



## A brief questionnaire to assess goal orientations: development and validity

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**Título:** Un cuestionario breve para evaluar las orientaciones a meta: desarrollo y validación.

**Resumen:** Este estudio se centra en el desarrollo y validación de un cuestionario breve para evaluar las orientaciones a meta y su impacto en las percepciones de los estudiantes sobre el clima motivacional de clase (CMC). Se exploran posibles diferencias culturales y de género. La muestra incluyó a 5,471 estudiantes de secundaria (3,433 de España, 54% mujeres; 1,946 de Costa Rica, 48.8% mujeres). Los participantes completaron el Cuestionario Breve de Orientación a Metas (BGOQ) y el Cuestionario de Clima Motivacional de Clase (CMC-Q) (Alonso-Tapia & Fernández, 2008). Se realizaron análisis factoriales confirmatorios y análisis multigrupo en las muestras de ambos países. Los resultados confirmaron la validez estructural del cuestionario. Las orientaciones hacia el aprendizaje correlacionaron positivamente con un CMC orientado al aprendizaje. Aunque no se encontraron diferencias significativas en los patrones de regresión entre países o géneros, surgieron variaciones en las correlaciones entre las orientaciones hacia el aprendizaje y el rendimiento entre las muestras de España y Costa Rica. Los hallazgos indican que el BGOQ es una herramienta eficaz para examinar las orientaciones a metas. Las orientaciones a metas influyen en las percepciones del CMC. El estudio destaca la necesidad de considerar las diferencias culturales y de género al investigar las orientaciones a metas.

**Palabras clave:** Orientaciones a meta. Evaluación. Clima motivacional de clase. Cuestionario.

**Abstract:** This study focuses on developing and validating a brief questionnaire to assess goal orientations and their impact on students' perceptions of classroom motivational climate (CMC). It explores potential cultural and gender differences. The sample included 5,471 secondary school students (3,433 from Spain, 54% female; 1,946 from Costa Rica, 48.8% female). Participants completed the Brief Goal Orientation Questionnaire (BGOQ) and the Classroom Motivational Climate (CMC-Q) (Alonso-Tapia & Fernández, 2008). Confirmatory factor analyses and multigroup analyses were performed on samples from both countries. Results confirmed the structural validity of the questionnaire. Learning orientations were positively correlated with a learning-oriented CMC. While no significant differences were found in regression patterns between countries or genders, variations in correlations between learning and performance orientations emerged between the Spanish and Costa Rican samples. The findings indicate that the BGOQ is an effective tool for examining goal orientations. Goal orientations influence perceptions of the CMC. The study emphasizes the need to account for cultural and gender differences when researching goal orientations.

**Keywords:** Goal orientations. Assessment. Classroom motivational climate. Questionnaire.

### Introduction

Achievement Goal Theory emerged in the late 20th century and quickly became one of the most influential frameworks for studying achievement motivation in educational contexts. Numerous studies have worked and continue to work from this theoretical proposal, simultaneously impacting the evolution of the conceptualization of this theoretical framework. Urdan and Kaplan (2020) analyze this evolution and identify some factors that contributed to its enormous impact: first, the idea that achievement could mean different things to different people provided a suitable framework for studying motivation; second, the fact that student purposes for achieving could be influenced not only by their predispositions but also by the context, messages received from teachers, and peers (Abelló, et al., 2023; Alonso-Tapia, et al., 2018, 2020); and third, the value given to questionnaires as tools for collecting data related to achievement goals (Curle & Derakhshan, 2021). Besides, Urdan and Kaplan (2020) suggest that future research on goal orientations (GO) needs to focus, among other things: 1) on the relationship between students' personal goals and the authentic contexts in which learning activities occur; 2) on analyzing the effect of culture and gender on achievement goals. One way of approaching the first purpose is to study how GOs moderate the stu-

dents' perceptions of Classroom Motivational Climate (CMC). Ames made this proposal long ago (Ames, 1992). However, the development of new models of CMC (Alonso-Tapia & Fernández, 2008) suggests the need to test this relationship again using new brief assessment procedures that do not burden students with the task of answering the large number of items included in different instruments. In this context, the main objectives of this study are: 1) to develop a very brief and valid questionnaire for assessing GO; 2) to study how GOs, assessed by the new questionnaire, moderate the students' perceptions of CMC, and 3) to do the two previous tasks comparing data coming from two different cultures.

