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Can Physical Education Contribute to Learning English? Structural Model from Self-Determination Theory

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Abstract: Objectives: The aim of this study was to analyze a model of prediction of satisfaction with bilingual physical education from basic psychological needs and motivation. Methods: The sample consisted of 758 students (347 men and 411 women) in secondary education in Spain, aged between 13 years and 18 years ($M = 15.22$, $SD = 1.27$). Questionnaires of the Scale of Psychological Basic Needs, Perceived Locus of Causality, and the bilingual Scale Satisfaction Instrument (SSI-PE), all adapted to physical education were used in the exercise. Results: Descriptive analyses, correlation and structural equation models were performed. Intrinsic motivation showed a high and positive relationship with identity regulation and satisfaction/fun, and boredom negatively correlated with all scales except amotivation. Conclusion: The equations in this model prove that autonomy is the best predictor of intrinsic motivation, and that this is the best predictor of satisfaction in bilingual physical education.

Keywords: physical education; motivation; structural equations; satisfaction

1. Introduction

The importance of motivation in the learning of a foreign language has been demonstrated in several subjects such as bilingual physical education, with this variable being possibly the most important to improve academic performance [1]. Khodadady and Khajavy [2] have shown that motivation is one of teachers' major concerns regarding students' acquisition of a second language. The reasons for this are as follows: the importance of this variable, together with satisfaction, may influence success in learning that language [3] through the creation of a relaxed and trusting climate for students' work [4], or the reduction of stress and anxiety [5].

In the research conducted by Lasagabaster [6], the author has highlighted the importance of satisfaction in teaching in environments of integrated learning of content and foreign languages (CLIL), in comparison with classical learning methods of foreign languages [6]; for example, the type of cooperative activities (typical in physical education, PE) is indicated as an important factor to encourage learning [7,8]. Equally, satisfaction with the foreign language has been associated with the effectiveness of academic tasks [9], active and communicative participation in class activities [10], and the reduction of students' anxiety [11].

In the field of PE, some research has already shown the importance of a motivated student body for academic achievement [5,12] and their satisfaction with the teaching they receive [13,14]. Noel [15] highlighted that the high levels of intrinsic motivation in the second language have been linked to a

greater effort made by students in the learning of the foreign language, with higher self-efficacy [16], a greater willingness to communicate in another language [17], and even better grades in reading and writing a foreign language [18]. At the same time, how can we motivate and satisfy students so that they want to learn a foreign language? In order to answer this question, it is necessary to research basic psychological needs. Many of the studies already published in other areas, such as the one mentioned in the subject of PE, are based on the theory of self-determination (TSD).

Following the hierarchical model of Vallerand [19,20] and the aforementioned TSD [21], motivation may depend on certain factors related to a person's basic psychological needs (competence, autonomy and relationship with others). For example, several works [22,23] in relation to competence, and the study by Paava [24] about relationships with others, showed the connection and influence of intrinsic motivation. Likewise, in the case of autonomy, it is predicted that learning climates that support student autonomy will improve their intrinsic motivation [25,26], while climates in which students perceive their behavior to be controlled diminish their sense of will and reduce natural motivation. A teacher can adapt a teaching style with stronger control, where there is greater teacher pressure while achieving more autocracy in their decisions, or a teacher can promote interdependence by improving student motivation by offering opportunities to students, providing more meaningful feedback, and by stimulating decision making [27], which will improve student motivation. For example, the positive role of mediation of motivation is recognized between the perception of the climate of support for autonomy and consequences such as linguistic improvement [28], participation in class, perceived competence, and academic achievements [29].

Therefore, taking into account the existing relationships between the variables outlined and the benefit of a student being satisfied with the school and with the subjects of the curriculum in the teaching—learning process, the objective of this work is to analyze whether basic psychological needs are predictors of satisfaction with the subject—in this case, bilingual PE learning—considering the motivation of PE students as a mediating variable. It is hypothesized that the three subscales of basic psychological needs will predict motivation (fundamentally intrinsic) and that motivation will predict the satisfaction/fun of the subject of bilingual physical education.

2. Materials and Methods

2.1. Participants

The selection of the sample was non-probabilistic and based on convenience, according to the subjects that could be accessed. A total of 758 students participated (347 men = 45.8%, 411 women = 54.2%) from secondary education schools in the Region of Murcia, Spain. The age range was between 13 years old and 18 years old ($M = 15.22$, $SD = 1.27$), with the average age of the boys being 15.2 ($SD = 1.29$) and that of the girls 15.18 ($SD = 1.26$). The distribution according to academic years was as follows: 343 (45.3%) were studying in the 2nd year of compulsory school education; 152 (20.1%) were in the 3rd year of compulsory school education; 206 (27.2%) were in the 4th year of compulsory school education; and 57 (7.5%) were in the 1st year of higher secondary school.

2.2. Instruments

We used the Spanish version of the basic psychological needs in exercise (BPNES) adapted to PE by Moreno, González-Cutre, Chillón, and Parra [30] from the original basic psychological needs in an exercise scale [31]. The instrument consists of 12 items grouped in three dimensions (four items per dimension): autonomy, competence, and relationship with others. The answers were scored on a Likert scale that ranged from 1 (totally disagree) to 5 (totally agree).

