

Assessing experiences of need thwarting in Spanish Physical Education teachers: Adaptation
and validation of the Psychological Need Thwarting Scale

Ricardo Cuevas¹
David Sánchez-Oliva²
Kimberley J. Bartholomew³
Nikos Ntoumanis⁴
Tomás García-Calvo²

¹*University of Castilla-La Mancha, Spain*

²*University of Extremadura, Spain*

³*University of East Anglia, Norwich, UK*

⁴*Curtin University, Australia*

Address for correspondence:

Dr. D. Ricardo Cuevas.

Ronda de Calatrava, 3. C.P. 13071. Facultad de Educación.

Universidad de Castilla-La Mancha. Ciudad Real.

Email: ricardo.cuevas@uclm.es

1 relatedness needs. Satisfaction of these needs is vital for individuals to fully develop their
2 capabilities, to grow, and to be preserved from ill health and maladaptive functioning.

3 The SDT concept of competence concerns the degree to which individuals feel effective
4 in their contacts with the social environment and experience opportunities to demonstrate their
5 mastery (Ryan & Deci, 2002). The need for autonomy alludes to the level at which individuals
6 feel volitional and responsible for their own actions, and consequently, express an inner approval
7 of their behavior (Ryan, 1995). Finally, the need for relatedness is defined as the degree to which
8 people feel a safe sense of belonging to others in the social context (Ryan, 1995).

9 BPNT (Deci & Ryan, 2000) asserts that satisfaction of the needs for competence,
10 autonomy, and relatedness predicts psychological well-being in all cultures (Deci & Ryan,
11 2008). Also, numerous studies across different life domains (e.g., education, sport and exercise;
12 for an overview, see Deci and Ryan, 2008) have confirmed that basic need satisfaction is
13 associated positively with optimal functioning and well-being of people. In the work and
14 organizational setting, the satisfaction of basic needs has been correlated with a number of
15 positive psychological concepts, such as workers' well-being (Lynch, Plant, & Ryan, 2005).

16 Research in the educational context, and specifically in the physical education setting, has
17 also demonstrated the usefulness of studying optimal well-being from a need-fulfillment
18 perspective (Pelletier & Sharp, 2009). In the educational context, however, ill-being and teacher
19 burnout are also considered serious problems (Van Horn, Schaufeli, Greenglass, & Burke, 1997).
20 Teacher burnout can influence job performance by reducing the quality of teaching, which can
21 have a negative effect on children's' academic success (Blandford, 2000). Physical education
22 teachers may be particularly vulnerable to experiencing stress and ill-health due to a lack of
23 adequate facilities and the low status frequently afforded to the subject by colleagues and school

1 management (Saenz-Lopez, Almagro, & Ibanez, 2011). Moreover, Luthans (2002) asserts that it
2 is important to prevent ill-health, as well as stimulate well-being, in order to improve the
3 engagement and job satisfaction of employees.

4 Despite a relative lack of empirical research on the topic (Vallerand, Pelletier, &
5 Koestner, 2008), the construct of psychological needs can also play a key role in understanding
6 how some social conditions and interpersonal environments lead to negative outcomes
7 (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani 2011a; Deci & Ryan, 2000).
8 Specifically, the concept of psychological need thwarting – the negative experiential state which
9 occurs when individuals’ perceive their needs for competence, autonomy, and relatedness to be
10 actively undermined – should provide a useful conceptual framework through which to examine
11 the mechanisms which link negative aspects of the social environment to indices of ill-being
12 (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011b). In line with this reasoning,
13 Bartholomew and colleagues recently developed the Psychological Need Thwarting Scale in
14 order to explore how a more direct assessment of need thwarting could contribute to the
15 prediction of psychological ill-being.

16 Through a series of studies conducted in the sport domain, Bartholomew et al. (2011a;
17 2011b) demonstrated that experiences of need thwarting entailed more than just the mere
18 absence of need satisfaction. Instead, their findings suggested that need thwarting is
19 characterized by perceptions that the psychological needs are obstructed or actively undermined.
20 Moreover, they affirmed that low scores on measures of need satisfaction cannot be conceptually
21 equated with need thwarting. Thus, in the educational context, a teacher may not feel competent
22 because they do not have the necessary skills to perform well and, therefore, score low on a
23 measure of need satisfaction; however another teacher might feel incompetent because they

1 experience the school environment and/or their colleagues as overly critical or demeaning.
2 According to Bartholomew et al., the first situation is a case of low need satisfaction (or need
3 dissatisfaction) whereas the latter is a case of need thwarting.