### Achievement Goals: Theory and assessment

Achievement Goal Theory encompasses different goal models (Chazan, et al., 2022). First, the dichotomous model (Elliot, 1999) distinguishes between learning and performance goal models but also suggests the need to incorporate the approach and avoidance dimensions into academic goals. Second, is the trichotomous model (Elliot, 2005). It includes three main GO: learning orientation (LO), performance orientation (PO), and avoidance orientation (AO). Third, is the 2x2 GO model. This model combines LO and PO with approach and avoidance orientations (Elliot & McGregor, 2001). Fourth is the 3x2 model (Elliot, et al., 2011). It combines the goals focused on the task, self, and others as refer-

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ents for competence with the valence constructs (approach and avoidance).

Chazan, Pelletier, and Daniels (2022) suggest that there is no best model, as each model can be useful in different contexts and for diverse purposes, though perhaps the most accepted and frequently used is the trichotomous model of GOs. According to this model, LO implies that students are primarily interested in understanding and learning the content and issues under study. PO involves a big concern for outcomes and grades, while AO reflects a desire to avoid failure compared to others and get rid of the task. From this model, relationships have been found between each of these orientations and different types of variables. LO has shown the best effects on engagement (Miller, et al., 2021), self-regulation (He et al., 2023), learning and achievement (Hulleman, et al., 2010), and creativity (Sousa et al., 2023). PO also supports task engagement, interest, and achievement (Hulleman, et al., 2010; Senko, Durik, et al., 2013). However, PO is associated with test anxiety, reluctance to seek help, or cheating (Huang, 2011). AO negatively affects many important academic outcomes: intrinsic motivation, academic self-efficacy, cognitive and behavioral commitment, and achievement. It is also associated with high test anxiety, avoidance of seeking help, and self-sabotage (Hulleman et al., 2010; Linnenbrink-Garcia, et al., 2012; Senko et al., 2011).

However, in achievement goal research, there is still an increasing need to focus on the complex relations between GO and the many variables that can affect motivation, self-regulation, and learning considering the multilevel nature of educational contexts. There is also the need to understand the role of GO in the context of ethnic, cultural, and gender diversity (Urdañ & Kaplan, 2020; Wang, et al., 2020). In this regard, concerning gender, studies on a Spanish university student sample have found that performance orientation (PO) seems to have a positive effect on achievement for men but not as much for women (Alonso-Tapia, et al., 2010). Alić (2017) demonstrated gender differences among secondary students in Hong Kong in physical education, with boys being more focused on performance and results ("ego" goal orientation/involvement) and girls more focused on task and skill development. In a sample of Ukrainian and Polish university students, Kuśnierz, Rogowska, & Pavlova (2020) concluded that women are more motivated by academic achievement than men. Recently, Beik and Cho (2024) published a meta-analysis examining the correlation between GO and related variables in online learning, analyzing the influence of individual GO as well as differences arising from diverse cultural contexts (Korea and the US). The findings indicated that the country did not act as a moderating factor in the relationship between goal orientation and academic achievement, although a moderating effect existed depending on the type of goal orientation. It is important to be aware that studies have suffered from an over-representation of samples from Western, educated, industrialized, rich, and

democratic countries, and results should not be generalized across different cultures (Guo et al., 2023).

Addressing the interaction among different variables in a single study is a challenge in data collection. For this reason, questionnaires have been identified as the most widely used data collection method in behavioral and social sciences research (Curle & Derakhshan, 2021). They allow working with large samples in a relatively simple, fast, and economical way and undoubtedly play a crucial role in gathering information on individual perspectives (Sharma, 2022). However, using multiple questionnaires in studies has unintended consequences. Participants are required to complete several questionnaires including hundreds of items to fill out. The quality of data obtained from a questionnaire also depends on its length. Increasing the number of questions not only extends the time required for answering them, but also leads to respondent fatigue, decreases response rates, and affects data quality (Holtom, et al., 2022). Hence, though different questionnaires have been developed for assessing GO supporting the trichotomous model (Midgley et al., 1998), it is important to invest research efforts in improving the assessment developing short, reliable, and valid instruments used in research.