The Moreno, González-Cutre, and Chillón [32] versions of the perceived locus of causality scale by Goudas, Biddle, and Fox [33] were used. This instrument serves to measure the different forms of motivation established by TSD in PE. The instrument consists of 20 items distributed in five subscales of four items each: intrinsic motivation, identified regulation, introjected regulation, external regulation,

and amotivation. The answers were scored on a Likert scale that ranged from 1 (totally disagree) to 7 (totally agree).

We used the version of the sport satisfaction instrument validated for the Spanish context and adapted to bilingual PE (SSI-PE) by Baena-Extremera and Granero-Gallegos [13] from the original sport satisfaction instrument (SSI) [34]. This instrument presents eight items that measure the degree of satisfaction in bilingual PE activities and consists of two subscales that measure satisfaction/fun (five items) and boredom (three items). The answers were collected on a Likert scale that ranged from 1 (totally disagree) to 5 (totally agree).

2.3. Procedure

Permission was obtained to carry out the investigation from the competent bodies of both secondary and university education centers. Parents/guardians and students were informed in detail about the protocol and purpose of the study. The signing of informed consent forms by both was an essential requirement to participate. The instruments to measure the different variables were administered in the classroom by the researchers themselves and without the presence of the teacher. All participants were informed of the study objective, the voluntariness and confidentiality of the answers and data management and that there were no correct or incorrect answers. At the beginning, they were asked to answer with the utmost sincerity and honesty. The research has the approval of the Bioethics Committee of the University of Murcia.

2.4. Statistical Analysis

A descriptive and correlation analysis among all the variables was carried out. The mean, standard deviation, asymmetry, kurtosis, correlation (Pearson coefficient), and internal consistency (Cronach's alpha) of each subscale was made with SPSS 22.0. Given that the structures underlying the analyzed instruments have been consistently determined in the literature, a confirmatory factor analysis (CFA) with LISREL 8.80 was performed to evaluate the factorial structure of each instrument. Next, to study the prediction of satisfaction/fun in PE classes according to basic psychological needs and motivation, we used a structural equation model (SEM) made with LISREL 8.80.

3. Results

3.1. Structural Equation Model

To verify the predictive relationship between the dimensions studied, the two-step method proposed by Anderson and Gerbing [35] was followed (step 1: measurement model, step 2: model of structural equations). In this way, a CFA of each of the scales was initially carried out to evaluate the goodness of fit of each instrument to the population under investigation. This analysis allowed us to confirm the factorial structure of the scales used in the study, as well as to test their construct validity. Due to the lack of multivariate normality in the data, this analysis was carried out using the weighted least squares (WLS) estimation method for ordinal variables of the LISREL program 8.80 [36]. The polychoric correlation matrix and the asymptotic covariance matrix were used as input for data analysis. For each scale, a measurement model consisting of a factor model that assumed the existence of latent variables according to the original instruments described in the corresponding section was hypothesized.

For the evaluation of the models, several adjustment indices were calculated, as recommended by several authors [37,38]. The adjustment was evaluated with a combination of absolute and relative adjustment indices. Among the absolutes, the p value was used, associated with the chi-square (χ^2) and the ratio between χ^2 and degrees of freedom (gl) (χ^2/gl). The GFI (goodness of fit index) has been calculated, whose value must be equal to or greater than 0.90 to consider the adjustment of a model minimally acceptable, although authors such as Hooper, Coughlan, and Mullen [39] consider values ≥ 0.95 for a better fit. Among the relative indices, the NFI (normative adjustment index), the

NNFI (non-normative adjustment index) and CFI (comparative adjustment index) have been used. In the incremental indices, it is considered that values of ≥ 0.95 indicate a good fit [40]. Authors such as Kline [41] recommend the use of RMSEA (mean square approximation error) and, according to Hu and Bentler [40], a value of ≤ 0.06 would indicate a good fit. The estimated parameters are considered significant when the value associated with the value t is greater than 1.96 ($p < 0.05$).

In BPNES, the indices of fit obtained were $\chi^2/df = 3.14$, $p < 0.001$, GFI = 0.98, NFI = 0.96, NNFI = 0.96, CFI = 0.95, RMSEA = 0.06. In PLOC: $\chi^2/df = 3.02$, $p < 0.001$, GFI = 0.98, NFI = 0.96, NNFI = 0.97, CFI = 0.98, RMSEA = 0.05. In SSI-PE, $\chi^2/df = 2.62$, $p < 0.001$, GFI = 0.95, NFI = 0.98, NNFI = 0.99, CFI = 0.99, RMSEA = 0.05. These data are adjusted to the established parameters so that the proposed models can be accepted as good [40]. The t -value associated with each weight was taken as a measure of the contribution, meaning that values > 1.96 are considered significant.

In the CFA of the scales with the ordinal nature of the data correlation matrix, it is considered important to offer the results of composite reliability and average variance extracted (AVE) for each of the critical dimensions. According to Hair, Black, Babin, and Anderson [42], composite reliability must have a minimum value of 0.70 and AVE of 0.50. Table 1 sets out the positive data of internal consistency and the validity of each of the dimensions.

Table 1. Internal consistency and validity of the dimensions studied.

Dimensions	Composite Reliability	AVE	α
1. Autonomy	0.88	0.65	0.82
2. Competence	0.88	0.64	0.78
3. Relation with others	0.90	0.69	0.80
4. Intrinsic Motivation	0.99	0.92	0.91
5. Identified Regulation	0.99	0.88	0.91
6. Introjected Regulation	0.90	0.80	0.75
7. External Regulation	0.88	0.79	0.82
8. Amotivation	0.85	0.58	0.75
9. Satisfaction/fun	0.90	0.64	0.86
10. Boredom	0.80	0.58	0.72

Note: AVE: average variance extracted; α : Cronbach's alpha.

