blas	0	0	-	-	-	-	-			-	-	105 0511
I eacher's competence support – Competence	6	6	4144	478	.616	0.50	0.71			0.48	0.48	135.0711

Culture								0.05	0.05			
Individualistic	5	5	2452	418	.603	0.46	0.72			0.48	0.48	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.00	0.00			
UK	2	2	1215	554	.421	0.35	0.48			0.24	0.24	
USA	0	0	-	-	-	-	-			-	-	
Sex								0.00	0.00			
Both	6	6	4144	478	.616	0.50	0.71			0.48	0.48	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.01	0.01			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	4	4	3414	580	.623	0.54	0.70			0.4	0.46	
Adolescents	2	2	730	354	.600	0.25	0.81			0.49	0.49	
Risk of Bias								0.00	0.00			
Low Risk of Bias	6	6	4144	478	.616	0.50	0.71			0.48	0.48	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support - Relatedness	6	6	4144	478	.608	0.50	0.69			0.48	0.48	118.0848
Culture								0.03	0.03			
Individualistic	5	5	2452	418	.600	0.47	0.70			0.47	0.47	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.00	0.00			
UK	2	2	1215	554	.596	0.36	0.76			0.48	0.48	
USA	0	0	-	-	-	-	-			-	-	
Sex								0.00	0.00			
Both	6	6	4144	478	.608	0.50	0.69			0.48	0.48	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	4	4	3414	580	.613	0.50	0.70			0.47	0.47	
Adolescents	2	2	730	354	.600	0.35	0.77			0.47	0.47	
Risk of Bias								0.00	0.00			
Low Risk of Bias	6	6	4144	478	.608	0.50	0.69			0.48	0.48	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support – Autonomous	6	10	6310	476	.627	0.55	0.69			0.00	0.97	117.4986
Motivation												
Culture								0.24	0.07			
Individualistic	5	9	4618	441	.623	0.49	0.73			0.00	0.95	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.78	0.00			
UK	2	4	2430	555	.507	0.46	0.55			0.00	0.44	
USA	1	1	-	-	-	-	-			-	-	
Sex								0.00	0.00			
Both	6	10	6310	476	.627	0.55	0.69			0.00	0.97	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.72	0.20			
								0.75	0.20			

Preadolescents	4	6	4850	618	.651	0.58	0.71			0.00	0.89	
Adolescents	2	4	1460	354	.572	.42	0.69			0.00	0.88	
Risk of Bias								0.00	0.00			
Low Risk of Bias	6	10	6310	476	.627	0.55	0.69			0.00	0.97	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support – Introjected	4	4	2166	473	.317	0.19	0.43			0.45	0.45	49.37274
Regulation												
Culture								0.00	0.03			
Individualistic	4	4	2166	473	.317	0.19	0.43			0.45	0.45	
Collectivistic	0	0	-	-	-	-	-			-	-	
Country								0.00	0.00			
UK	2	2	1215	554	.209	0.16	0.25			0.00	0.00	
USA	0	0	-	-	-	-	-			-	-	
Sex								0.00	0.00			
Both	4	4	2166	473	.317	0.19	0.43			0.45	0.45	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	2	2	1436	711	.353	0.12	0.55			0.48	0.48	
Adolescents	2	2	730	354	.272	0.21	0.33			0.00	0.00	
Risk of Bias								0.00	0.00			
Low Risk of Bias	4	4	2166	473	.317	0.19	0.43			0.45	0.45	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support – External Regulation	4	4	2166	473	080	-0.28	0.12			0.48	0.48	104.8497
Culture								0.0	0.00			
Individualistic	4	4	2166	473	080	-0.28	0.12			0.48	0.48	
Collectivistic	0	0	-	-	-	-	-			-	-	
Country								0.00	0.00			
UK	2	2	1215	554	112	-0.41	0.20			0.48	0.48	
USA	0	0	-	-	-	-	-			-	-	
Sex								0.00	0.00			
Both	4	4	2166	473	080	-0.28	0.12			0.48	0.48	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.02	0.02			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	2	2	1436	711	105	-0.41	0.22			0.48	0.48	
Adolescents	2	2	730	354	052	-0.29	0.96			0.44	0.44	
Risk of Bias								0.00	0.00			
Low Risk of Bias	4	4	2166	473	080	-0.28	0.12			0.48	0.48	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support – Amotivation	7	14	6932	298	351	-0.44	-0.26			0.23	0.68	186.2875
Culture								0.20	0.66			
Individualistic	6	13	5240	280	385	-0.46	-0.31			0.34	0.47	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.00	1.00			
UK	3	7	2025	203	396	-0.46	-0.33			0.78	0.00	
USA	1	4	2264	566	294	-0.33	-0.26			0.00	0.00	

Sex								0.00	0.02			
Both	6	9	6122	558	350	-0.46	-0.23			0.00	0.94	
Male	1	5	810	162	368	-0.46	-0.26			0.64	0.00	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.15			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	4	8	3938	233	373	-0.47	-0.26			0.92	0.00	
Adolescents	3	6	2994	472	304	-0.33	-0.28			0.00	0.00	
Risk of Bias								0.00	0.00			
Low Risk of Bias	7	14	6932	298	351	-0.44	-0.26			0.23	0.68	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's competence support - Adaptive Outcomes	8	19	10282	342	.397	0.30	0.48			0.71	0.24	549.1612
Culture								0.00	0.59			
Individualistic	5	12	4272	331	.352	0.23	0.44			0.91	0.00	
Collectivistic	3	7	6010	362	.468	0.31	0.60			0.47	0.49	
Country								0.01	0.18			
UK	1	2	856	428	.341	0.14	0.52			0.90	0.00	
USA	3	7	2510	323	.371	0.23	0.49			0.92	0.00	
Sex								0.00	0.00			
Both	8	19	10282	342	.397	0.30	0.48			0.71	0.24	
Male	Õ	0		-	-	-	-			-	-	
Female	ŏ	Ő	-	-	-	-	_			-	_	
Age	0	0						0.04	0.82			
Children	0	0	-	-	-	-	-	0.0.	0.02	-	-	
Preadolescents	4	11	7213	346	467	0.35	0.57			0.70	0.25	
Adolescents	4	8	3069	337	304	0.20	0.40			0.89	0.00	
Risk of Bias	•	0	2007	007	1001	0.20	0.10	0.00	0.00	0.05	0.00	
Low Risk of Bias	8	19	10282	342	397	0.30	0.48	0.00	0.00	0.71	0.24	
High Risk of Bias	Ő	0		-	-	-	-			-	-	
Teacher's competence support – Maladaptive	3 3	3 3	2422	481	- 260	-0.41	-0.10			0.46	0.46	41 82589
Outcomes	5	5	2122	101	.200	0.11	0.10			0.10	0.10	11.02505
Culture								0.68	0.68			
Individualistic	2	2	730	354	- 335	-0.48	-0.17	0.00	0.00	0.41	0.41	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.00	0.00			
LIK Country	1	1	_	_	_	_		0.00	0.00	_	_	
USA	0	0	_	_	_	_	-			_	_	
Sev	0	0						0.00	0.00			
Both	3	3	2422	481	260	0.41	0.10	0.00	0.00	0.46	0.46	
Male	0	0	2422	401	200	-0.41	-0.10			0.40	0.40	
Female	0	0	-	-	-	-	-				-	
Δα	U	U	-	-	-	-	-	0.68	0.68	-	-	
Children	Ω	0		_				0.08	0.00			
Official Dreadolescents	1	11	-	-	-	-	-			-	-	
A delegeents	1	2	720	- 254	- 225	-	- 0.17			- 0.41	- 0.41	
Audiescents Dist of Diss	2	2	730	554	333	-0.48	-0.17	0.00	0.00	0.41	0.41	
NISK UI DIAS	6	6	4144	170	609	0.50	0.60	0.00	0.00	0.49	0.49	
LUW KISK OF Dias	0	0	4144	4/8	.008	0.50	0.09			0.48	0.48	
rigii KISK UI Dias	0	0	-	- 294	-	-	- 0.75			-	-	207 4502
reacher's relatedness support-Autonomy	9	9	4994	384	.040	0.51	0.75			0.49	0.49	307.4392