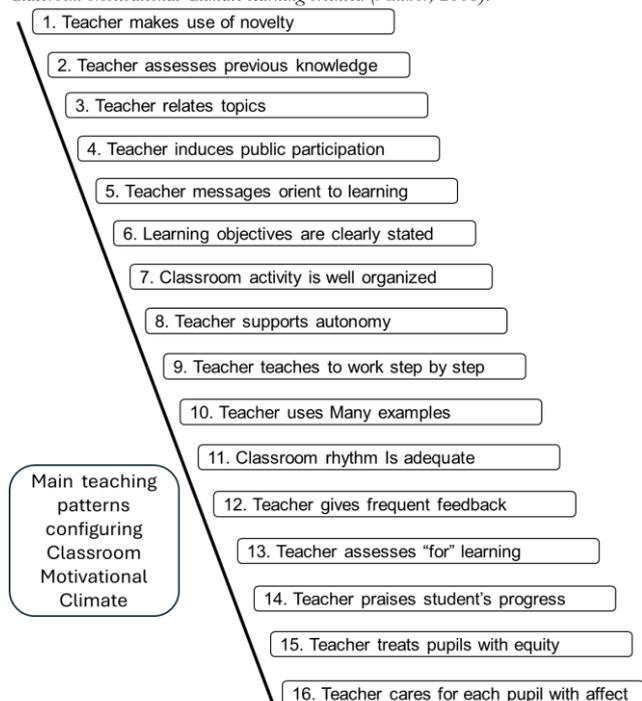
As just said, we have powerful tools designed to provide educational counselors and researchers with questionnaires that allow the assessment of student motivational orientations and have shown great efficacy. An example is the "Motivation, Expectancies and Values Questionnaire" (MEVA) (Alonso-Tapia, 2005). The original questionnaire had 150 items, making it impractical for research use. Therefore, the first aim of this study is to develop a shortened version and test the structural validity of the new questionnaire. This will be done while paying attention to the need to work with large samples, allowing for the study of gender effects and aspects related to cultural diversity.

### Classroom motivational climate

The importance of studying the relationship between students' personal goals and the authentic contexts in which learning activities occur, as suggested by Urdañ and Kaplan (2020), has to do with the known fact that student behavior in specific academic situations depends on the interaction between personal characteristics (for example, goals, abilities, expectancies, ethnicity, cultural background, etc.) and situational factors (teaching patterns, nature of the learning tasks, relationships with peers and teachers, etc.) (Abelló, et al., 2023; Nolen, 2020). One of the main situational factors the students have to deal with is the degree to which the Classroom Motivational Climate (CMC) (a component of the classroom climate (CC) (Alonso-Tapia, & Ruiz, 2022; Bardach, Yanagida & Lüftenecker, 2020), is learning-oriented (Ames, 1992). As with any climate, the CMC is configured by various factors interacting with GO- Therefore, it is important to deepen this interaction. However, which are the specific factors that configure the CMC?

Alonso-Tapia and Fernández (2008) developed a model and an instrument to assess the CMC (Figure 1) whose validity and implications have been repeatedly demonstrated (Villasana & Alonso-Tapia, 2015; Alonso-Tapia, 2016). Next, it follows a brief description of the sixteen teaching patterns that -at least- configure the CMC considering how they intervene along the teaching sequence. Their description is solidly grounded in the role attributed to each pattern by different theories: goal theories (Elliot, 2005), task value theories (Eccles & Wigfield, 2002), and self-determination theory (SDT; Ryan & Deci, 2000).

**Figure 1**  
*Classroom Motivational Climate learning oriented (Author, 2008).*



Teachers start organizing classroom activities around the tasks to be carried out. To favor motivation, tasks must arouse curiosity and show intrinsic and extrinsic value. Achieving this objective depends on the explicit messages the teachers give to show the task value, configuring what other authors have called "classroom goal structures" (Meece et al., 2006), and on the novelty of the task (Figure 1, Point 1).

However, students' engagement depends not only on the task value characteristics but also on whether they expect to be competent enough to carry it out and achieve success. These expectancies can be shaped along the learning sequence when teachers ask questions that make students aware of their knowledge about the problems to be solved (Figure 1, P2) (Endres, et al., 2022).

Moreover, as learning develops as classes progress and students face different subjects and domains, all the mentioned characteristics -task value, sense of competence, and

success expectancies- can be favored if teachers help students themselves to pay attention to the relationships between different contents, themes, and subjects (Figure 1, P3). According to SDT theory, becoming aware of such relationships contributes to the experience of progress, favoring the mentioned characteristics.