3.2. Descriptions and Correlations

Table 2 shows the descriptive statistics of the variables used as well as their correlation. In the scale of basic psychological needs, the factor relationship with others obtained the highest average score, followed by competence and, finally, autonomy. In motivation, intrinsic motivation stands out with the highest average, followed by identified regulation, while the lowest average corresponded to amotivation. On the satisfaction scale, satisfaction/fun reached a considerably higher average score than boredom. Amongst the correlations, positive and statistically significant values (even higher > 0.50) were found between some variables, such as autonomy with competence (0.66), intrinsic motivation (0.61), identified regulation (0.58) and satisfaction/fun (0.56); competence with relation with others (0.57), intrinsic motivation (0.56), and satisfaction/fun (0.53). In addition, the correlation between intrinsic motivation and identified regulation (0.87) stood out, as did the correlation between satisfaction/fun with intrinsic motivation (0.64) and identified regulation (0.58). On the contrary, boredom correlated negatively and statistically significantly with all scales except introjected regulation, external regulation, and amotivation, highlighting the negative relationship with satisfaction/fun (-0.52). The correlations between satisfaction/fun with introjected regulation and external regulation were also negative and statistically significant.

Table 2. Mean (M), standard deviation (SD), asymmetry, kurtosis, and correlations between the subscales.

	M	SD	Q1	Q2	2	3	4	5	6	7	8	9	10
1. Autonomy	3.18	0.94	−0.02	−0.40	0.66 **	0.50 **	0.61 **	0.58 **	0.10 **	0.09 **	0.15 **	0.56 **	−0.22 **
2. Competence	3.56	0.89	−0.19	−0.44		0.57 **	0.56 **	0.53 **	0.12	0.03	−0.03	0.55 **	−0.20 **
3. Relation with others	3.83	0.90	−0.49	0.06			0.45 **	0.43 **	0.13 *	0.05	−0.03	0.40 **	−0.18 **
4. Intrinsic Motivation	4.94	1.36	−0.31	0.70				0.87 **	0.30 **	0.25 **	0.17 **	0.64 **	−0.33 **
5. Identified Regulation	4.85	1.25	−0.41	−0.07					0.50 **	−0.05	0.29 **	0.58 **	−0.26 **
6. Introjected Regulation	3.78	1.20	−0.38	0.05						0.30 **	0.05	−0.35 **	0.38 **
7. External Regulation	3.70	1.10	0.20	0.04							0.45 **	−0.42 **	0.40 **
8. Amotivation	3.22	1.57	0.12	−0.79								0.04	0.19 **
9. Satisfaction/fun	3.93	0.90	−0.82	0.13									−0.52 **
10. Boredom	2.18	1.02	0.74	−0.20									

Note: * The correlation is significant at level 0.05; ** The correlation is significant at level 0.01 (bilateral); Q1: asymmetry; Q2: kurtosis.

3.3. Main Analysis

In order to analyze the relationships and interactions among the variables belonging to the proposed model and to obtain favorable values for their analysis, the structural equation model has been used. In response to the recommendations of authors [38,43], measures were carried out to formulate it. For this, it was theoretically assumed that the three basic psychological needs would predict positively and/or negatively the self-determined motivation and amotivation scores and those for satisfaction/fun and boredom. Finally, an acceptable design was found in which the only predictor of the PLOC subscales is autonomy, and where competence and relationship with others do not remain in the measurement model, given that their inclusion does not offer acceptable indices of goodness of fit. The prediction was tested from the latent variables of PLOC towards satisfaction/fun and boredom. Finally, the model established acceptable adjustments, as shown in Figure 1.

In the final adjustment, the modification indices proposed by the LISREL program were also taken into account for the improvement and adjustments of the model, but the improvement was minimal and the proposed relationships did not conform to the theoretical model (for example, the model was improved by linking bi-directionally some of the variables measured between different subscales, but not by relating the latent variables). As can be seen in Figure 1, there was no prediction of the dimension of competence and relationships towards any of the latent variables. The data offered in Figure 1 show six latent variables with a total of 40 variables observed. The results of the model adjustment were adequate: $\chi^2/df = 3.57$, $p < 0.001$, GFI = 0.96, NFI = 0.96, NNFI = 0.97, CFI = 0.97, RMSEA = 0.061. $p < 0.001$, GFI = 0.96, NFI = 0.96, NNFI = 0.97, CFI = 0.97, RMSEA = 0.061. These data are adjusted to the established parameters, so that the proposed model can be accepted as good [40]. The value “t” associated with each weight was taken as a measure of the contribution, so that values higher than 1.96 are considered significant.

In the standard error of the mean (SEM) of Figure 1, the values of gamma, beta, lambda-x, lambda-y, theta delta and theta epsilon are observed (Figure 1). The AUT factor is shown as the main predictor of IM ($\gamma = 0.96$) and IR ($\gamma = 0.94$). Prediction values of amotivation are low ($\gamma = 0.19$), with a slightly higher prediction of BOR ($\beta = 0.22$). The most interesting aspect of this model is that the SAT/F in bilingual PE is predicted fundamentally by the most self-determined factors, such as IM and IR, based on the AUT of the students in class, given that the rest of the values are lower, and in others, such as EXTR, there is no prediction towards SAT/F.