Culture								0.14	0.14			
Individualistic	7	7	3054	372	.609	0.44	0.74			0.49	0.49	
Collectivistic	2	2	1940	433	.751	0.63	0.84			0.46	0.46	
Country								0.07	0.07			
UK	2	2	730	351	.550	0.19	0.78			0.49	0.49	
USA	1	1	-	-	-	-	-			-	-	
Sex	-	•						0.00	0.00			
Both	9	9	4994	384	.646	0.51	0.75			0.49	0.49	
Male	0	0	-	_	_	_	_			_	_	
Female	0	Õ	-	-	-	-	-			-	_	
Age	0	0						0.07	0.07			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	7	7	4264	394	.670	0.53	0.78			0.49	0.49	
Adolescents	2	2	730	351	.550	0.19	0.78			0.49	0.49	
Risk of Bias	-	-	100	001	1000	0117	01/0	0.00	0.00	0.17	0.15	
Low Risk of Bias	9	9	4994	384	646	0.51	0.75			0.49	0.49	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's relatedness support – Competence	9	9	5736	441	522	0.37	0.65			0.49	0.49	320,7369
Culture	-	-	0,00		10 22	0107	0.00	0.02	0.02	0.17	0.15	02011000
Individualistic	7	7	3054	372	504	0.31	0.66	0.02	0.02	0.49	0.49	
Collectivistic	2	2	2682	1249	579	0.43	0.00			0.48	0.48	
Country	2	2	2002	1249	.577	0.45	0.70	0.00	0.00	0.40	0.40	
UK	2	2	1215	554	485	0.45	0.52	0.00	0.00	0.00	0.00	
USA	2	$\frac{2}{2}$	602	292	189	0.45	0.32			0.00	0.00	
Sev	2	2	002	272	.109	0.11	0.27	0.00	0.00	0.00	0.00	
Both	0	0	5736	441	522	0.37	0.65	0.00	0.00	0.49	0.40	
Male	0	0	5750	441	.522	0.37	0.05			0.49	0.49	
Female	0	0	_			_					_	
Age	0	0						0.16	0.16			
Children	0	0						0.10	0.10			
Preadolescents	7	7	5006	474	171	0.31	0.61			0.49	0.49	
Adolescents	2	2	730	354	.474	0.31	0.85			0.49	0.49	
Risk of Bias	2	2	750	554	.000	0.55	0.05	0.00	0.00	0.49	0.47	
Low Pick of Bias	0	0	5736	441	522	0.37	0.65	0.00	0.00	0.49	0.40	
High Risk of Bias	0	0	5750	441	.522	0.37	0.05			0.49	0.49	
Teacher's relatedness support Palatedness	12	14	6767	378	670	0.56	0.76			0.50	0.30	183 5638
Culture	12	14	0707	526	.070	0.50	0.70	0.00	0.00	0.59	0.59	485.5058
Individualistic	11	12	4701	305	667	0.55	0.76	0.00	0.00	0.00	0.07	
Collectivistic	11	12	4701	303	.007	0.55	0.70			0.00	0.97	
Country	1	2	-	-	-	-	-	0.00	0.05	-	-	
	2	2	1215	554	737	0.60	0.82	0.00	0.05	0.47	0.47	
	2	ے ۸	052	100	.132	0.00	0.02			0.47	0.47	
USA Sov	3	4	932	199	.069	0.55	0.07	0.00	0.00	0.00	0.98	
Doth	11	12	6010	200	601	0.57	0 77	0.00	0.00	0.00	0.00	
DUII	11	12	0019	322	.081	0.57	0.77			0.00	0.98	
Iviale	0	0	-	-	-	-	-			-	-	
remaie	1	2	3/4	3/4	.047	0.40	0.81	0.00	0.20	0.90	0.00	
Age	0	0						0.00	0.29			
Cilliaren Draadalaagoanta	0	0	-	-	-	-				-	-	
Preadolescents	9	9	55/1	45/	./16	0.62	0.79			0.49	0.49	

Adolescents	3	5	1022	207	.477	0.28	0.64			0.00	0.91	
Risk of Bias								0.00	0.00			
Low Risk of Bias	12	14	6767	328	.670	0.56	0.76			0.59	0.39	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's relatedness support – Autonomous	13	24	13592	331	.527	0.44	0.60			0.05	0.90	534.4104
Motivation												
Culture								0.01	0.10			
Individualistic	9	18	7254	293	.556	0.47	0.64			0.10	0.84	
Collectivistic	4	6	6338	540	.453	0.27	0.60			0.00	0.98	
Country								0.00	0.00			
UK	2	4	2430	554	.526	0.49	0.56			0.05	0.00	
USA	4	8	1782	195	.524	0.32	0.68			0.18	0.75	
Sex								0.00	0.00			
Both	13	24	13592	331	527	0.44	0.60	0.00	0.00	0.05	0.90	
Male	0	0	-	-	.527	-	-			-	-	
Female	0	0	_	_	_	_	_			_	_	
A ge	0	0						0.00	0.00			
Children	0	0						0.00	0.00			
Dreadalassants	10	10	11940	- 270	525	0.41	-			0.08	-	
Adologoanto	2	10	1752	240	.525	0.41	0.02			0.08	0.90	
Addrescents	3	0	1732	240	.336	0.51	0.57	0.00	0.00	0.00	0.00	
KISK OF Blas	12	24	12502	221	507	0.44	0.00	0.00	0.00	0.05	0.00	
LOW RISK OF Blas	15	24	15592	331	.527	0.44	0.60			0.05	0.90	
High Risk of Bias	0	0	-	-	-	-	-			-	-	1.41.2002
leacher's relatedness support – Introjected	10	11	4806	298	.242	0.15	0.33			0.90	0.00	141.2983
Regulation								0.44	0.00			
Culture	0		0.5.65	202	201		0.05	0.46	0.00	0.04	0.00	
Individualistic	8	9	3567	282	.286	0.20	0.37			0.84	0.00	
Collectivistic	2	2	-	-	-	-	-			-	-	
Country								0.00	0.00			
UK	2	2	-	-	-	-	-			0.00	0.00	
USA	3	4	831	184	.243	0.12	0.36			0.76	0.00	
Sex								0.00	0.00			
Both	10	11	4806	298	.242	0.15	0.33			0.90	0.00	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.08	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	7	8	3930	357	.216	0.10	0.33			0.92	0.00	
Adolescents	3	3	876	240	.289	0.21	0.37			0.02	0.02	
Risk of Bias								0.00	0.00			
Low Risk of Bias	10	11	4806	298	.242	0.15	0.33			0.90	0.00	
High Risk of Bias	0	0	_	_	_	_	_			_	-	
Teacher's relatedness support – External Regulation	9	10	4557	303	- 153	-0.31	0.01			0.00	0.96	309.8564
Culture		10	1007	000		0.01	0.01	0.00	0.07	0100	0.00	20010201
Individualistic	8	9	3567	282	- 129	-0.30	0.05	0.00	0.07	0.00	0.96	
Collectivistic	1	í	-	-	-	-	-			-	-	
Country	1	-						0.00	0.30			
UK	2	2	1215	554	- 390	-0.49	-0.29	0.00	0.50	0.38	0.38	
USA	3	4	831	184	- 108	-0.41	0.22			0.00	0.94	
00/1	5	-	0.51	104	100	-01	0.22			0.00	0.74	