Nevertheless, students must engage in learning activities if they want to learn (Alonso-Tapia, et al., 2023). Engagement is favored at different moments along the learning sequence as long as teachers provide opportunities for participation (Figure 1, P4) and academic support (Robayo-Tamayo et al., 2020).

Besides, teachers' messages that make explicit the focus of the task, the learning objective they will achieve by doing it, and the usefulness of such knowledge (Figure 1, P5) are essential to arouse the students' sense of competence and their expectations of success.

However, students' learning motivation and engagement can diminish if teachers do not explicit the learning objectives (Figure 1, P6), and the steps to follow to do the task (Figure 1, P7). If teachers make explicit both using instructions or scripts, they provide the structure necessary to support the experience of competence. However, the structure can be perceived as controlling. If this happens, then students will feel that they lack autonomy. This negative effect can be avoided if teachers encourage initiative and agency, and provide choice opportunities (Figure 1, P8).

Students need teachers to provide help during their academic work. Teachers can work step by step, and design scaffolding procedures, if necessary (Belland, et al., 2013), to ensure that each student understands the ideas explained, and learns the procedures to follow (Figure 1, P9), as the experience of understanding and learning contributes to reinforcing the sense of progress and competency. With the same purpose, teachers can also provide examples and models that help to make visible concepts and procedures (Figure 1, P10). According to Ames (1992), an important way of helping students is to pace the rhythm of explanations and classroom activities so that no learner is left behind, which would lead to an experience of lack of progress, a diminution of success expectancies, and learning motivation (Figure 1, P11).

Perhaps the most important way of helping the students is through feedback. If feedback content, opportunity, and frequency are adequate, feedback favors the experience of progress and the expectancies of success and contributes to avoiding that motivation to learn diminishes (Wisniewski, et al., 2020). Therefore, feedback is a key component of CMC (Figure 1, P12).

Learning is assessed at different moments along the learning sequence and, as it is well known, it has various effects on students' motivation depending on its characteristics (Ames, 1992). If teachers design assessments to identify learning and not only performance (Soderstrom & Bjork, 2015), they can use assessment results to give feedback, a practice known as "assessment for learning" (AFL). This

type of assessment contributes to favoring learning motivation. However, if assessment practices focus on grades, they favor adopting performance instead of learning goals. Assessment is then an essential component of CMC (Figure 1, P13).

CMC does not depend only on teaching patterns, but also on the interaction patterns between teachers and students. Academic activities are developed in contexts of such interactions that are not cold, but “affect-laden”. Through them, teachers show recognition to the students, one of the essential components of CMC pointed to by Ames (1992). The quality of interactions depends mainly on two components: a) the time devoted to each student, and b) the positive character of them. One of the actions that load interactions with positive affect is praise (Ye, et al., 2023). Students need to be praised by their teachers because praise reinforces their sense of competence and contributes to developing their self-esteem (Figure 1, P14). Praise is. Then, a sign of a CMC oriented to learning. However, if students perceive that there are differences in the amount of time, praise, and affect received from their teachers, their self-esteem can diminish. Therefore, teachers need to treat students with equity to avoid a negative effect on this variable and, subsequently, on the students’ motivation to learn (Figure 1, P15, P16).

All the above-described teaching patterns interact and contribute to configuring the CMC, as repeatedly demonstrated (Villasana & Alonso-Tapia., 2015), a climate that constitutes the main authentic situation the students have to cope with. Robinson (2023) has suggested that in motivational climate theory, three types of classroom motivational processes should be distinguished: 1) *classroom motivational supports* (CMS) provided by teachers’ action patterns that can be assessed through independent observers; 2) *classroom motivational climate* (CMC), defined as “students’ shared perception of the motivational qualities of their classrooms”; this is a second order concept, and as such, need to be studied through multilevel analysis; and 3) *classroom motivational microclimates* (CMMC), defined as the “individual perceptions of classroom motivational climate” (CMC).

Similar models are used to refer to CMC and CMMC, as both contribute to predicting motivational and learning outcomes; for this reason, both have been named frequently as CMC. The present study will limit the analysis to the relationship between the GO and the individual perceptions of CMC.