4 Initial research in the domains of sport and exercise (Bartholomew et al., 2011a, 2011b),
5 and the workplace (Gillet, Frouquereau, Forest, Brunault, & Colombat, 2012), has found support
6 for the negative impact of need thwarting. Collectively, these findings indicate that considering
7 the role of psychological need thwarting could further our understanding of the mechanisms
8 contributing to ill-being beyond simply a lack of psychological need satisfaction. This is a
9 particularly important consideration in the educational domain as research suggests that teacher
10 burnout and ill-being is prevalent and can have serious repercussions on teaching quality (Fejgin,
11 Talmor, & Elrich, 2005).

12 However, experiences of need thwarting are yet to be directly examined in this domain
13 and the utility of the original PNTS items for assessing such psychological mechanisms in the
14 educational context remains unclear. Moreover, when instruments have been modified from their
15 original format a rigorous examination of score validity and reliability is needed to ensure that
16 the modifications have not affected the interpretability of item scores. Thus, the principal aim of
17 the study was to adapt and validate a Spanish version of the PNTS (Bartholomew, et al., 2011a)
18 and provide support for the utility of examining experiences of need thwarting among physical
19 education teachers. We hypothesized that the revised version of the PNTS would demonstrate
20 adequate indices of reliability and would retain the proposed three-factor structure of the original
21 scale (i.e., one subscale representing competence, autonomy, and relatedness need thwarting,
22 respectively). It was also hypothesized that the scale would be invariant across gender. Finally,
23 the relationships between psychological need thwarting and burnout were analyzed in order to

1 provide support for the external validity of the revised scale. Specifically, it was hypothesized
2 that the three components of need thwarting would positively predict burnout.

3 **Method**

4 **Participants**

5 The sample included 619 PE teachers (386 males and 233 females; M age = 39.31 years; SD =
6 9.53 years; range = 22–62 years) who taught students between the ages of 12 and 17 and
7 volunteered to participate in this study. The teachers were from several public high schools in
8 Spain and had been teaching for 15.12 years (SD = 9.64 years) on average.

9 **Measures**

10 **Psychological Need Thwarting.** The Psychological Need Thwarting Scale
11 (Bartholomew et al., 2011a) was translated into Spanish and adapted for use by physical
12 education teachers (S-PNTS, see Appendix). The original scale was composed with the stem “In
13 my sport...,” which was changed to “In my work environment...,” and is followed by 12 items
14 (four for each subscale). The subscales assess perceptions of autonomy (e.g., “I feel prevented
15 from making choices with regard to the way I train”), competence (e.g., “Situations occur in
16 which I am made to feel incapable”) and relatedness (e.g., “I feel I am rejected by those around
17 me”) need thwarting. The wording of the items was adapted so that they were suitable for
18 completion by teachers. Responses were reported on a 7-point scale starting from 1 (*strongly*
19 *disagree*) to 7 (*strongly agree*). Bartholomew et al. (2011a) reported adequate psychometric
20 characteristics for the original version of the scale.

21 **Burnout.** A Spanish version of the Maslach Burnout Inventory–General Survey (MBI-
22 GS; Schaufeli, Leite, Maslach, & Jackson, 1996) was used to assess burnout in physical
23 education teachers. The 16-item scale contains three subscales to measure depersonalization (five

1 items, e.g., “I have become more cynical about whether my work contributes anything”);
2 exhaustion (five items, e.g., “I feel burned out from my work”); and reduced accomplishment
3 (six items, e.g., “I feel I am making an effective contribution to what this organization does”).
4 The items of the accomplishment subscale were reverse-scored so that higher scores represented
5 higher levels of burnout. Responses were reported on a 7-point scale ranging from 1 (*not at all*
6 *true*) to 7 (*very true*). In line with previous research (Hakanen, Bakker, & Schaufeli, 2006), the
7 three subscales were combined to produce one composite burnout score. The validity and
8 reliability of this scale has been supported in previous studies (Gil-Monte, 2002).

9 **Procedure**

10 Following the recommendations of van Widenfelt, Treffers, de Beurs, Siebelink, and Koudijs
11 (2005), the PNTS items were translated into Spanish and adapted for use in the teaching context.
12 All of the items were back-translated (Hambleton, 1996). First of all the items were translated
13 from English into Spanish. Subsequently, a different transcriber translated the items back into the
14 original language. A high degree of agreement between both versions was observed. Second,
15 three experts in the area (Lynn, 1986) considered the wording of the revised scale items
16 appropriate. The revised scale was then examined by five physical education teachers in order to
17 verify an appropriate understanding of the items. There were no reported problems in relation to
18 their relevance or comprehension. Finally, a sample of 619 Spanish physical education teachers
19 completed the revised scale alongside the burnout measure.