Sex								0.00	0.00			
Both	9	10	4557	303	153	-0.31	0.01			0.00	0.96	
Male	0	0	-	-	-	-	-			-	-	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	6	7	3681	342	147	-0.37	0.09			0.00	0.98	
Adolescents	3	3	876	240	172	-0.30	-0.04			0.36	0.36	
Risk of Bias								0.00	0.00			
Low Risk of Bias	9	10	4557	303	153	-0.31	0.01			0.00	0.96	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's relatedness support - Amotivation	11	27	10549	258	281	-0.38	-0.17			0.16	0.78	414.1287
Culture								0.08	0.15			
Individualistic	9	21	6952	230	312	-0.42	-0.20			0.21	0.71	
Collectivistic	2	6	3597	437	123	-0.29	0.06			0.08	0.82	
Country								0.00	0.30			
UK	0	0	1215	554	390	-0.49	-0.29			0.38	0.38	
USA	3	4	831	184	108	-0.41	0.22			0.00	0.94	
Sex								0.00	0.06			
Both	10	22	9739	297	279	-0.39	-0.16			0.12	0.82	
Male	1	5	810	162	308	-0.39	-0.22			0.49	0.00	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	6	15	5504	208	281	-0.45	-0.09			0.21	0.74	
Adolescents	5	12	5045	367	262	-0.33	-0.19			0.26	0.36	
Risk of Bias								0.02	0.00			
Low Risk of Bias	11	27	10549	258	281	-0.38	-0.17			0.16	0.78	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's relatedness support – Adaptive Outcomes	18	41	23960	339	.383	0.32	0.44			0.96	0.00	1118.155
Culture								0.00	0.00			
Individualistic	14	33	17164	361	.390	0.33	0.45			0.95	0.00	
Collectivistic	4	8	6796	390	.349	0.16	0.51			0.28	0.92	
Country								0.00	0.00	0		
UK	1	2	856	428	.384	0.16	0.57			0.92	0.00	
USA	7	15	4385	252	.375	0.28	0.46			0.91	0.00	
Sex								0.00	0.00			
Both	17	37	22464	336	.396	0.34	0.45			0.95	0.00	
Male	0	0		-	-	-	-			-	-	
Female	1	4	1496	374	345	0.16	0.51			0.93	0.00	
Age	-	•	1100	071	10 10	0110	0.01	0.00	0.00	0.75	0.00	
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	12	31	16348	345	397	0.33	0.46			0.95	0.00	
Adolescents	6	10	7612	323	.375	0.27	0.47			0.93	0.00	
Risk of Bias	0	10		020	.010	0.27	0.17	0.00	0.00	0.75	0.00	
Low Risk of Bias	18	41	23960	339	383	0.32	0.44	0.00	0.00	0.96	0.00	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Teacher's relatedness support – Maladaptive	9	12	6404	324	- 137	-0.25	-0.02			0.43	0.51	209 515
Outcomes oremediates support mininduprive	,	14	0104	527	.157	0.25	0.02			0.75	0.01	207.515

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Culture Individualistic	8	11	4712	302	130	-0.27	-0.08	0.20	0.00	0.86	0.00	
Collectivistic	1	1	-	-	-	-	-			-	-	
Country								0.04	0.00			
UK	1	1	-	-	-	-	-			-	-	
USA	3	4	952	199	174	-0.24	-0.10			0.18	0.00	
Sex								0.00	0.00			
Both	8	11	6030	320	160	-0.26	-0.05			0.90	0.00	
Male	0	0	-	-	-	-	-			-	-	
Female	1	1	-	-	-	-	-			-	-	
Age								0.47	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	6	8	5382	453	- 107	-0.18	-0.04			0.80	0.00	
Adolescents	3	4	1022	207	- 284	-0.43	-0.12			0.81	0.00	
Risk of Bias	5	•	1022	207	.201	0.15	0.12	0.00	0.00	0.01	0.00	
Low Risk of Bias	Q	12	6404	324	- 137	-0.25	-0.02	0.00	0.00	0.43	0.51	
High Risk of Bias	0	0	-	-	-	-	-			-	-	
Autonomy – Competence	5/1	66	32833	284	651	0.58	0.71			0.08	0.91	5864 978
Culture* (n<0.001)	54	00	52055	204	.001	0.50	0.71	0.00	0.22	0.00	0.91	5004.770
Individualistic	32	30	1789/	281	5/13	0.44	0.63	0.00	0.22	0.04	0.94	
Collectivistic	21	26	1/024	285	.545	0.70	0.05			0.15	0.94	
Country	21	20	14224	285	.119	0.70	0.04	0.00	0.11	0.15	0.84	
	3	3	1303	325	533	0.20	0.71	0.00	0.11	0.48	0.48	
	11	17	7326	250	.555	0.29	0.71			0.48	0.48	
$S_{av} * (n < 0.001)$	11	17	7320	230	.405	0.29	0.04	0.57	0.01	0.05	0.95	
Sex* (p<0.001)	50	50	20070	205	((0)	0.00	0.72	0.57	0.01	0.02	0.00	
DOIII Mala	30	39	29909	293	.009	0.00	0.75			0.05	0.90	
Famala	4	4	1462	191	.279	-0.05	0.54			0.48	0.48	
	5	3	1562	213	.365	0.20	0.50	0.00	0.00	0.40	0.40	
Age	1	1	1072	1072	400	0.27	0.47	0.00	0.00	0.50	0.50	
Children Dras de la securita	1	1 20	10/5	1075	.422	0.57	0.47			0.50	0.50	
	29	38	18255	201	.591	0.50	0.07			0.05	0.93	
Adolescents Di l. (Di	20	27	13507	517	./19	0.62	0.80	0.00	0.02	0.37	0.62	
KISK OI BIAS	5 0	<i>(</i> -	225.40	285		0.50	0.72	0.00	0.02	0.00	0.01	
Low Risk of Bias	53	65	32540	285	.656	0.58	0.72			0.08	0.91	
High Risk of Bias	1	1	293	293	-	-	-			-	-	0041 100
Autonomy – Relatedness	51	62	30482	280	.596	0.53	0.65	0.00	0.00	0.60	0.37	2941.103
Culture			1 40 55	255		0.40	0.72	0.00	0.00			
Individualistic	30	37	16357	277	.565	0.49	0.63			0.76	0.21	
Collectivistic	21	26	14224	285	.779	0.70	0.84	o	0.00	0.15	0.84	
Country	-	6	a	251		o	o ==	0.07	0.00	0.10	0.10	
UK	8	8	3624	371	.683	0.57	0.77			0.48	0.48	
USA	11	17	5365	221	.567	0.43	0.67			0.88	0.08	
Sex								0.00	100.0			
Both	549	59	30106	300	.605	0.55	0.66			0.89	0.09	
Male	2	3	376	122	.506	NA	NA			0.93	0.00	
Female	1	2	276	138	.296	-0.12	0.62			0.92	0.00	
Age								0.00	0.00			
Children	1	1	1073	1073	.635	0.60	0.67			0.50	0.50	
Preadolescents	29	40	17353	241	.583	0.51	0.65			0.82	0.15	

Adolescents	23	23	12332	332	.611	0.51	0.69			0.49	0.49	
Risk of Bias								0.01	0.02			
Low Risk of Bias	50	63	30465	271	.600	0.54	0.65			0.77	0.21	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Autonomy – Autonomous Motivation	33	80	34165	235	.565	0.50	0.63			0.13	0.84	2696.958
Culture								0.00	0.03			
Individualistic	18	46	18988	262	.536	0.45	0.62			0.19	0.78	
Collectivistic	15	34	15177	186	.599	0.49	0.69			0.09	0.89	
Country								0.00	0.02			
UK	6	11	4890	359	.610	0.45	0.73			0.08	0.89	
USA	7	22	6290	187	.538	0.42	0.64			0.21	0.70	
Sex								0.00	0.00			
Both	31	76	33151	240	.564	0.49	0.63			0.12	0.85	
Male	2	3	607	134	.534	0.48	0.59			0.00	0.28	
Female	1	1	400	400	-	-	-			-	-	
Age								0.00	0.00			
Children	1	2	2146	1073	.414	0.38	0.45			0.00	0.00	
Preadolescents	15	40	13542	200	.647	0.59	0.70			0.23	0.69	
Adolescents	18	38	18477	273	.503	0.38	0.61			0.14	0.84	
Risk of Bias								0.00	0.01			
Low Risk of Bias	32	78	33579	233	.569	0.50	0.63			0.13	0.84	
High Risk of Bias	1	2	586	293	.450	0.36	0.53			0.39	0.00	
Autonomy – Introjected Regulation	28	35	12779	213	346	0.26	0.42			0.22	0.73	809 4907
Culture	20	00	12///>	210	10.10	0.20	02	0.01	0.01	0.22	0170	00711707
Individualistic	17	22	7991	248	325	0.22	0.42	0.01	0.01	0.00	0.95	
Collectivistic	11	13	4788	152	359	0.19	0.51			0.00	0.54	
Country	11	15	4700	152	.557	0.17	0.51	0.00	0.02	0.42	0.54	
	6	6	2609	356	397	0.32	0.47	0.00	0.02	0.41	0.41	
USA	7	12	3442	193	337	0.15	0.47			0.00	0.41	
Say	/	12	3442	1)5	.557	0.15	0.50	0.00	0.01	0.00	0.75	
Both	27	34	12670	221	342	0.25	0.43	0.00	0.01	0.22	0.74	
Male	1	1	100	100	.342	0.25	0.45			0.22	0.74	
Female	1	0	100	100	.++0	0.27	0.57			0.50	0.50	
Age	0	0	-	-	-	-	-	100.0	0.00	-	-	
Children	2	2	1264	159	515	0.12	0.78	100.0	0.00	0.40	0.40	
Dreadalascents		20	6110	4.30	.545	0.13	0.78			0.49	0.49	
Adolosconts	14	12	5205	190	.307	0.22	0.39			0.00	0.00	
Addrescents Disk of Disc	15	15	5505	221	.552	0.20	0.48	0.00	0.17	0.49	0.49	
KISK OI DIAS	27	24	12496	212	261	0.29	0.44	0.00	0.17	0.25	0.71	
LOW KISK OF Blas	27	34	12480	212	.301	0.28	0.44			0.25	0.71	
High Risk of Blas	1	1	293	293	-	-	-			-	-	012 2100
Autonomy – External Regulation	29	36	14082	220	131	-0.23	-0.03	0.07	0.01	0.13	0.84	912.3109
Culture	10					0.00	0.40	0.06	0.21	0.40		
Individualistic	18	23	9294	260	222	-0.32	-0.12			0.19	0.76	
Collectivistic	11	13	4788	164	.027	-0.13	0.18			0.09	0.86	
Country	-	-	2201	2.02		0.12	0.25	0.06	0.19	0.10	0.10	
UK	5	5	2281	362	351	-0.43	-0.26			0.40	0.40	
USA	7	12	3442	193	173	-0.37	0.04	0.00	0.0-	0.13	0.83	
Sex								0.00	0.03			
Both	28	35	13982	227	139	-0.24	-0.04			0.13	0.84	