### The present study

GOs influence and are influenced by numerous variables. One example is the way they fluctuate in relation to students’ perceptions of the CMC (Ketonen, et al., 2023; Meece, et al., 2006). Recently, there has been a growing emphasis on the necessity of investigating GOs within the contexts in which learning activities take place, as well as taking into account cultural and gender diversity (Urda & Kaplan, 2020; Wang et al., 2020). This highlights the urgent need to focus re-

search efforts on developing assessment tools that allow for the simultaneous incorporation of measures of a variety of factors into the designs to try to understand the complexity and dynamism of the relationships established with the GOs. This study aims to achieve three specific objectives. The first objective is to develop a very brief and valid questionnaire for assessing GO. The hypothesis related to this objective is that its structure will allow assessing the three GOs described in the trichotomous model. The second objective is to study how GOs, assessed by the new questionnaire, moderate the students’ perceptions of CMC. Considering the results found when using different questionnaires (Alonso-Tapia, et al., 2020), it is hypothesized that LO will correlate in a positive and significant way with CMC, the higher the scores in this measure, the higher the degree to which the CMC is learning oriented. The third objective is to compare data coming from two different countries and from gender to test whether these variables have an effect on the structure of the questionnaire and the relationships between GOs and CMC. No hypothesis is formulated in this case.

## Method

### Participants

The sample included 5471 students at secondary schools from two countries, Spain (SP) and Costa Rica (CR). They belonged to 27 schools and were grouped in 263 classrooms. All the schools were chosen for convenience reasons; the SP schools from the province of Madrid, and the CR schools, from different cities and towns from all over the country.

The SP sub-sample included 3433 students (54% female, and 46% male). Age ranged from 11 to 20 years ( $M = 14.96$ ,  $SD = 1.80$ ). By educational level, 1277 belonged to the First Cycle of Secondary School (ages 11–15), 1154 to the Second Cycle (ages 15–17), and 1002 were High School students (ages 17–20). The Spanish schools were selected for convenience among state-funded and public schools of Madrid. The CR sub-sample included 1946 students (48.8% female, and 51.2% male). Ages were between 12 and 20 years ( $M = 14.98$ ;  $SD: 1.80$ ). By educational level, 982 belonged to the First Cycle of Secondary School (ages 11–15), 586 to the Second Cycle (ages 15–17), and 392 were High School or vocational training students (ages 17–20). The Costa Rican Schools were selected to be representative of the different towns of the country.

### Instruments

Brief goal orientation questionnaire (BGOQ). This questionnaire was developed for this study. It constitutes an abbreviated form of the “Motivation, expectancies and values questionnaire” (MEVA) (Alonso-Tapia, 2005). It has only 9 items, three for each of the most accepted goal orientations: Mastery goal orientation, Performance goal orientation, and Avoidance goal orientation. The items must be answered on

a 5-point Likert scale, from “total disagreement” to “total agreement”. The BGOQ is included in the Appendix.

*Classroom motivational climate (CMC-Q)* (Alonso-Tapia & Fernández, 2008). This questionnaire was designed to cover sixteen types of teaching patterns that could affect the students' motivation to learn (Figure 1). Two items were written to assess each pattern, forming a parcel. To avoid acquiescence effects, one item was positive and the other negative. Each item had to be answered on a five-point Likert scale from 1 (total disagreement) to 5 (complete agreement). The reliability coefficients are excellent ( $\alpha = .93$ ;  $\omega = .98$ ).

### Procedure

Spanish data were collected as part of a wider research project on School Climate and Classroom climate. The whole project and the specific studies, which included gathering data from different countries if available, were approved by the Research Ethics Committee of the authors' university in accordance with the Declaration of Helsinki (approval code: CEI.96-1763). Costa Rican data were collected as part of a study promoted directly by the initiative of the Ministry of Public Education of Costa Rica on School and Classroom Climate. This Ministry ensured that participation took place following ethics for human subjects' inclusion in scientific studies. All participating schools in Spain and Costa Rica gave their informed consent. Students, distributed into the groups and courses to which they belonged, filled in the questionnaires during the usual period of class. A member of the research team, present during the sessions, provided participants with precise instructions on how to fill in the questionnaires.

### Data Analyses

Missing data. The central item score substituted missing data. This happened in less than 4% of subjects. Subjects with over 3% of unanswered items were eliminated (1% of cases).