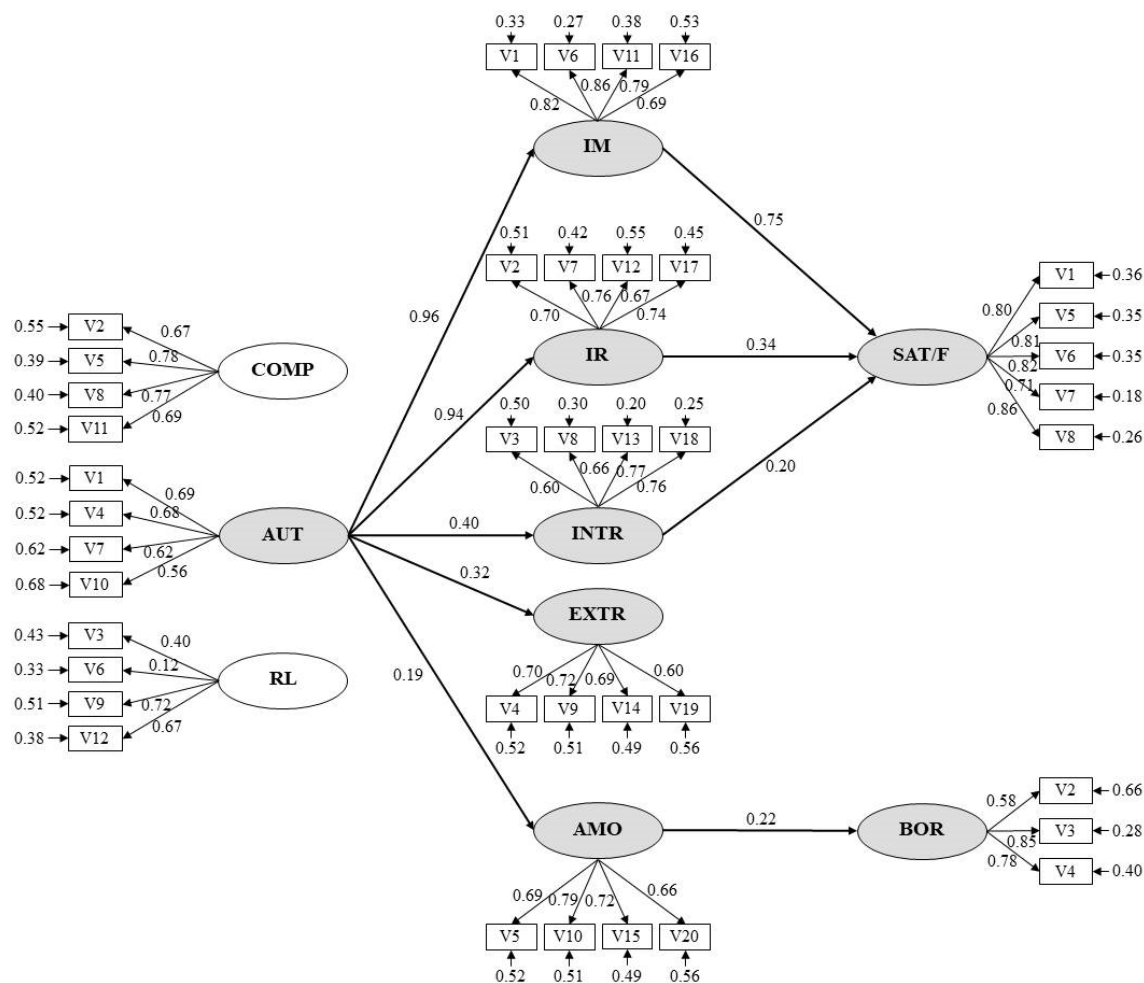


Figure 1. Structural model composed of eight hypothesized factors. The circles represent the latent constructs and the squares represent the measured variables. All the parameters are standardized and significant in $p < 0.05$. AUT: autonomy; IM: intrinsic motivation; IR: identified regulation; INTR: introjected regulation; EXTR: external regulation; AMO: amotivation; SAT/F: satisfaction/fun; BOR: boredom.

4. Discussion and Conclusions

European students in the 21st century are immersed in a multilingual society, being obliged to learn at least one foreign language [1]. As is well known, learning and teaching languages are complex tasks that entail a certain stress and anxiety for students [44], seriously damaging their learning, which is often caused by the need to use oral skills and abilities [45], skills they lack. Therefore, it is essential to look for models that help teachers to teach this content, because today’s society has a great interest in it. In addition, several studies have highlighted how language teaching in content and integrated language in physical education (PE in CLIL) can lead to an improvement in confidence in the use of a foreign language [4,46–48] due, fundamentally, to using them in academic tasks differently to those of other areas, where the teacher–student and student–student interaction is greater and more relaxed. For all these reasons, the importance of this work lies in knowing the possible positive or negative consequences that variables such as satisfaction/fun and boredom have to modulate in the process of teaching and learning for the student when learning a language.