Male	1	1	100	100	.110	-0.09	0.30			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age								0.45	0.00			
Children	2	2	1364	458	047	-0.27	0.18			0.46	0.46	
Preadolescents	13	19	5782	194	224	-0.36	-0.08			0.11	0.84	
Adolescents	15	15	6936	244	077	-0.21	0.06			0.48	0.48	
Risk of Bias								0.00	0.00			
Low Risk of Bias	28	35	13789	218	130	-0.23	-0.03			0.12	0.84	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Autonomy – Amotivation	26	44	20058	288	288	-0.36	-0.20			0.34	0.62	1317.835
Culture								0.02	0.01			
Individualistic	14	14	7042	375	319	-0.43	-0.20			0.48	0.48	
Collectivistic	12	30	13016	261	252	-0.37	-0.13			0.35	0.61	
Country								0.01	0.04			
UK	6	6	2609	356	351	-0.53	-0.15			0.48	0.48	
USA	2	2	1364	458	246	-0.65	0.26			0.49	0.49	
Sex								0.00	0.00			
Both	25	43	19958	302	287	-0.37	-0.20			0.33	0.63	
Male	1	1	100	100	310	-0.48	-0.12			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age								0.40	0.00			
Children	2	2	1364	458	246	-0.65	0.26			0.49	0.49	
Preadolescents	11	24	10954	314	288	-0.42	-0.14			0.13	0.84	
Adolescents	14	18	7740	250	312	-0.41	-0.21			0.47	0.47	
Risk of Bias								0.00	0.01			
Low Risk of Bias	25	43	19765	288	292	-0.38	-0.20			0.33	0.63	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Autonomy – Adaptive Outcomes	48	154	63924	268	.439	0.38	0.50			0.32	0.65	6549.014
Culture								0.00	0.07			
Individualistic	27	86	31418	284	.348	0.28	0.41			0.50	0.45	
Collectivistic	19	64	30262	243	.555	0.46	0.64			0.26	0.71	
Country								0.00	0.09			
UK	7	25	10282	356	.319	0.17	0.45			0.32	0.63	
USA	9	29	11335	274	.403	0.32	0.48			0.79	0.16	
Sex								0.00	0.00			
Both	45	143	61982	288	.452	0.39	0.51			0.33	0.64	
Male	3	7	1121	129	.348	0.12	0.54			0.02	0.85	
Female	2	4	821	165	.229	NA	NA			0.65	0.00	
Age								0.00	0.00			
Children	1	1	1073	1073	.422	0.37	0.47			0.50	0.50	
Preadolescents	24	80	30623	256	.464	0.36	0.55			0.21	0.76	
Adolescents	25	73	32228	280	.455	0.39	0.52			0.51	0.46	
Risk of Bias								0.00	0.01			
Low Risk of Bias	47	153	63631	268	.445	0.38	0.50			0.32	0.65	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Autonomy – Maladaptive Outcomes	14	20	9959	238	262	-0.31	-0.13			0.67	0.28	500.6509
Culture	_							0.00	0.09			
Individualistic	7	9	3438	359	192	-0.31	-0.06			0.90	0.00	
Collectivistic	7	11	6521	187	249	-0.40	-0.09			0.22	0.74	

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Country								0.22	0.30			
UK	2	4	1910	476	.155	0.09	0.21			0.72	0.00	
USA	3	3	933	391	.212	0.13	0.29			0.21	0.21	
Sex								0.00	0.10			
Both	13	19	9859	257	218	-0.31	-0.12			0.67	0.28	
Male	1	1	100	100	354	-0.52	-0.17			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age								0.04	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	6	9	4480	173	192	-0.36	-0.02			0.97	0.00	
Adolescents	8	11	5479	345	250	-0.34	-0.15			0.41	0.50	
Risk of Bias								0.00	0.07			
Low Risk of Bias	13	19	9666	236	220	-0.31	-0.12			0.66	0.28	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Competence – Relatedness	50	60	29367	274	.584	0.54	0.62			0.44	0.52	1346.914
Culture								0.00	0.00			
Individualistic	30	36	16324	273	.524	0.48	0.57			0.94	0.00	
Collectivistic	19	23	12328	269	.661	0.60	0.71			0.24	0.72	
Country								0.18	0.00			
UK	5	5	2502	380	.645	0.54	0.73			0.47	0.47	
USA	13	18	6429	233	.515	0.45	0.58			0.92	0.00	
Sex								0.06	0.00			
Both	48	57	28991	293	.587	0.54	0.63			0.48	0.49	
Male	2	2	238	116	.542	0.44	0.63			0.00	0.00	
Female	1	1	138	138	-	-	-			-	-	
Age								0.00	0.00			
Children	1	1	1073	1073	-	-	-			-	-	
Preadolescents	27	35	16204	249	.554	0.50	0.60			0.77	0.18	
Adolescents	24	24	12090	311	.620	0.56	0.68			0.48	0.48	
Risk of Bias								0.00	0.01			
Low Risk of Bias	49	59	29074	274	.587	0.55	0.63			0.43	0.63	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Competence – Autonomous Motivation	52	123	54922	266	.597	0.56	0.66			0.15	0.83	6858.848
Culture								0.00	0.00			
Individualistic	27	65	27247	269	.630	0.56	0.69			0.18	0.80	
Collectivistic	24	56	26861	186	.595	0.50	0.68			0.12	0.86	
Country								0.00	0.03			
UK	8	17	7850	376	.673	0.59	0.75			0.04	0.92	
USA	7	21	6069	186	.521	0.42	0.61			0.32	0.57	
Sex								0.00	0.00			
Both	47	113	51842	270	.617	0.56	0.67			0.15	0.83	
Male	4	5	1297	173	.553	0.36	0.70			0.25	0.68	
Female	4	5	1783	340	.479	0.35	0.59			0.00	0.89	
Age								0.00	0.00			
Children	2	3	2662	789	.454	0.13	0.69			0.07	0.91	
Preadolescents	20	72	28372	242	.588	0.53	0.64			0.19	0.77	
Adolescents	30	12	100/11									
radiescents	30 21	48	23888	299	.655	0.55	0.74			0.14	0.85	
Risk of Bias	30 21	48	23888	299	.655	0.55	0.74	0.00	0.02	0.14	0.85	