Confirmatory factor analysis (CFA-1). In the first step, data were analyzed using half of the sample. A three-factor structure, corresponding to the three motivational orientations most supported by theory (Authors, 2018), was used as a baseline model. Confirmatory factor analysis estimates were obtained using the maximum likelihood method, after examining whether data were adequate for the analysis (Mardia coefficient:  $18.69 < 70$ ) (Rodríguez & Ruiz, 2008). To assess model fit, absolute fit indexes ( $\chi^2$ ,  $\chi^2/df$ , GFI, SRMR), relative fit indexes (IFI), incremental fit indexes (TLI), and non-centrality fit indexes (CFI, RMSEA) were used, as well as criteria for acceptance or rejection based on the degree of

adjustment suggested by Hair, Black, Babin and Anderson (2010):  $\chi^2/df < 5$ ; GFI, IFI, TLI and CFI  $> .90$ ; RMSEA and SRMR  $< .08$ .

Multi-group cross-validation analysis (CFA-2). A multi-group confirmatory factor analysis was performed for cross-validating the structure of each questionnaire using both the estimation and validation subsamples, imposing different sets of restrictions of parameter equality. The estimation method, adjustment indexes, and criteria for acceptance or rejection were the same as those for the CFA-1.

Multi-group analyses by country (CFA-3). To test whether “country” had a significant effect on data adjustment to the theoretical structure proposed, a multi-group analysis by country was carried out, using the whole sample from each country. In both cases, the estimation method, adjustment indexes, and criteria for acceptance or rejection were the same as in previous analyses.

Multi-group analyses by sex (CFA-4). To test whether “sex” had a significant effect on data adjustment to the theoretical structure proposed, a multi-group analysis by sex was carried out, using the whole sample. As in previous cases, the estimation method, adjustment indexes, and criteria for acceptance or rejection were the same as in previous analyses.

Reliability analyses. McDonald's  $\omega$  was used for analyzing the reliability of the scales of each questionnaire. Separated indexes were obtained for each scale after separating the students by country and by sex.

Regression analysis. To test whether GOs moderate the individual perceptions that students have of the CMC, correlation and regression analyses were carried out. It was also tested whether regression results differed if students were separated by country and sex using multigroup analysis. The Direct Method was used to carry out the regression analysis.

SPSS-28 and Amos-28 were used for carrying out the different analyses.

## Results

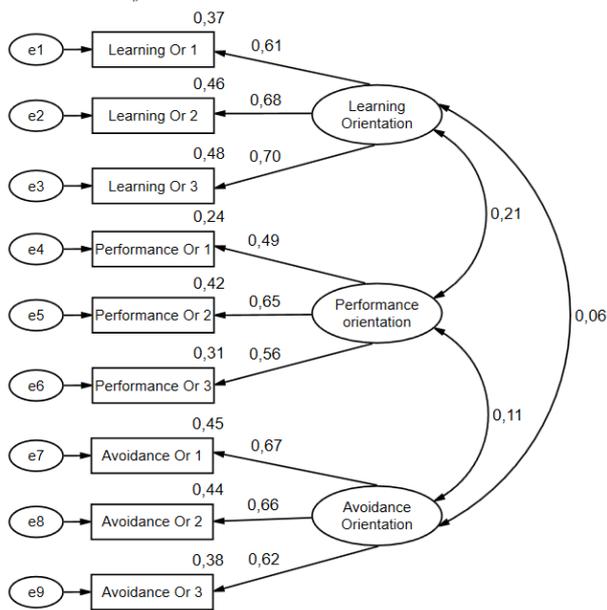
### Confirmatory factor analysis (CFA-1)

Table 1 shows the fit indices of the proposed model (CFA-1) and Figure 2 shows the standardized parameters corresponding to the confirmatory model. All estimated weights ( $\lambda$ ) were significant ( $p < .001$ ). Even though the  $\chi^2$  statistic and the quotient  $\chi^2/df$  may have reached significance due to the large size of the sample (Hair, Black, & Babin, 2010), the remaining indices were clearly located within the confidence limits, which resulted in the acceptance of the model.

**Table 1**  
Brief Goal Orientation Questionnaire. Goodness of fit statistics for the baseline model and for multi-group cross-validation analyses.