The analyzed sample stands out for its high averages in intrinsic motivation, identified regulation and satisfaction/fun (Table 1), and may be the cause of a positive evaluation of PE classes [49–52]. This fact is of great relevance, since motivation is a key factor that can influence the results of academic performance, as has already been noted, since high learning achievements are often attributed to

the greater motivation of students and environments that favor motivation [53]. In relation to the above, high levels of intrinsic motivation (as opposed to extrinsic motivation) in a foreign language have been linked to a greater persistence in learning that language [15], with higher self-efficacy [16], lower perceived anxiety [54], and a greater willingness to communicate in that foreign language [17], with better qualifications in reading and writing a foreign language [16,18] and, in general, with a greater command of that language [55]. On the other hand, in language learning, satisfaction/fun plays an important role, as evidenced by research that links it to the effectiveness of tasks [9], active and communicative participation in activities [10] or, inversely, with anxiety [11]. Therefore, taking into account the higher degree of satisfaction/fun obtained in the CLIL teaching of this subject and the fact that it is linked to aspects such as effectiveness in tasks, active participation, and a reduction of anxiety, we can infer some of the positive consequences of CLIL teaching, as recent research shows [5].

The hypothesis of this research is not fulfilled in its entirety. It would be logical to think, according to known theoretical constructs, that the three basic psychological needs would be predictors of motivation, as other works made clear [51]; however, in this study, it is observed that this is not the case. The main predictor of satisfaction/fun is intrinsic motivation from the perception of the autonomy of one's own behavior. From this model, we can deduce that the learning climates in which the student's autonomy is strengthened by the teacher will improve the student's motivation [5,56,57]. On the other hand, more extrinsic motivations are more controlled and, obviously, they would be less autonomous. Therefore, it is essential to understand the students in these aspects, because as a result of their satisfaction with this subject, school performance could be improved, as some studies already show [58]. These results reinforce the trans-context model between bilingualism and PE [59], since it is observed how support for autonomy is understood as a predictor of intrinsic motivation and this in turn towards more self-determined variables such as satisfaction/fun.

The data in works such as those by Boyd et al. [22,23,60,61] on competence and those by Losier and Vallerand [62] and Paava [24] on relationships with others, dealing with other basic psychological needs, have shown a close connection with intrinsic motivation. These results cannot be corroborated in the present work, which opens a path of great interest in the teaching and learning of languages. Nevertheless, autonomy and intrinsic motivation are present in other works on language learning [5,63], although other researchers did not find this relationship [64].

From this model, it seems that student behavior is controlled when it is regulated, either by external contingencies or by introjected demands, while it is considered autonomous when it is intrinsically motivated. Likewise, threats, excessive demands on students, the imposition of deadlines (for example, on the delivery of work), pressures and goals imposed on the learning of vocabulary, grammar or phonetics of the language could lead to an external perception of causality [65]. On the contrary, contexts that stimulate freedom of choice in bilingual PE and classes treating expression of feelings will develop intrinsic motivation by providing students with a greater sense of autonomy [27]. On this, Noels, Clement, and Pelletier [66] affirmed that intrinsic motivation was correlated positively with a factor that has similarities with the perception of support for autonomy: the perception of informative teachers (who provide positive feedback). Conversely, intrinsic motivation was negatively correlated with a controlling type of teacher and with a controlled environment. This explains why autonomy acts as a predictor of intrinsic motivation, both in PE and in the learning of a foreign language.

External regulation does not maintain any prediction of any of the variables in the structural model. This may be due to the fact that extrinsically motivated student behaviors tend to occur as a consequence of the offer of a subsequent reward [67]. These behaviors vary to the extent that students demonstrate autonomous versus controlled behavior [68]. When teachers control the classes, students usually confront a practical experience with tension and anxiety, which in turn demonstrates the feeling of obligation and the imposition instead of another in which they act as they think it should be done [69].

Finally, it is important to emphasize that autonomy is a relevant and very important variable to take into account in education, especially since Spanish and European education legislation includes autonomy and personal initiative among the key competences that students must acquire in education. If the intention is to train autonomous students in decision-making and initiative skills, the teacher plays a fundamental role because, as demonstrated by Hagger, Chatzisarantis, Culverhouse, and Biddle [70], the teacher's perception of support for student autonomy, in the PE context, influences the students' subsequent behavior in their free time. In addition to this, Devos [71], in discussing peer interactions in content and language integration in PE (CLIL-PE), points out that this subject is advantageous to enable situations to be created that help the process of linguistic or content scaffolding, and to the autonomous use of the foreign language—an aspect that teachers should take into account for the teaching of a second language, since from these results, many points of view could change.