20 Ethical approval was obtained from a university in Spain and the study was supported by
21 the Spanish professional association of physical education teachers, which facilitated contact
22 with the participants through the Internet. Teachers were contacted and informed that the purpose
23 of the study was to obtain information about their experiences and motivation as physical

1 education teachers. The questionnaires were accessed through a link provided by the researchers
2 and completed online. The participants were informed that completion of the questionnaires was
3 completely voluntary and that all responses would be anonymous.

4 **Data analysis**

5 In order to validate the Spanish version of the PNTS in the educational context, an examination
6 of the psychometric properties of the scale was carried out. Confirmatory factor analyses
7 (CFAs) of S-PNTS were done to confirm the factor structure of the instrument. In line with the
8 recommendations made by Byrne (2008), the χ^2 , $\chi^2/d.f.$, Comparative Fit Index (CFI), Tucker
9 Lewis Index (TLI), Incremental Fit Index (IFI), Root Mean Square Error of Approximation
10 (RMSEA), and Standardized Root Mean Square Residual (SRMR) values were used to assess
11 model fit. Although values indicative of acceptable model fit remain controversial (Markland,
12 2007), recognized criteria were used to interpret the results. For the $\chi^2/d.f.$, values less than two
13 show an excellent fit of the model, and values less than five are considered acceptable; for the
14 CFI, the TLI and the IFI, values over 0.90 are considered good; for the SRMR, values less than
15 0.08 are indicative of an excellent fit (Hu & Bentler, 1999). Finally, for the RMSEA, values less
16 than 0.08 reveal an acceptable fit (Browne & Cudeck, 1993).

17 Also, a statistical analysis of the items, and an analysis of the internal reliability were
18 conducted. Then, in order to find evidence of external validity for the S-PNTS, a stepwise linear
19 regression analysis between the need thwarting subscales (as independent variables) and burnout
20 (as the dependent variable) was performed. Finally, a gender invariance analysis was carried out.
21 The IBM SPSS AMOS 19 package was used for all statistical analyses.

22 **Results**

1 CFAs with one-factor structure (competence, autonomy and relatedness as unique factors) and a
2 CFA with three-factor structure (see Figure 1) was calculated. The indices (Table 1) revealed
3 that the three-factor model demonstrated the best fit to the data. This CFA supported the
4 proposed three-factor structure of the scale (i.e., the factors represented competence, autonomy,
5 and relatedness need thwarting, respectively). Moreover, the four items representing each
6 psychological need loaded strongly onto their respective factors.

7 PLEASE, INSERT TABLE 1 APPROX. HERE

8 PLEASE, INSERT FIGURE 1 APPROX. HERE

9 Descriptive statistics and reliability estimates are presented in Table 2. The Cronbach's
10 alpha for each subscale was also calculated in order to verify its internal reliability. All three
11 subscales demonstrated good reliability with alphas of .81 and above (Kline, 1999). Following
12 Nunnally and Bernstein (1995), a descriptive analysis of the S-PNTS items was carried out. The
13 coefficient of correlation corrected between the item score and the total score for each subscale
14 were calculated. The values obtained (Table 3) were appropriate (greater than 0.35; Nunnally
15 and Bernstein, 1995).

16 PLEASE, INSERT TABLE 2 APPROX. HERE

17 PLEASE, INSERT TABLE 3 APPROX. HERE

18 In order to find evidence of external validity for the scale, a stepwise linear regression
19 analysis (Table 4) was carried out using burnout as the dependent variable and the thwarting of
20 the competence, autonomy, and relatedness needs as the independent variables. The result
21 showed that a significant amount of the variance in burnout scores was predicted by
22 psychological need thwarting. Specifically, competence was the strongest predictor of the
23 independent variable, followed by autonomy, and, finally, relatedness.

PLEASE, INSERT TABLE 4 APPROX. HERE

Finally, a sequential model testing approach was employed via multisample CFA to examine whether the S-PNTS displayed invariance across gender. The relative goodness of fit between increasingly constrained models was analyzed. However, because the χ^2 statistic is influenced by sample size, the recommendations of Cheung and Rensvold (2002) were also adopted and a change in CFI of $\leq .01$ was considered indicative of model invariance. Thus, as can be seen from Table 5, the invariance of the model was supported across gender.