High Risk of Bias	1	2	586	293	.776	0.74	0.81			0.00	0.00	
Competence – Introjected Regulation	38	45	18288	241	.277	0.20	0.35			0.11	0.85	1273.223
Culture								0.00	0.00			
Individualistic	20	25	9162	246	.281	0.17	0.39			0.14	0.83	
Collectivistic	18	20	9126	234	.274	0.16	0.38			0.07	0.89	
Country								0.00	0.09			
UK	8	8	3761	379	.372	0.31	0.43			0.38	0.38	
USA	6	11	3205	190	.338	0.17	0.49			0.19	0.74	
Sex								0.00	0.06			
Both	36	43	17845	247	.279	0.20	0.36			0.11	0.86	
Male	1	1	100	100	.485	0.32	0.62			0.50	0.50	
Female	1	1	343	343	.000	-0.11	0.11			0.50	0.50	
Age								0.41	0.00			
Children	2	2	1364	458	.497	0.21	0.71			0.49	0.49	
Preadolescents	22	28	10298	228	.255	0.17	0.33			0.15	0.79	
Adolescents	15	15	6626	251	.276	0.13	0.41			0.49	0.49	
Risk of Bias								0.00	0.12			
Low Risk of Bias	37	44	17995	240	.290	0.21	0.36			0.12	0.84	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Competence – External Regulation	40	50	20777	245	108	-0.20	-0.02			0.21	0.76	1788.883
Culture								0.02	0.02			
Individualistic	22	29	11517	261	156	-0.26	-0.05			0.08	0.89	
Collectivistic	18	21	9260	226	055	-0.20	0.10			0.49	0.49	
Country								0.00	0.11			
UK	6	6	3105	400	292	-0.38	-0.20			0.43	0.43	
USA	6	11	3205	190	149	-0.25	-0.04			0.02	0.79	
Sex								0.00	0.06			
Both	36	44	18954	247	112	-0.21	-0.03			0.26	0.71	
Male	3	3	790	183	.211	0.03	0.38			0.41	0.41	
Female	3	3	1033	321	013	-0.44	0.42			0.49	0.49	
Age								0.45	0.00			
Children	2	2	1364	548	042	-0.26	0.18			0.46	0.46	
Preadolescents	22	31	11156	226	071	-0.19	0.05			0.12	0.84	
Adolescents	17	17	8257	272	182	-0.32	-0.03			0.49	0.49	
Risk of Bias								0.00	0.01			
Low Risk of Bias	39	49	20484	244	104	-0.20	-0.01			0.21	0.77	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Competence – Amotivation	31	50	22358	289	418	-0.48	-0.35			0.42	0.54	1171.727
Culture								0.00	0.18			
Individualistic	16	16	7490	328	466	-0.54	-0.38	0.00	0110	0.47	0.47	
Collectivistic	15	34	14868	273	- 368	-0.46	-0.27			0.41	0.54	
Country							•	0.08	0.00			
UK	8	8	3761	379	- 530	-0.58	-0.47	0.00	0.00	0.41	0.41	
USA	2	2	1364	458	167	-0.40	0.01			0.47	0.47	
Sex	-	-	1001		.107	0.10	0.01	0.00	0.04	5.17	5.17	
Both	30	49	22258	300	- 413	-0.48	-0.35	0.00	0.04	0.42	0.54	
Male	1	1	100	100	- 565	-0.69	-0.39			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	

Children	2	2	1364	458	167	-0.40	0.09			0.47	0.47	
Preadolescents	16	30	13220	299	375	-0.46	-0.28			0.14	0.82	
Adolescents	14	18	7774	262	503	-0.57	-0.43			0.03	0.90	
Risk of Bias								0.00	0.04			
Low Risk of Bias	30	49	22065	288	414	-0.48	-0.35			0.41	0.54	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Competence – Adaptive Outcomes	103	311	159975	282	.525	0.48	0.57			0.44	0.55	19165.75
Culture								0.00	0.00			
Individualistic	59	169	77351	266	.497	0.43	0.56			0.35	0.63	
Collectivistic	42	138	80380	300	.545	0.48	0.61			0.57	0.41	
Country								0.00	0.00			
UK	14	41	14829	201	.555	0.42	0.67			0.36	0.62	
USA	12	43	19357	299	.502	0.37	0.61			0.33	0.65	
Sex								0.00	0.00			
Both	93	276	138724	294	.532	0.48	0.58			0.45	0.53	
Male	9	18	10254	190	.471	0.34	0.59			0.30	0.68	
Female	10	17	10997	246	.413	0.29	0.52			0.26	0.71	
Age								0.00	0.00			
Children	3	4	5671	261	.591	NA	NA			0.54	0.00	
Preadolescents	64	189	88575	273	.503	0.44	0.57			0.32	0.66	
Adolescents	40	118	65729	298	.560	0.50	0.62			0.64	0.34	
Risk of Bias								0.00	0.00			
Low Risk of Bias	99	301	154452	284	.528	0.48	0.57			0.42	0.57	
High Risk of Bias	4	10	5523	234	.468	0.30	0.61			0.98	0.00	
Competence – Maladaptive Outcomes	29	45	21000	208	255	-0.38	-0.13			0.69	0.30	2974.374
Culture								0.05	0.00			
Individualistic	13	19	8101	253	342	-0.49	-0.17			0.51	0.47	
Collectivistic	16	26	12899	184	194	-0.38	0.00			0.68	0.31	
Country								0.05	0.05			
UK	3	7	3512	499	394	-0.71	0.05			0.32	0.67	
USA	2	2	635	303	590	-0.64	-0.54			0.00	0.00	
Sex		10	20210	210	251	0.00	0.11	0.00	0.00	0.50		
Both	27	43	20218	210	251	-0.38	-0.11			0.68	0.30	
Male	2	2	782	174	331	-0.62	0.03			0.46	0.46	
Female	0	0	-	-	-	-	-	0.00	0.00	-	-	
Age			- 4	7.1	210	0.10	0.51	0.00	0.00	0.50	0.50	
Children	1	I	74	74	.319	0.10	0.51			0.50	0.50	
Preadolescents	14	21	10503	204	249	-0.39	-0.10			0.74	0.24	
Adolescents	16	23	10423	230	269	-0.46	-0.06	0.00	0.45	0.85	0.14	
KISK OF BIAS	26	10	10424	221	200	0.41	0.17	0.00	0.45	0.95	0.14	
LOW RISK OF Blas	26	40	19424	221	309	-0.41	-0.17			0.85	0.14	
High Kisk of Blas	3	3 01	1570	140	031	-0.40	0.54			0.02	0.94	1000 022
Calvar	33	81	35205	240	.511	0.48	0.59	0.00	0.00	0.06	0.89	1990.033
Ludividualistic	10	47	19062	252	575	0.50	0.64	0.00	0.09	0.05	0.00	
	18	47 34	16002	235	.373	0.30	0.04			0.05	0.90	
Country	15	54	1/143	230	.403	0.40	0.50	0.00	0.00	0.09	0.00	
	6	11	4800	350	623	0.51	0.71	0.00	0.00	0.03	0.02	
	0	24	4090	120	.023	0.51	0.71			0.05	0.92	
USA	9	24	0307	100	.307	0.50	0.00			0.15	0.75	
Sex								0.00	0.00			
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Both	32	79	35005	255	.535	0.48	0.59			0.06	0.90	
Male	1	2	200	100	.561	0.46	0.65			0.00	0.00	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	1	2	2146	1073	.561	0.53	0.59			0.00	0.00	
Preadolescents	17	44	15470	211	.586	0.51	0.65			0.07	0.88	
Adolescents	16	35	17589	293	.467	0.40	0.53			0.07	0.86	
Risk of Bias								0.00	0.00			
Low Risk of Bias	32	79	34619	245	.535	0.48	0.59			0.06	0.90	
High Risk of Bias	1	2	586	293	.561	0.50	0.62			0.00	0.00	
Relatedness – Introjected Regulation	29	36	13512	225	.269	0.19	0.35			0.23	0.72	669.4537
Culture								0.00	0.03			
Individualistic	18	23	8416	245	.293	0.18	0.40			0.28	0.67	
Collectivistic	11	13	5096	196	.245	0.12	0.37			0.14	0.80	
Country								0.00	0.00			
UK	6	6	2609	356	.398	0.30	0.49			0.44	0.44	
USA	6	11	3060	179	.368	0.21	0.51			0.39	0.53	
Sex								0.00	0.02			
Both	28	35	13412	233	.269	0.18	0.35			0.23	0.73	
Male	1	1	100	100	.446	0.27	0.59			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	1	1	1073	1073	.336	0.28	0.39			0.50	0.50	
Preadolescents	16	22	7074	209	.291	0.19	0.39			0.29	0.65	
Adolescents	13	13	5365	241	.240	0.10	0.37			0.48	0.48	
Risk of Bias								0.08	0.30			
Low Risk of Bias	28	35	13219	223	.269	0.22	0.36			0.27	0.67	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Relatedness – External Regulation	31	38	15106	233	078	-0.15	0.00			0.00	0.94	590.1877
Culture								0.01	0.11			
Individualistic	19	24	8928	250	135	-0.22	-0.05			0.14	0.79	
Collectivistic	12	14	6178	210	.016	-0.11	0.14			0.00	0.95	
Country	_	_						0.00	0.09			
UK	5	5	2281	363	240	-0.29	-0.19			0.20	0.20	
USA	7	12	3351	185	163	-0.29	-0.03	0.01	0.04	0.14	0.75	
Sex	20		1.500.5		00 -	0.1.6	0.04	0.01	0.04	0.00	0.04	
Both	30	37	15006	241	085	-0.16	-0.01			0.00	0.94	
Male	1	1	100	100	168	-0.03	0.35			0.50	0.50	
Female	0	0	-	-	-	-	-	0.00	0.00	-	-	
Age			10.44	150	000	0.07		0.00	0.00	0.00		
Children	2	2	1364	458	.083	-0.06	0.22			0.39	0.39	
Preadolescents	15	21	6746	205	118	-0.22	-0.01			0.03	0.89	
Adolescents	15	15	6996	264	0/1	-0.18	0.04	0.00	0.02	0.48	0.48	
KISK OI BIAS	20	27	14012	021	071	0.14	0.01	0.00	0.03	0.00	0.04	
LOW KISK OF Blas	50	5/	14813	231	0/1	-0.14	0.01			0.00	0.94	
HIGH KISK OF BIAS	1	1	293	293	-	-	0.22			-	-	502 4190
Celtere	28	40	20974	290	297	-0.36	-0.23	0.00	0.01	0.17	0.77	595.4189
Culture								0.00	0.01			