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References

1. Fernández-Barrionuevo, E.; Baena-Extremera, A. Motivation in physical education and foreign language learning in CLIL teaching: gender differences and implications for future studies. *Porta Linguarum* **2018**, *30*, 207–220.
2. Khodadady, E.; Khajavy, G.H. Exploring the role of anxiety and motivation in foreign language achievement: A structural equation modeling approach. *Porta Linguarum* **2012**, *20*, 269–286.
3. Baena-Extremera, A.; Granero-Gallegos, A. Versión española del Sport Satisfaction Instrumento (SSI) adaptado al aprendizaje de la Educación Física bilingüe en inglés [Spanish Version of the Sport Satisfaction Instrument (SSI) Adapted to Learning Bilingual in English Physical Education]. *Porta Linguarum* **2015**, *24*, 63–76.
4. García-Calvo, S. CLIL Curriculum Design in Physical Education: Transforming Theory into Practice. Ph.D. Thesis, University of Jaén, Jaén, Spain, 2015.
5. Fernández, E. Generalización de la Motivación en AICLE Entre los Dominios de Educación Física y Aprendizaje en Lengua Extranjera en Centros Bilingües Andaluces. Ph.D. Thesis, University of Granada, Granada, Spain, 2017.
6. Lasagabaster, D. English achievement and student motivation in CLIL and EFL settings. *Innovat. Lang. Learn. Teach.* **2011**, *5*, 3–18. [[CrossRef](#)]
7. Hunt, M. Learners' perceptions of their experiences of learning subject content through a foreign language. *Educ. Rev.* **2011**, *63*, 365–378. [[CrossRef](#)]
8. Mearns, T.L. Using CLIL to enhance pupils' experience of learning and raise attainment in German and health education: A teacher research project. *Lang. Learn. J.* **2012**, *40*, 175–192. [[CrossRef](#)]
9. Green, J.M. Student attitudes toward communicative and non-Communicative activities: Do enjoyment and effectiveness go together? *Mod. Lang. J.* **1993**, *77*, 1–10. [[CrossRef](#)]
10. Schmidt, R.; Boraie, D.; Kassabgy, O. Foreign language motivation: Internal structure and external connections. In *Language Learning Motivation: Pathways to the New Century*; Oxford, R., Ed.; Technical Report #11; University of Hawai'i, Second Language Teaching & Curriculum Center: Honolulu, Hawaii, 1996; pp. 9–70.
11. Dewaele, J.M.; MacIntyre, P.D. The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* **2014**, *4*, 237–274. [[CrossRef](#)]
12. Sevil, J.; Aibar, A.; Abós, A.; García, L. El clima motivacional del docente de educación física: ¿puede afectar a las calificaciones del alumno? [Motivational climate of teaching physical education: Could it affect student grades?]. *Retos* **2017**, *31*, 98–102.

13. Baena-Extremera, A.; Granero-Gallegos, A.; Bracho-Amador, C.; Pérez-Quer, F.J. Spanish version of the sport satisfaction instrument (SSI) adapted to physical education. *Revista de Psicodidáctica* **2012**, *17*, 377–395. [[CrossRef](#)]
14. Baños, R.; Ortiz-Camacho, M.M.; Baena-Extremera, A.; Tristán-Rodríguez, L. Satisfacción, motivación y rendimiento académico en estudiantes de secundaria y bachillerato: Antecedentes, diseño, metodología y propuesta de análisis para un trabajo de investigación [Satisfaction, motivation and academic performance in students of secondary and high school: Background, design, methodology and proposal of analysis for a research paper]. *Espiral* **2017**, *10*, 40–50. [[CrossRef](#)]
15. Noels, K.A. New orientations in language learning motivation: Towards a model of intrinsic, extrinsic, and integrative orientations and motivation. In *Motivation and Second Language Acquisition*; Dörnyei, Z., Schmidt, S., Eds.; University of Hawaii, Second Language Teaching and Curriculum Centre: Honolulu, Hawaii, 2001; pp. 43–68.
16. Ehrman, M. An exploration of adult language learner motivation, self-efficacy and anxiety. In *Language Learning Motivation. Pathways to the New Century*; Oxford, R.L., Ed.; University of Hawaii, Second Language Teaching and Curriculum Center: Honolulu, Hawaii, 1996; pp. 81–113.
17. Nishida, R. An empirical study on L2 ideal self, international posture, intrinsic motivation, willingness to communicate among EFL Japanese university students. In Proceedings of the JACET Convention, Aichi, Japan, 1–2 September 2012.
18. Vandergrift, L. Relationships among motivation orientations, metacognitive awareness and proficiency in L2 listening. *Appl. Linguist.* **2005**, *26*, 70–89. [[CrossRef](#)]
19. Vallerand, R.J. Towards a hierarchical model of intrinsic and extrinsic motivation. In *Experimental Social Psychology*; Zanna, M.P., Ed.; Academic Press: New York, NY, USA, 1997; pp. 271–361.
20. Vallerand, R.J. A hierarchical model of intrinsic and extrinsic motivation in sport and exercise. In *Advances in Motivation in Sport and Exercise*; Roberts, G.C., Ed.; Human Kinetics: Champaign, IL, USA, 2001; pp. 263–319.
21. Deci, E.L.; Ryan, R.M. The “what” and “why” of goal pursuits: Human needs and the self-determination of behaviour. *Psychol. Inq.* **2000**, *11*, 227–268. [[CrossRef](#)]
22. Boyd, M.P.; Weinmann, C.; Yin, Z. The relationship of physical self-perceptions and goal orientations to intrinsic motivation for exercise. *J. Sport Behav.* **2002**, *25*, 1–18.
23. Li, W.; Lee, A.M.; Solmon, M.A. Relationships among dispositional ability conceptions, intrinsic motivation, perceived competence, experience, persistence and performance. *J. Teach. Phys. Educ.* **2005**, *24*, 51–65. [[CrossRef](#)]
24. Paava, M. Motivation and perceived relatedness. In Proceedings of the Meeting of the Midwestern Psychological Association, Chicago, IL, USA, 12–14 April 2001.
25. Baena-Extremera, A.; Gómez-López, M.; Granero-Gallegos, A.; Martínez-Molina, M. Modelo de predicción de la satisfacción y diversión en Educación Física a partir de la autonomía y el clima motivacional [Prediction Model of Satisfaction and Enjoyment in Physical Education from the Autonomy and Motivational Climate]. *Univ. Psychol.* **2016**, *15*, 15–26. [[CrossRef](#)]
26. Granero-Gallegos, A.; Baena-Extremera, A.; Sánchez-Fuentes, J.; Martínez-Molina, M. Perfiles motivacionales de apoyo a la autonomía, autodeterminación, satisfacción, importancia de la educación física e intención de práctica física de tiempo libre [Motivational profiles of autonomy support, self-determination, satisfaction, importance of physical education and intention to partake in leisure time physical activity]. *CPD* **2014**, *14*, 59–70.
27. Deci, E.L.; Ryan, R.M. *Intrinsic Motivation and Self-Determination in Human Behavior*; Plenum: New York, NY, USA, 1985.
28. O'Reilly, E.N. Correlations among perceived autonomy support, intrinsic motivation, and learning outcomes in an intensive foreign language program. *TPLS* **2014**, *4*, 1313–1318. [[CrossRef](#)]
29. Dincer, A.; Yesilyurt, S.; Takkac, M. The Effects of Autonomy-Supportive Climates on EFL Learner's Engagement, Achievement and Competence in English Speaking Classrooms. *Procedia Soc. Behav. Sci.* **2012**, *46*, 3890–3894. [[CrossRef](#)]
30. Moreno, J.A.; González-Cutre, D.; Chillón, M.; Parra, N. Adaptación a la educación física de la escala de las necesidades psicológicas básicas en el ejercicio [Adaptation of the basic psychological needs in exercise scale to physical education]. *Rev. Mex. Psicol.* **2008**, *25*, 295–303.