PLEASE, INSERT TABLE 5 APPROX. HERE

Discussion

Although much discussed within theoretical overviews (e.g., Deci & Ryan, 2000; Ryan et al., 2006; Vallerand et al., 2008), psychological need thwarting still remains a relatively understudied component of SDT. Hence, aligned with the call for more empirical work on need thwarting, the aim of the current study was to adapt and validate a Spanish version of the PNTS (Bartholomew et al., 2011a) using a sample of physical education teachers. In general terms, the results showed that the Spanish version of PNTS is a valid and reliable instrument for assessing experiences of psychological need thwarting in an educational context. The findings also highlight the importance of assessing need thwarting, an understudied component of the SDT framework with important ramifications for health and ill-being, in this domain.

The results of the factor analysis revealed that the S-PNTS reflected the three-factor model proposed by SDT. The resulting model demonstrated adequate fit indices (Hu & Bentler, 1995) and the regression weights of the items were all higher than .50. These data are close to the indices of fit of the original scale (Bartholomew, 2011a). According to Jackson, Gillaspay, and Purc-Stephenson (2009), these results support the construct validity of the instrument. Additional

1 analyses also supported the internal consistency of the competence, autonomy, and relatedness
2 subscales with alphas higher than those previously reported by Bartholomew et al. (2011a),
3 particularly in competence and autonomy. These data indicates a high degree of reliability of the
4 measure of all items of each subscale. Also, in line with Bartholomew et al. (2011b), the results
5 of the regression analysis suggested that the perceived thwarting of each psychological need
6 predicted feelings of burnout, supporting the external validity of the adapted scale. Finally, as in
7 the original instrument (Bartholomew, 2011a), the results support the factorial invariance of the
8 S-PNTS by suggesting that the data are equivalent across gender.

9 The results also exhibit interesting information in relation to how social factors can
10 facilitate or obstruct the satisfaction of basic psychological needs. In this regard, it is essential to
11 stress the low levels of perceived need thwarting were reported among the teacher participants.
12 Autonomy and relatedness were scarcely thwarted by the actions of others, while competence
13 showed slightly higher levels of frustration. These results differ from those reported in previous
14 work by Bartholomew and colleagues (2011a; 2011b) and Gillet et al. (2012), which found
15 higher levels of perceived need thwarting in young athletes and adult company workers,
16 respectively. In the case of the athletes, these differences may be due to the age of the samples.
17 The participants used by Bartholomew et al. were adolescents and young athletes, while the
18 teachers in the present study were adults, who tend to be more autonomous at work. However
19 these results do suggest that the leadership style of coaches and company heads may be more
20 controlling, whereas the management style of school principals and other administrators in Spain
21 might be based on giving more autonomy to individuals. These assumptions, however, have to
22 be confirmed by future studies.

1 As in the work of Bartholomew et al. (2011a), significant correlations between the three
2 psychological needs were found. SDT research indicates that associations between the basic
3 needs are common (Deci & Ryan, 2000). For instance, when the autonomy of an individual is
4 thwarted by the environment (e.g., by the action of the boss), it is likely that this lack of freedom
5 also influences the relationship the employee has with his or her colleagues. For this reason, the
6 need for relatedness may also be frustrated.

7 The findings of this work also have important theoretical and practical implications. First,
8 besides supporting the external validity of the Spanish version of the scale, the regression
9 analysis reveals that need thwarting made a significant contribution to the prediction of burnout.
10 Specifically, competence was the principal variable for predicting burnout, followed by
11 autonomy and relatedness, respectively. These data indicate that a lack of connecting with
12 colleagues has a limited impact on the teachers' psychological ill-being. However, if the need for
13 autonomy is thwarted and teachers are not allowed to act in accordance with their own values
14 and beliefs, burnout levels may increase. Finally, feelings of incompetence caused by non-
15 optimal interactions with the social environment appear to have the greatest impact on increasing
16 burnout. In this respect, these results suggest that to prevent burnout in physical education
17 teachers, it may be particularly useful to prioritize support for competence.

18 Second, according to Bartholomew et al. (2011a), new measures of need thwarting should
19 be developed in different life settings, "given the lack of such measures in the extant SDT
20 literature" (p. 96). In this respect, it is important to note that this is a pioneering study in the
21 evaluation of this construct in teachers. This area offers a unique and relevant setting for the
22 analysis of this construct, because it is a domain in which both need supports (e.g., teaching
23 consultancy) and need thwarts (e.g., external performance assessment) are prevalent. Further

1 research should examine how these two constructs might interact to impact on the health and
2 wellness of teachers in this context. The validated S-PNTS should be very useful in this regard.