Analyses	$\chi^2$	df	p	$\chi^2/df$	GFI	IFI	TLI	CFI	RMSEA	SRMR
CFA-1: TOTAL SAMPLE										
Group 1- Basic model (n = 2696)	206.88	24	< .0001	8,62	.98	.95	.93	.95	.05	.05
CFA-2: TOTAL SAMPLE Cross-validation (n <sub>1</sub> = 2696; n <sub>2</sub> = 2697)	545.58	48	< .0001	11.36	.98	.93	.90	.93	.04	.05
CFA-3; MG by COUNTRY (n c. Rica = 1960; n Spain = 3433)	512.26	48	< .0001	10.67	.98	.94	.91	.94	.04	.03
CFA-4; MG by SEX (n females = 2796; n males = 2597)	530.40	48	< .0001	11.05	.98	.94	.90	.94	.04	.05

**Figure 2**  
Brief Goal Orientation Questionnaire (N: 2696): Standardized regression weights, and correlations between factors.



**Crossed validation: Multigroup analysis (CFA-2)**

Fit indices fell within the confidence limits (Table 1, CFA-2), and the model parameters shown in Table 2 revealed that model fit did not decrease significantly even if restrictions were imposed on the measurement weights, structural covariances, and measurement residuals.

**Table 2**  
Cross-validation analyses of the basic, and multi-group analyses by country and by sex. Differences in  $\chi^2$  in model comparisons with restrictions against the model without restrictions of parameter equality.

Analyses	Model comparison	$\chi^2$	df	p
CFA-2: TOTAL SAMPLE Cross-validation (n <sub>1</sub> = 2696; n <sub>2</sub> = 2697)	Measurement weights	4.28	6	.64
	Structural covariances	8.01	12	.78
	Measurement residuals	14.39	21	.85
CFA-3; MG by COUNTRY (n c. Rica = 1960; n Spain = 3433)	Measurement weights	101.44	6	.00
	Structural covariances	553.32	12	.00
	Measurement residuals	785.06	21	.00
CFA-4; MG by SEX (n females = 2796; n males = 2597)	Measurement weights	7.69	6	.26
	Structural covariances	33.45	12	.00
	Measurement residuals	122.97	21	.00

**Multi-group analyses by country (CFA-3)**

Fit indices fell within the confidence limits (Table 1, CFA-3). However, the model parameters shown in Table 2 revealed that model fit decreased significantly when restrictions were imposed on the measurement weights, structural covariances, and measurement residuals. As it can be seen in Figure 3, the main difference between the two countries is that LO and PO correlate highly and positively in the Costa Rican sample (.81), whereas this same correlation is very low in the Spanish Sample (-.06).