Self-Determination	on Theory	in Ph	ysical	Education

Individualistic	14	14	6482	351	314	-0.40	-0.23			0.47	0.47	
Collectivistic	14	32	14492	270	279	-0.37	-0.18	0.00	0.17	0.15	0.79	
Country	-	6	0,000	254	200	0.40	0.20	0.00	0.17	0.15	0.15	
UK	6	6	2609	356	388	-0.49	-0.28			0.45	0.45	
USA	3	3	1510	267	162	-0.35	0.03			0.45	0.45	
Sex								0.00	0.00			
Both	27	45	20874	303	296	-0.36	-0.23			0.16	0.78	
Male	1	1	100	100	319	-0.49	-0.13			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age								0.00	0.00			
Children	2	2	1364	458	215	-0.44	0.04			0.47	0.47	
Preadolescents	13	26	11918	322	281	-0.38	-0.18			0.21	0.73	
Adolescents	14	18	7692	245	323	-0.40	-0.24			0.00	0.90	
Risk of Bias								0.00	0.09			
Low Risk of Bias	27	45	20681	290	288	-0.35	-0.22			0.17	0.77	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Relatedness – Adaptive Outcomes	53	167	67415	262	.426	0.38	0.47			0.39	0.57	4849.132
Culture								0.01	0.19			
Individualistic	31	100	35598	284	.391	0.33	0.45			0.52	0.44	
Collectivistic	22	67	30387	230	.448	0.38	0.51			0.32	0.63	
Country								0.00	0.03			
UK	7	25	10282	356	.480	0.28	0.64			0.19	0.79	
USA	14	41	13016	253	.455	0.37	0.53			0.70	0.26	
Sex								0.00	0.00			
Both	50	154	64791	278	.433	0.38	0.48			0.40	0.56	
Male	2	6	714	116	.253	-0.10	0.55			0.25	0.65	
Female	2	7	1910	216	.249	0.01	0.47			0.51	0.42	
Age								0.00	0.00			
Children	1	1	1073	1073	.558	0.52	0.60			0.50	0.50	
Preadolescents	27	86	33690	265	.389	0.31	0.46			0.35	0.61	
Adolescents	27	80	32652	256	.461	0.40	0.52			0.50	0.46	
Risk of Bias	27	00	02002			0.10	0.02	0.00	0.00	0.00	00	
Low Risk of Bias	52	166	67122	262	.427	0.38	0.48	0.00	0.00	0.39	0.58	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Relatedness – Maladaptive Outcomes	20	26	11685	223	- 318	-0.40	-0.24			0.21	0.54	565,2307
Culture	20	20	11005	227	.510	0.40	0.24	0.00	0.00	0.21	0.54	565.2507
Individualistic	10	13	4515	296	- 292	-0.39	-0.19	0.00	0.00	0.81	0.10	
Collectivistic	10	13	7170	180	- 340	-0.35	-0.19			0.00	0.10	
Country	10	15	/1/0	100	540	-0.40	-0.20	0.00	0.04	0.00	0.90	
	2	4	1910	176	- 173	NΔ	NΔ	0.00	0.04	0.94	0.00	
USA	∠ 5	+	1636	230	175	-0.46	-0.21			0.94	0.00	
Sav	5	0	1050	250	340	-0.40	-0.21	0.00	0.03	0.00	0.00	
Doth	17	24	11211	222	212	0.40	0.22	0.00	0.05	0.41	0.54	
DUII Mala	1/	24 1	11211	232 100	312	-0.40	-0.22			0.41	0.54	
Iviale Famala	1	1	100	100	380	-0.54	-0.20			0.50	0.50	
remaie	1	1	5/4	374	388	-0.47	-0.30	0.00	0.00	0.50	0.50	
Age	0	0						0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	9	12	5828	204	321	-0.42	-0.21			0.47	0.46	
Adolescents	10	14	5857	245	314	-0.43	-0.19			0.39	0.56	

Risk of Bias								0.01	0.00			
Low Risk of Bias	18	25	11392	222	322	-0.40	-0.24			0.40	0.54	
High Risk of Bias	1	1	293	293	-	-	-			_	-	
Autonomous Motivation – Introjected Regulation	58	152	60837	237	.565	0.47	0.65			0.31	0.68	26889.27
Culture								0.00	0.00			
Individualistic	37	96	34206	225	.588	0.48	0.68			0.18	0.81	
Collectivistic	21	56	26631	259	.529	0.31	0.69			0.40	0.59	
Country								0.00	0.06			
UK	12	27	12036	263	.640	0.58	0.70			0.55	0.40	
USA	10	33	8572	188	.692	0.60	0.77			0.41	0.55	
Sex								0.00	0.03			
Both	56	148	59951	240	.569	0.47	0.66			0.32	0.68	
Male	1	2	200	100	.714	0.64	0.78			0.00	0.00	
Female	1	2	686	343	.000	-0.17	0.17			0.80	0.00	
Age								0.01	0.00			
Children	1	2	2146	1073	.530	0.40	0.64			0.94	0.00	
Preadolescents	34	94	34676	223	.571	0.44	0.68			0.21	0.78	
Adolescents	24	56	24015	256	.557	0.39	0.69			0.46	0.53	
Risk of Bias								0.00	0.10			
Low Risk of Bias	57	150	60251	236	.575	0.48	0.66			0.32	0.67	
High Risk of Bias	1	2	586	293	240	-0.34	-0.14			0.39	0.00	
Autonomous Motivation – External Regulation	69	177	75060	235	025	-0.14	0.09			0.15	0.85	23818.91
Culture								0.00	0.04			
Individualistic	43	112	43405	229	096	-0.23	0.04			0.16	0.83	
Collectivistic	24	59	30879	271	.102	-0.12	0.32			0.12	0.87	
Country								0.00	0.07			
UK	10	22	10396	251	317	-0.44	-0.18			0.50	0.48	
USA	12	37	9976	195	010	-0.15	0.13			0.34	0.61	
Sex								0.00	0.00			
Both	64	165	72306	242	042	-0.16	0.08			0.15	0.84	
Male	3	4	890	151	.444	0.14	0.67			0.00	0.94	
Female	4	8	1864	178	.224	-0.39	0.70			0.16	0.83	
Age								0.01	0.00			
Children	1	2	2146	1073	.235	0.17	0.30			0.62	0.00	
Preadolescents	39	108	37889	211	024	-0.18	0.13			0.18	0.81	
Adolescents	30	67	35025	278	051	-0.23	0.13			008	0.91	
Risk of Bias								0.00	0.01			
Low Risk of Bias	68	175	74474	234	020	-0.14	0.10			0.15	0.85	
High Risk of Bias	1	2	586	293	384	-0.46	-0.31			0.18	0.00	
Autonomous Motivation – Amotivation	62	179	77805	256	434	-0.52	-0.34			0.29	0.70	14807.1
Culture								0.00	0.05			
Individualistic	38	89	36603	239	448	-0.56	-0.31			0.39	0.60	
Collectivistic	22	84	40426	301	420	-0.53	-0.30			0.20	0.78	
Country								0.00	0.11			
UK	12	27	12036	262	585	-0.76	-0.32			0.55	0.45	
USA	6	15	5224	222	185	-0.41	0.07	a		0.18	0.79	
Sex								0.00	0.01			
Both	60	173	77117	268	435	-0.52	-0.34			0.29	0.70	
Male	1	2	200	100	582	-0.67	-0.48			0.00	0.00	