3 Third, the assessment of need thwarting among teachers via this instrument could be
4 particularly useful for the heads of schools and the educational administrators in order to identify
5 individuals at risk of burnout and ill-being. These negative outcomes inevitably lead to a lack of
6 commitment to the profession, a reduction in teachers' professional performance, and a decrease
7 of the quality of education in class (Burke, Greenglass, & Schwarzer, 1996). According to Deci
8 and Ryan (2000), a leader who frustrates the satisfaction of autonomy, competence, and
9 relatedness needs threatens the well-being of their employees. In this respect, high levels of
10 perceived need thwarting among teachers could reveal a disproportionately controlling style of
11 the principal of the school, which can have psychological and physical costs. Instead, a leader
12 who facilitates the fulfillment of psychological needs will help to improve the commitment,
13 effective performance, and well-being of their employees (Gagné & Deci, 2005). Thus, a greater
14 understanding of psychological need thwarting in the educational context could aid the
15 development of appropriate interventions which aim to reduce the prevalence of teacher ill-
16 being.

17 Although this study has resulted in an adequate scale to assess psychological need
18 thwarting among Spanish physical education teachers, some limitations need to be mentioned.
19 Regarding reliability, it would be interesting for future research to examine the temporal stability
20 of the S-PNTS. Also, it would be desirable to use the revised scale with a wider sample of
21 teachers from a number of different disciplines, not only to physical education teachers.
22 However it is important to note that the S-PNTS is not specific to physical education teachers or
23 to one educative level; the wording of the items of the S-PNTS was formulated for the context of

1 teaching in general. Further research should also examine the psychometric properties of the
2 PNTS in other contexts, being that the process of scale validation is ongoing and Ryan (1995)
3 has suggested that it is important for researchers to investigate different domains in order to
4 understand how different influences may be operating and influencing the satisfaction or
5 thwarting on innate psychological needs.

6 In conclusion, the findings of the current study have provided substantial support the
7 revised version of the PNTS and suggest that it is a valid and reliable instrument for assessing
8 the understudied construct of need thwarting in the Spanish educational context. We hope that
9 the scale will facilitate SDT-based research which has recommended that incorporating direct
10 assessments of need thwarting will lead to a better understanding of how and why negative
11 environmental factors lead to ill-being. Specifically, the concept of need thwarting might be a
12 useful frame of reference through which pressuring educational contexts can be adjusted to
13 reduce perceptions of coercion, incompetence and rejection and, therefore, teacher ill-being.

References

- Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., & Thøgersen-Ntoumani, C. (2011). Psychological need thwarting in the sport context: Assessing the darker side of athletic experience. *Journal of Sport & Exercise Psychology, 33*, 75-102.
- Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-Determination Theory and Diminished Functioning : The Role of Interpersonal Control and Psychological Need Thwarting. *Personality and Social Psychology Bulletin, 37*, 1459-1473. doi: [10.1177/0146167211413125](https://doi.org/10.1177/0146167211413125)
- Blandford, S. (2000). *Managing Professional Development in Schools*. London: Routledge.
- Browne, M. V. & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equations models* (pp. 136-162). Newbury Park, CA: Sage.
- Burke, R. J., Greenglass, E. R., & Schwarzer, R. (1996). Predicting teacher burnout over time: Effects of work stress, social support, and self-doubts on burnout and its consequences. *Anxiety, Stress, and Coping, 9*, 261-275. doi: [10.1080/10615809608249406](https://doi.org/10.1080/10615809608249406)
- Byrne, B. M. (2008). Testing for Multigroup Equivalence of a Measuring Instrument: A Walking Through the Process. *Psicothema, 20*, 872-882.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing MI. *Structural Equation Modeling, 9*, 235-55. doi: [10.1207/S15328007SEM0902_5](https://doi.org/10.1207/S15328007SEM0902_5)
- Coladarci, T. (1992). Teachers' Sense of Efficacy and Commitment to Teaching. *The Journal of Experimental Education, 60*, 323-337. doi: [10.1080/00220973.1992.9943869](https://doi.org/10.1080/00220973.1992.9943869)