31. Vlachopoulos, S.P.; Michailidou, S. Development and initial validation of a measure of autonomy, competence, and relatedness in exercise: The Basis Psychological Needs in Exercise Scale. *Meas. Phys. Educ. Exerc. Sci.* **2006**, *10*, 179–201. [[CrossRef](#)]
32. Moreno, J.A.; González-Cutre, D.; Chillón, M. Preliminary validation in Spanish of a scale designed to measure motivation in physical education classes: The Perceived Locus of Causality (PLOC) Scale. *Span. J. Psychol.* **2009**, *12*, 327–337.
33. Goudas, M.; Biddle, S.J.H.; Fox, K. Perceived locus of causality, goal orientations and perceived competence in school physical education classes. *Br. J. Educ. Psychol.* **1994**, *64*, 453–463. [[CrossRef](#)] [[PubMed](#)]
34. Duda, J.L.; Nicholls, J.G. Dimensions of achievement motivation in schoolwork and sport. *J. Educ. Psychol.* **1992**, *84*, 290–299. [[CrossRef](#)]
35. Anderson, J.C.; Gerbing, D.W. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.* **1988**, *103*, 411–423. [[CrossRef](#)]
36. Jöreskog, K.G.; Sörbom, D. *Structural Equation Modeling with the SIMPLIS Command Language*; Scientific Software International: Chicago, IL, USA, 2003.
37. Bentler, P.M. On tests and indices for evaluating structural models. *Pers. Individ. Differ.* **2007**, *42*, 825–829. [[CrossRef](#)]
38. Markland, D. 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. *Pers. Individ. Differ.* **2007**, *42*, 851–858. [[CrossRef](#)]
39. Hooper, D.; Coughlan, J.; Mullen, M. Structural Equation Modelling: Guidelines for Determining Model Fit. *Electron. J. Bus. Res. Methods* **2008**, *6*, 53–60.
40. Hu, L.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model.* **1999**, *6*, 1–55. [[CrossRef](#)]
41. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 2nd ed.; The Guilford Press: New York, NY, USA, 2005.
42. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 7th ed.; Pearson Prentice Hall: New York, NY, USA, 2009.
43. Levy, R.; Hancock, G.R. A framework of statistical tests for comparing mean and covariance structure models. *Multivar. Behav. Res.* **2007**, *42*, 33–66. [[CrossRef](#)] [[PubMed](#)]
44. Arnaiz, P.; Guillén, F. La ansiedad en el aprendizaje de una lengua extranjera en contexto universitario: Diferencias interpersonales [Foreign Language Anxiety in a Spanish University Setting: Interpersonal Differences]. *Rev. Psicodidac.* **2012**, *17*, 5–27.
45. MacIntyre, P.D.; Gardner, R.C. Language anxiety: Its relation to other anxieties and to processing in native and second languages. *Lang. Learn.* **1991**, *41*, 513–534. [[CrossRef](#)]
46. Christopher, A.; Dzakiria, H.; Mohamed, A. Teaching english through sports: A case study. *Asian EFL J.* **2012**, *59*, 20–29.
47. Coral, J.; Lleixa, T. Physical education in contact and language integrated learning: Successful interaction between physical education and English as a foreign language. *Int. J. Biling. Educ. Biling.* **2016**, *19*, 108–126. [[CrossRef](#)]
48. Zindler, K. Content and Language Integrated Learning (CLIL) and PE in England. An Exploratory Study. Ph.D. Thesis, University of Sheffield, Sheffield, UK, 2013.
49. Granero-Gallegos, A.; Baena-Extremera, A. Análisis preliminar exploratorio del “Sport Motivation Scale (SMS)” adaptado a la Educación Física [Preliminary exploration of the “Sport Motivation Scale (SMS)” adapted to Physical Education]. *Espiral* **2013**, *6*, 3–14. [[CrossRef](#)]
50. Granero-Gallegos, A.; Gómez-López, M.; Baena-Extremera, A.; Bracho-Amador, C.; Pérez-Quero, F.J. Evaluación de las diferencias en la motivación de estudiantes de Educación Física en secundarias según las estrategias del profesor para mantener la disciplina. *Psicol. Reflex. Crit.* **2014**, *28*, 222–231. [[CrossRef](#)]
51. Moreno-Murcia, J.A.; Huéscar, E.; Cervelló, E. Prediction of adolescents doing physical activity after completing secondary education. *Span. J. Psychol.* **2012**, *15*, 90–100. [[CrossRef](#)] [[PubMed](#)]
52. Moreno-Murcia, J.A.; Zomeño, T.; Marín, L.M.; Ruiz, L.M.; Cervelló, E. Percepción de la utilidad e importancia de la educación física según la motivación generada por el docente [Perception of the usefulness and importance of physical education according to motivation generated by the teacher]. *Rev. Educ.* **2013**, *362*, 380–401. [[CrossRef](#)]