Female	1	4	488	122	219	-0.31	-0.12			0.19	0.00	
Age								0.00	0.00			
Children	1	2	2146	1073	245	-0.59	0.17			0.00	0.00	
Preadolescents	33	108	41204	241	367	-0.49	-0.23			0.36	0.63	
Adolescents	29	69	34455	277	520	-0.63	-0.40			0.11	0.88	
Risk of Bias								0.00	0.01			
Low Risk of Bias	60	176	76868	256	429	-0.52	-0.33			0.29	0.70	
High Risk of Bias	2	3	937	310	605	-0.69	-0.51			0.26	0.44	
Autonomous Motivation – Adaptive Outcomes	105	480	207584	254	.540	0.50	0.58			0.44	0.54	31860.15
Culture								0.00	0.06			
Individualistic	63	277	103304	249	.515	0.45	0.57			0.44	0.55	
Collectivistic	40	191	102206	271	.587	0.52	0.65			0.48	0.51	
Country								0.00	0.01			
UK	12	64	27230	269	.543	0.40	0.66			0.54	0.44	
USA	17	65	18066	227	.492	0.38	0.59			0.38	0.58	
Sex								0.00	0.00			
Both	93	441	192195	269	.548	0.50	0.59			0.46	0.53	
Male	9	20	6597	113	.427	0.20	0.61			0.40	0.57	
Female	10	19	8882	244	.434	0.19	0.63			0.41	0.57	
Age								0.00	0.00			
Children	3	5	3469	545	.541	0.40	0.66			0.94	0.03	
Preadolescents	55	234	92511	244	.519	0.45	0.58			0.45	0.54	
Adolescents	50	241	111604	261	.570	0.51	0.62			0.43	0.55	
Risk of Bias								0.00	0.00			
Low Risk of Bias	103	477	205943	253	.541	0.49	0.58			0.44	0.54	
High Risk of Bias	2	3	1641	386	.457	0.03	0.74			0.00	0.98	
Autonomous Motivation – Maladaptive Outcomes	38	94	39576	229	253	-0.35	-0.15			0.46	0.52	5162.495
Culture								0.00	0.06			
Individualistic	24	60	19900	247	289	-0.41	-0.16			0.44	0.54	
Collectivistic	14	34	19676	204	181	-0.34	-0.01			0.55	0.44	
Country								0.02	0.23			
UK	4	12	6576	509	589	-0.79	-0.29			0.44	0.55	
USA	7	20	4510	198	263	-0.44	-0.06			0.68	0.29	
Sex								0.00	0.20			
Both	35	87	38358	240	220	-0.32	-0.12			0.40	0.59	
Male	2	4	532	125	659	-0.82	-0.39			0.95	0.00	
Female	2	3	686	194	573	-0.85	-0.06			0.98	0.00	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	15	42	21325	241	- 182	-0.33	-0.02			0.56	0.42	
Adolescents	23	52	18251	221	297	-0.42	-0.16			0.38	0.60	
Risk of Bias	20		10201		,	02	0110	0.00	0.03	0.20	0.00	
Low Risk of Bias	37	92	38990	228	- 244	-0.35	-0.14	0.00	0.00	0.46	052	
High Risk of Bias	1	2	586	293	- 523	-0.60	-0.44			0.46	0.00	
Introjected Regulation – External Regulation	56	66	26196	228	560	0.00	0.63			0.84	0.14	3777 35
Culture	50	00	20170	220	.500	0.40	0.05	0.00	0.51	0.04	0.17	5111.55
Individualistic	35	43	15788	224	494	0.38	0.59	0.00	0.51	0.93	0.06	
Collectivistic	33	23	10/08	227	. 7 / 7	0.55	0.74			0.71	0.00	
	- 71		10400	Z. 1 1		()))	11.74			0.71	U_{i}	

Self-Determination Theory in Physical Education

UK	10	11	5198	251	.315	0.24	0.39			0.86	0.00	
USA	10	16	4213	189	.483	0.25	0.66			0.97	0.01	
Sex								0.00	0.00			
Both	54	64	25753	231	.563	0.48	0.64			0.84	0.15	
Male	1	1	100	100	.217	0.02	0.40			0.50	0.50	
Female	1	1	343	343	.623	0.55	0.68			0.50	0.50	
Age								0.00	0.00			
Children	1	1	1073	1073	.834	0.81	0.85			0.50	0.50	
Preadolescents	32	41	14858	212	.492	0.39	0.59			0.93	0.05	
Adolescents	24	24	10625	252	.627	0.51	0.72			0.49	0.49	
Risk of Bias								0.01	0.13			
Low Risk of Bias	55	65	25903	227	.552	0.47	0.62			0.85	0.13	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Introjected Regulation – Amotivation	44	65	26437	255	.053	-0.03	0.14			0.40	0.58	1817.888
Culture								0.00	0.04			
Individualistic	28	31	12354	238	.009	-0.10	0.12			0.81	0.16	
Collectivistic	16	34	14083	273	.127	-0.03	0.27			0.20	0.78	
Country								0.00	0.22			
UK	12	13	5854	261	052	-0.16	0.06			0.00	0.94	
USA	4	5	1837	214	.284	0.08	0.47			0.98	0.00	
Sex*(p<0.001)								0.00	0.08			
Both	43	64	26337	261	.063	-0.02	0.15			0.41	0.56	
Male	1	1	100	100	388	0.54	-0.21			0.50	0.50	
Female	0	0	_	-	_	_	-			_	-	
Age								0.07	0.02			
Children	1	1	1073	1073	537	0.49	0.58			0.50	0.50	
Preadolescents	26	42	16369	255	.011	-0.09	0.11			0.33	0.64	
Adolescents	18	22	8995	246	.084	-0.05	0.22			0.14	0.83	
Risk of Bias	10		0770	2.0	1001	0.00	0.22	0.00	0.08	0111	0.00	
Low Risk of Bias	43	64	26144	254	044	-0.04	0.13	0.00	0.00	0.41	0.56	
High Risk of Bias	-15	1	20144	293	.044	-	-			-	-	
Introjected Regulation – Adaptive Outcomes	51	125	49964	253	256	0.18	0.31			0.37	0.59	2966 77
Culture	51	125	47704	235	.250	0.10	0.51	0.00	0.05	0.57	0.57	2700.11
Individualistic	20	73	27703	280	204	0.22	0.36	0.00	0.05	0.60	0.36	
Collectivistic	29	52	27795	200	.294	0.22	0.30			0.00	0.30	
Country	22	52	22171		.200	0.08	0.51	0.00	0.20	0.11	0.87	
	10	20	12072	211	274	NA	NA	0.00	0.20	0.05	0.00	
	10	20	12972	225	.274	0.20	NA 0.52			0.93	0.00	
USA	9	25	0080	223	.415	0.29	0.55	0.00	0.24	0.48	0.47	
$Sex^*(p=0.017)$	40	101	40221	262	254	0.10	0.21	0.00	0.24	0.42	0.52	
Both	49	121	49321	262	.254	0.19	0.31			0.43	0.53	
Male	1	5	300	100	.057	0.58	0.72			0.16	0.00	
Female	1	1	343	343	207	-0.31	-0.10	0.05	0.00	0.50	0.50	
Age	~	2	12-1	450		0.00	0.57	0.05	0.00	0.10	0.10	
Children	2	2	1364	458	.405	0.09	0.65			0.48	0.48	
Preadolescents	29	70	28145	254	.206	0.13	0.28			0.56	0.40	
Adolescents	22	53	20455	247	.316	0.21	0.41			0.18	0.79	
Risk of Bias							a	0.01	0.11		a :	
Low Risk of Bias	50	124	49671	253	.265	0.20	0.33			0.39	0.57	
High Risk of Bias	1	1	293	-	-	-	-			-	-	