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Academic Press.
- Deci, E. L. & Ryan, R. M. (2000). The “what” and the “why” of Goal Pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, *11*, 227-268. doi: [10.1207/S15327965PLI1104_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Deci, E. L. & Ryan, R. M. (2008). Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health. *Canadian Psychology*, *49*(3), 182-185. doi: [10.1037/a0012801](https://doi.org/10.1037/a0012801)
- Fejgin, N.; Talmor, R. & Elrich, I. (2005). Inclusion and burnout in physical education. *European Physical Education Review*, *11*(1), 29-50. doi: [10.1177/1356336X05049823](https://doi.org/10.1177/1356336X05049823)
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*, 331-362. doi: [10.1002/job.322](https://doi.org/10.1002/job.322)
- Genoud, P. A., Brodard, F. & Reicherts, M. (2009). Facteurs des stress et burnout chez les enseignants de l'école primaire. [Factors of stress and burnout among teachers of primary school]. *Revue européenne de psychologie appliqué*, *59*, 37-45. doi : [10.1016/j.erap.2007.03.001](https://doi.org/10.1016/j.erap.2007.03.001)
- Gillet, N., Fouquereau, E., Forest, J., Brunault P. & Colombat, P. (2012). The impact of organizational factors on psychological needs and their relations with well-being. *Journal of Business and Psycholog*, *27*, 437-450. doi: [10.1007/10869-011-9253-2](https://doi.org/10.1007/10869-011-9253-2).
- Gil-Monte, P. (2002). Validez factorial de la adaptación al español del Maslach Burnout Inventory-General Survey. [Factorial Validity of the adaptation of Maslach Burnout

- Inventory-General Survey to the Spanish]. *Salud Pública de México*, 44, 33-40. doi: [10.1590/S0036-36342002000100005](https://doi.org/10.1590/S0036-36342002000100005)
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43, 495-513. doi: [10.1016/j.jsp.2005.11.001](https://doi.org/10.1016/j.jsp.2005.11.001)
- Hambleton, R. K. (1996). Adaptación de tests para su uso en diferentes idiomas y culturas: fuentes de error, posibles soluciones y directrices prácticas. [Tests adaptation for use in different languages and cultures: sources of error, possible solutions and practice guidelines]. In J. Muñiz (Ed.): *Psicometría* (pp. 203-238). Madrid: Universitas.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55. doi: [10.1080/10705519909540118](https://doi.org/10.1080/10705519909540118)
- Jackson, L., Gillaspay, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: An overview and some recommendations. *Psychological Methods*, 14, 6-23. doi: [10.1037/a0014694](https://doi.org/10.1037/a0014694)
- Kline, P. (1999). *The handbook of psychological testing*. London: Routledge
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695-706. doi: [10.1002/job.165](https://doi.org/10.1002/job.165)
- Lynch, M., Plant, R., & Ryan, R. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Psychology – Research and Practice*, 36, 415–425. doi: [10.1037/0735-7028.36.4.415](https://doi.org/10.1037/0735-7028.36.4.415)
- Lynn, M. (1986). Determination and quantification of content validity. *Nursing Research*, 35, 382-385. doi: [10.1097/00006199-198611000-00017](https://doi.org/10.1097/00006199-198611000-00017)

- Markland, D. (2007). The golden rule is that there are no golden rules: A Commentary on Paul Barrett's recommendations for reporting model fit in structural equation modelling. *Personality and Individual Differences*, 42, 851-858. doi: [10.1016/j.paid.2006.09.023](https://doi.org/10.1016/j.paid.2006.09.023)
- Nunnally, J. C. & Bernstein, I. J. (1995). *Teoría psicométrica*. [Psychometric theory]. Madrid: McGraw-Hill
- Organisation for Economic Co-operation and Development (2009). *Creating Effective Teaching and Learning Environments: First Results from TALIS*. Retrieved May 18, 2012, from <http://www.oecd.org/education/preschoolandschool/43023606.pdf>
- Pelletier, L. G & Sharp, E. C. (2009). Administrative pressures and teachers' interpersonal behaviour in the classroom. *Theory and Research in Education*, 7, 174-183. doi: [10.1177/1477878509104322](https://doi.org/10.1177/1477878509104322)
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63, 397-427. doi: [10.1111/j.1467-6494.1995.tb00501.x](https://doi.org/10.1111/j.1467-6494.1995.tb00501.x)
- Ryan, R. M. & Deci, E. L. (2002). Overview of Self-determination theory: An organismic dialectical perspective. In E. L. Deci & R.M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). Rochester, NY: University of Rochester Press.
- Saenz-Lopez, P., Almagro, B. J., & Ibanez, S. J. (2011). Describing problems experienced by Spanish novice physical education teachers. *The Open Sports Sciences Journal*, 4, 1-9. doi: [10.2174/1875399X01104010001](https://doi.org/10.2174/1875399X01104010001)
- Schaufeli, W.B., Leiter M. P., Maslach, C. & Jackson, S. E. (1996). The Maslach Burnout Inventory: General Survey (MBI-GS). In C. Maslach, S. E. Jackson, & M. P. Leiter,