53. Moreno-Murcia, J.A.; Sicilia, A.; Cervelló, E.; Huéscar, E.; Dumitru, D. The relationship between goal orientations, motivational climate and self reported discipline in physical education. *J. Sports Sci. Med.* **2011**, *10*, 119–129. [[PubMed](#)]
54. Harter, S.; Connell, J.P. A model of the relationship between children's academic achievement and their self-perceptions of competence, control, and motivational orientation. In *The Development of Achievement Motivation*; Nichols, J., Ed.; JAI: Greenwich, UK, 1984; pp. 219–250.
55. Williams, M.; Burden, R.; Lanvers, U. 'French is the language of love and stuff': Student perceptions of issues related to motivation in learning a foreign language. *Br. Educ. Res. J.* **2002**, *28*, 503–528. [[CrossRef](#)]
56. Matos, L. Adaptación de dos cuestionarios de motivación: Autorregulación del Aprendizaje y Clima de Aprendizaje [Adaptation of two questionnaires of motivation: Learning Self-regulation Questionnaire and the Learning Climate Questionnaire]. *Persona* **2009**, *12*, 167–185. [[CrossRef](#)]
57. Reeve, J. Self-determination theory applied to educational settings. In *Handbook of Self-Determination Research*; Deci, E.L., Ryan, R.M., Eds.; The University of Rochester Press: Rochester, NY, USA, 2002; pp. 183–203.
58. Dwyer, T.; Sallis, J.F.; Blizzard, L.; Lazarus, R.; Dean, K. Relation of Academic Performance to Physical Activity and Fitness in Children. *Pediatr. Exerc. Sci.* **2001**, *13*, 225–238. [[CrossRef](#)]
59. Hagger, M.S.; Chatzisarantis, N.L.D. The trans-contextual model of motivation. In *Intrinsic Motivation and Self-Determination in Exercise and Sport*; Hagger, M.S., Chatzisarantis, N.L.D., Eds.; Human Kinetics: Champaign, IL, USA, 2007; pp. 53–70.
60. Goudas, M.; Dermizaki, I.; Bagiatis, K. Predictors of students' intrinsic motivation in school physical education. *Eur. J. Psychol. Educ.* **2000**, *15*, 271–280. [[CrossRef](#)]
61. Hassandra, M.; Goudas, M.; Chroni, S. Examining factors associated with intrinsic motivation in physical education: A qualitative approach. *Psychol. Sport. Exerc.* **2003**, *4*, 211–223. [[CrossRef](#)]
62. Losier, G.F.; Vallerand, R.J. Développement et Validation de l'Echelle des Relations Interpersonnelles dans le Sport (ERIS). *Int. J. Sport Psychol.* **1995**, *26*, 307–326.
63. Carreira, J.M. Motivational orientations and psychological needs in EFL learning among elementary school students in Japan. *System* **2012**, *40*, 191–202. [[CrossRef](#)]
64. McEown, M.S.; Noels, K.A.; Saumure, K.D. Students' self-determined and integrative orientations and teachers' motivational support in a Japanese school as a foreign language context. *System* **2014**, *45*, 227–241. [[CrossRef](#)]
65. Ryan, R.M.; Deci, E.L. Self-determination theory and the facilitation of intrinsic motivation social development and well-being. *Am. Psychol.* **2000**, *55*, 68–78. [[CrossRef](#)] [[PubMed](#)]
66. Noels, K.A.; Clement, R.; Pelletier, L.G. Perceptions of teachers' communicative style and students' intrinsic and extrinsic motivation. *Mod. Lang. J.* **1999**, *83*, 23–34. [[CrossRef](#)]
67. Black, A.E.; Deci, E.L. The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Sci. Educ.* **2000**, *84*, 740–756. [[CrossRef](#)]
68. Ryan, R.M.; Connell, J.P. Perceived locus of causality and internalization: Examining reasons for acting in two domains. *J. Pers. Soc. Psychol.* **1989**, *57*, 749–761. [[CrossRef](#)] [[PubMed](#)]
69. Williams, G.C.; Saizow, R.; Ross, L.; Deci, E.L. Motivation underlying career choice for internal medicine and surgery. *Soc. Sci. Med.* **1997**, *45*, 1705–1713. [[CrossRef](#)]
70. Hagger, M.S.; Chatzisarantis, N.; Culverhouse, T.; Biddle, S.J.H. The processes by which perceived autonomy support in physical education promotes leisure-time physical activity intentions and behavior: A trans-contextual model. *J. Educ. Psychol.* **2003**, *95*, 784–795. [[CrossRef](#)]
71. Devos, N.J. *Peer Interactions in New Content and Language Integrated Settings*; Springer International Publishing: Cham, Switzerland, 2016.