Introjected Regulation – Maladaptive Outcomes	22	31	11837	212	.129	0.01	0.24			0.69	0.28	1033.303
Culture								0.00	0.62			
Individualistic	14	19	6853	273	.054	-0.06	0.17			0.96	0.00	
Collectivistic	8	12	4984	156	.239	0.02	0.44			0.20	0.78	
Country								0.11	0.19			
UK	4	6	3288	509	004	-0.46	0.39			0.99	0.00	
USA	4	5	1274	217	.105	0.03	0.18			0.40	0.00	
Sex								0.05	0.21			
Both	21	30	11737	220	.149	0.04	0.26			0.72	0.25	
Male	1	1	100	100	371	-0.53	-0.19			0.50	0.50	
Female	0	0	-	-	-	-	-			_	-	
Age* (p=0.035)								0.00	0.71			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	8	13	6663	215	.276	0.11	0.43			0.98	0.00	
Adolescents	14	18	5174	210	.036	-0.09	0.16			0.32	0.62	
Risk of Bias								0.00	0.00			
Low Risk of Bias	21	30	11544	210	.129	0.01	0.25			0.69	0.29	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
External Regulation – Amotivation	52	81	35238	250	.576	0.50	0.65			0.23	0.76	5116.771
Culture								0.00	0.03			
Individualistic	31	37	15634	228	.593	0.50	0.67			0.21	0.77	
Collectivistic	19	41	19216	296	.564	0.41	0.69			0.20	0.79	
Country								0.00	0.01			
UK	10	11	5198	251	.585	0.43	0.71			0.00	0.98	
USA	6	7	2539	230	.629	0.50	0.73			0.00	0.94	
Sex								0.00	0.07			
Both	50	78	34894	262	.588	0.51	0.66			0.24	0.75	
Male	1	1	100	100	.254	0.54	0.43			0.50	0.50	
Female	1	2	244	122	.168	0.03	0.30			0.16	0.00	
Age								0.00	0.00			
Children	1	1	1073	1073	.711	0.68	0.74			0.50	0.50	
Preadolescents	28	52	18869	235	.571	0.46	0.66			0.24	0.74	
Adolescents	24	28	15296	276	.579	0.46	0.68			0.25	0.74	
Risk of Bias								0.00	0.00			
Low Risk of Bias	51	80	34945	250	.578	0.50	0.65			0.23	0.76	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
External Regulation – Adaptive Outcomes	65	157	69410	251	073	-0.15	0.01			0.13	0.85	8237.723
Culture								0.00	0.04			
Individualistic	38	91	37649	266	120	-0.20	-0.04			0.18	0.79	
Collectivistic	26	61	31041	247	002	-0.16	0.15			0.11	0.88	
Country								0.00	0.07			
UK	9	27	12644	310	241	-0.32	-0.16			0.37	0.53	
USA	12	27	7668	227	132	-0.23	-0.03			0.11	0.78	
Sex								0.00	0.00			
Both	60	147	67265	269	073	-0.15	0.01			0.14	0.84	
Male	4	7	1112	101	.089	-0.13	0.30			0.00	0.85	
Female	3	3	1033	321	054	-0.57	0.50			0.49	0.49	
Age								0.03	0.00			
Children	2	2	1364	458	138	-0.39	0.13			0.47	0.47	

Preadolescents	34	84	32199	244	113	-0.21	-0.02			0.12	0.85	
Adolescents	31	71	35847	258	048	-0.18	0.08			0.13	0.86	
Risk of Bias								0.00	0.01			
Low Risk of Bias	64	156	69117	251	069	-0.15	0.01			0.13	0.85	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
External Regulation – Maladaptive Outcomes	29	39	17129	231	251	0.17	0.33			0.62	0.34	1443.061
Culture	_/	0,	1,12,	201	1201	0117	0.000	0.13	0.00	0.02	0101	11101001
Individualistic	17	22	7533	262	.290	0.21	0.37			0.29	0.62	
Collectivistic	12	17	9596	201	.220	0.01	0.41			0.98	0.00	
Country								0.08	0.11			
UK	4	6	3288	509	.408	0.27	0.53			0.60	0.32	
USA	6	7	1787	224	.200	0.14	0.25			0.30	0.00	
Sex								0.00	0.01			
Both	28	38	17029	240	254	0.17	0.33			0.61	0.35	
Male	1	1	100	100	149	-0.45	0.34			0.50	0.50	
Female	0	0	-	-	-	-	-			-	-	
Age	0	0						0.27	0.00			
Children	0	0	_	_	_	_	_	0.27	0.00	_	_	
Preadolescents	10	15	7176	218	200	0.20	0.40			0.95	0.00	
Adolescents	10	24	0053	210	.299	0.20	0.40			0.93	0.00	
Pisk of Piss	19	24	9955	241	.231	0.11	0.55	0.00	0.00	0.00	0.97	
Low Pick of Pice	28	29	16926	220	250	0.17	0.22	0.00	0.00	0.60	0.26	
Low Risk of Dias	20	30	202	230	.230	0.17	0.55			0.00	0.50	
A motivation Adaptive Outcomes	1	1	295	295	-	0.42	- 0.21			0.62	-	7509 621
Culture	03	10/	91765	280	309	-0.42	-0.51	0.00	0.06	0.02	0.50	7598.051
	27	110	40501	201	20.4	0.45	0.24	0.00	0.06	0.70	0.10	
	37	110	48501	291	394	-0.45	-0.34			0.79	0.18	
Collectivistic	25	12	42564	282	345	-0.44	-0.24	0.01	0.01	0.49	0.50	
Country	11		01120	262	402	0.51	0.00	0.01	0.01	0.02	0.04	
UK	11	44	21132	362	403	-0.51	-0.28			0.93	0.04	
USA	10	38	13176	259	302	-0.43	-0.16	0.00	0.00	0.43	0.53	
Sex	(0)	170	00005	211	264	0.42	0.21	0.00	0.00	0.50	0.20	
Both	60	1/3	88025	311	364	-0.42	-0.31			0.59	0.38	
Male	4	10	3132	116	480	-0.67	-0.23			0.91	0.00	
Female	1	4	628	157	300	-0.37	-0.23	0.05	0.00	0.00	0.00	
Age	-							0.05	0.00			
Children	2	2	1364	458	240	-0.52	0.09			0.48	0.48	
Preadolescents	29	92	44776	303	327	-0.39	-0.26			0.97	0.00	
Adolescents	34	93	45645	258	427	-0.50	-0.34			0.36	0.62	
Risk of Bias								0.00	0.01			
Low Risk of Bias	62	186	91492	280	366	-0.42	-0.31			0.62	0.36	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Amotivation – Maladaptive Outcomes	30	46	22688	266	.450	0.34	0.55			0.27	0.71	2211.101
Culture								0.01	0.06			
Individualistic	17	30	12801	322	.389	0.23	0.53			0.22	0.77	
Collectivistic	13	16	9887	201	.519	0.40	0.63			0.57	0.41	
Country								0.05	0.37			
UK	5	14	7368	509	.591	0.41	0.73			0.42	0.53	
USA	3	4	805	182	087	-0.52	0.38			0.00	0.97	
Sex								0.00	0.08			

Both	29	45	22588	276	.438	0.33	0.53			0.28	0.70	
Male	1	1	100	100	.757	0.66	0.83			0.50	0.50	
Female	0	0	_	-	_	_	-			_	-	
Age								0.09	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescent	10	22	12041	286	.380	0.13	0.59			0.18	0.81	
Adolescents	20	24	10647	250	.481	0.38	0.58			0.35	0.62	
Risk of Bias								0.00	0.00			
Low Risk of Bias	29	45	22395	266	.450	0.34	0.55			0.26	0.72	
High Risk of Bias	1	1	293	293	-	-	-			-	-	
Adaptive Outcomes – Maladaptive Outcomes	53	231	109262	302	212	-0.33	-0.09			0.43	0.56	22247.34
Culture								0.01	0.00			
Individualistic	28	121	52673	352	173	-0.35	0.01			0.26	0.73	
Collectivistic	25	110	56589	261	236	-0.40	-0.06			0.56	0.43	
Sex								0.00	0.00			
Both	49	219	106140	313	202	-0.33	-0.07			0.42	0.57	
Male	3	6	1314	138	388	-0.67	-0.01			0.63	0.32	
Female	2	6	1808	255	290	-0.37	-0.21			0.73	0.00	
Age								0.00	0.00			
Children	0	0	-	-	-	-	-			-	-	
Preadolescents	26	126	61254	325	191	-0.32	-0.06			0.46	0.53	
Adolescents	27	105	48008	278	230	-0.42	-0.02			0.43	0.56	
Risk of Bias								0.00	0.00			
Low Risk of Bias	51	226	105069	298	212	-0.33	-0.09			0.43	0.56	
High Risk of Bias	2	5	4193	665	269	-0.64	-0.20			0.02	0.97	

Link to study characteristics excel file

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Link to risk of bias excel file

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