- (Eds). *Maslach Burnout Inventory Manual*, (19-26). Ed. Palo Alto, California: Consulting Psychologists Press.
- Vallerand, R. J., Pelletier, L. G., & Koestner, R. (2008). Reflections on self-determination theory. *Canadian Psychology*, *49*, 257-262. doi: [10.1037/a0012804](https://doi.org/10.1037/a0012804)
- Van Horn, J. E., Schaufeli, W. B., Greenglass, E. S. & Burke, R. J. (1997). A Canadian-Dutch Comparison of Teachers' Burnout. *Psychological Reports*, *81*(2), 371-82. doi: [10.2466/pr0.1997.81.2.371](https://doi.org/10.2466/pr0.1997.81.2.371)
- Van Widenfelt, B. M., Treffers, P. D., de Beurs, E., Siebelink, B. M., & Koudijs, E. (2005). Translation and cross-cultural adaptation of assessment instruments used in psychological research with children and families. *Clinical Child and Family Psychology Review*, *8*, 135-47. doi: [10.1007/s10567-005-4752-1](https://doi.org/10.1007/s10567-005-4752-1)

Table 1

Indices of fit of the models of S-PNTS with one and three factors.

	χ^2	<i>P</i>	$\chi^2/g.l.$	<i>CFI</i>	<i>TLI</i>	<i>IFI</i>	<i>RMSEA</i>	<i>SRMR</i>
1-Factor:								
Competence	8.147	.01	4.07	.99	.98	.99	.09	.02
Autonomy	48.003	.00	24.00	.96	.87	.96	.23	.03
Relatedness	14.143	.01	7.07	.98	.94	.98	.12	.03
3-Factors:								
Competence-Autonomy-Relatedness	248.61	.00	4.87	.95	.94	.96	.08	.05

Table 2

Descriptive Statistics and Internal Consistency.

	<i>M</i>	<i>SD</i>	α
1. Need Thwarting Autonomy	1.76	1.04	.88
2. Need Thwarting Competence	2.00	1.18	.85
3. Need Thwarting Relatedness	1.70	.94	.81
4. Burnout	2.62	.78	.84

Table 3

Correlation analysis between items and subscales (autonomy, competence and relatedness) of S-PNTS.

	1	2	3	4	5	6	7	8	9	10	11	12	Auton.	Comp.
Item 1														
Item 2	.71 **													
Item 3	.60 **	.63 **												
Item 4	.61 **	.67 **	.69 **											
Item 5	.42 **	.46 **	.42 **	.45 **										
Item 6	.45 **	.53 **	.49 **	.54 **	.61 **									
Item 7	.36 **	.42 **	.42 **	.46 **	.61 **	.78 **								
Item 8	.45 **	.47 **	.52 **	.52 **	.50 **	.55 **	.51 **							
Item 9	.52 **	.57 **	.50 **	.46 **	.41 **	.43 **	.39 **	.48 **						
Item 10	.54 **	.59 **	.57 **	.53 **	.47 **	.48 **	.47 **	.54 **	.71 **					
Item 11	.42 **	.51 **	.48 **	.45 **	.41 **	.39 **	.37 **	.49 **	.53 **	.60 **				
Item 12	.37 **	.39 **	.40 **	.36 **	.35 **	.36 **	.35 **	.37 **	.43 **	.43 **	.43 **			
Autonomy	.85 **	.88 **	.85 **	.86 **	.51 **	.58 **	.48 **	.57 **	.59 **	.65 **	.54 **	.43 **		
Competence	.50 **	.56 **	.55 **	.59 **	.83 **	.88 **	.86 **	.77 **	.52 **	.59 **	.50 **	.38 **	.64 **	
Relatedness	.57 **	.63 **	.60 **	.55 **	.48 **	.52 **	.49 **	.58 **	.81 **	.85 **	.79 **	.75 **	.69 **	.62 **

** $p < 0.05$.

Table 4

Regression Analysis. Dependent Variable: Burnout.

Variable	<i>B</i>	<i>R</i> ²	<i>t</i>	<i>p</i>
Step 1		.283		
Need Thwarting Competence	.53		15.61	.00
Step 2		.338		
Need Thwarting Competence	.34		7.85	.00
Need Thwarting Autonomy	.31		7.22	.00
Step 3		.349		
Need Thwarting Competence	.29		6.43	.00
Need Thwarting Autonomy	.23		4.83	.00
Need Thwarting Relatedness	.15		3.26	.00

Table 5

Gender Invariance Analysis.

	χ^2	<i>Df</i>	χ^2/df	Δdf	$\Delta\chi^2$	<i>p</i>	<i>CFI</i>	<i>TLI</i>	<i>IFI</i>	<i>RMSEA</i>	<i>SRMR</i>
Model 1	337.99	102	3.31	-	-	-	.95	.95	.95	.06	.06
Model 2	367.01	111	3.31	9	29.01	.00	.94	.94	.94	.06	.05
Model 3	372.13	117	3.18	6	5.12	.53	.94	.94	.94	.06	.05
Model 4	405.85	129	3.15	12	33.72	.00	.94	.93	.94	.06	.06

Note: Model 1 = Without constrained parameters. Model 2 = Item factor loadings constrained.

Model 3 = Structural covariances constrained. Model 4 = Measurement errors constrained.

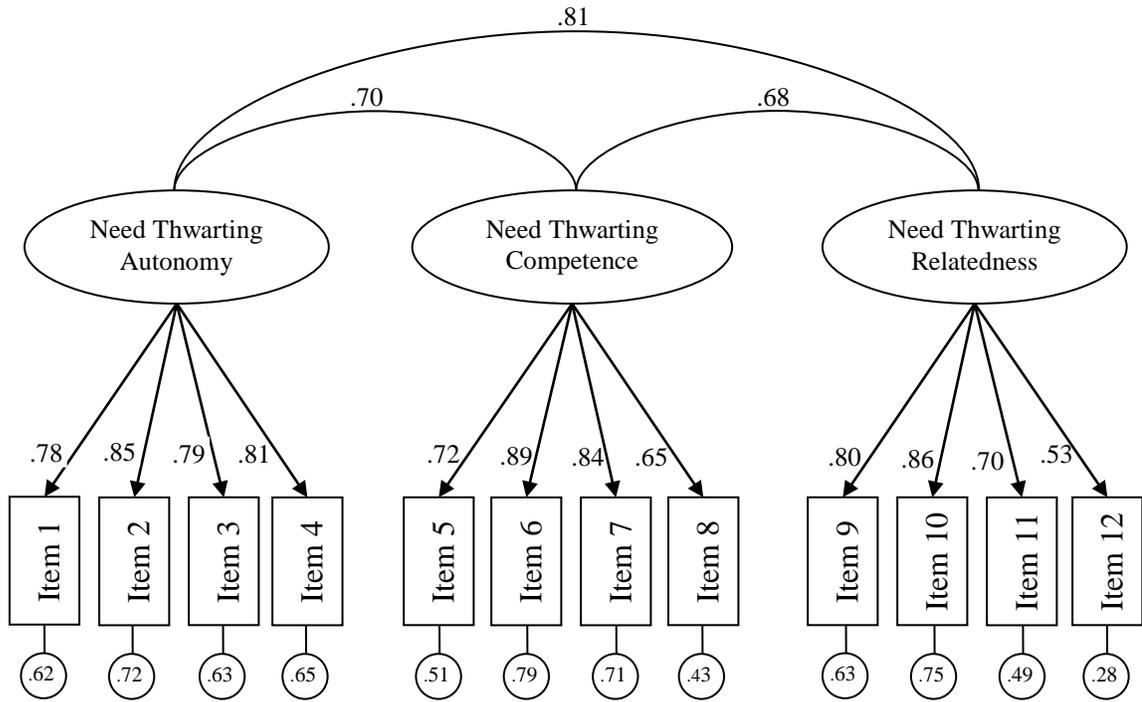


Figure 1. Confirmatory Factor Analysis.

Spanish - Psychological Need Thwarting Scale

En mi ambiente de trabajo siento...

1. Siento que me impiden tomar decisiones respecto al modo en el que enseño
2. Me siento presionado a comportarme de determinada manera
3. Me siento forzado a seguir una determinada forma de enseñar hecha para mí
4. Me siento presionado a aceptar las formas de enseñanza que me han estipulado
5. Hay situaciones que me hacen sentir incapaz
6. A veces digo cosas que me hacen sentir incompetente
7. Hay situaciones que me hacen sentir torpe
8. Siento que no estoy a la altura porque no tengo oportunidades para demostrar mi potencial
9. Siento que soy rechazado por aquellos que me rodean
10. Siento que los demás pueden ser indiferentes conmigo
11. Siento que la gente de mi centro educativo no me agrada
12. Siento que otros tienen envidia cuando logro éxitos