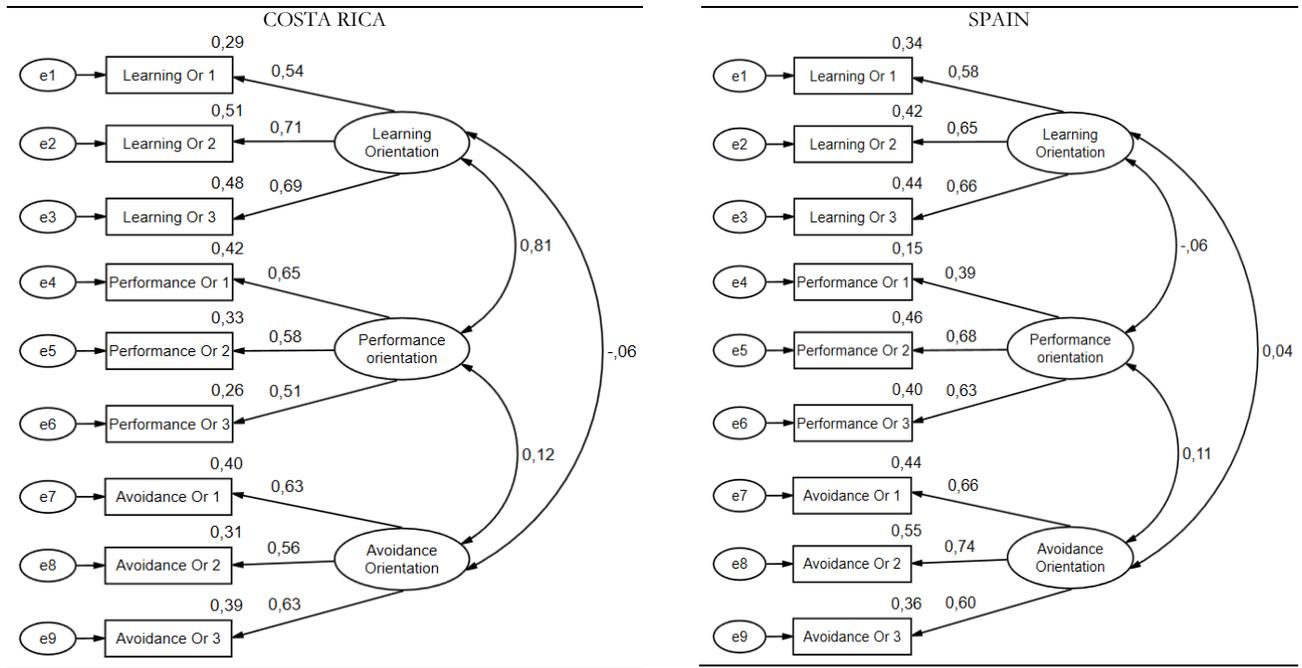
**Multi-group analyses by sex (CFA-4)**

Fit indices fell within the confidence limits (Table 1, CFA-3), and the model parameters shown in Table 2 revealed that model fit did not decrease significantly when restrictions were imposed on the measurement weights. However, model fit decreased when restrictions were imposed on structural covariances, and measurement residuals. As it can be seen in Figure 4, the main difference between the two countries is that PO and AO correlate slightly higher in the female sample (.14 > .05), and that LO and PO correlate also slightly higher in the male sample (.26 > .18).

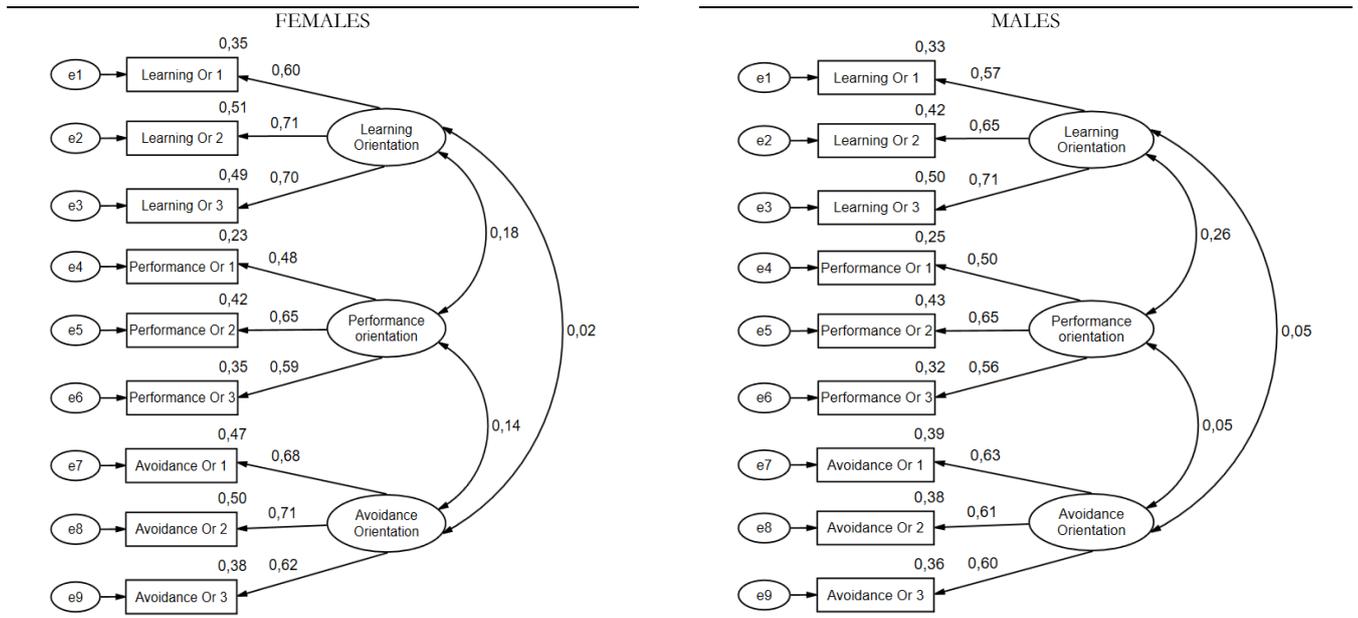
**Reliability analysis**

The McDonald (1999)  $\omega$  coefficients were calculated separately for Costa Rican and Spanish students. The results presented in Table 3 showed that all  $\omega$  coefficients reached acceptable significance levels in both samples. This Table also includes the means, standard deviations, and standard errors corresponding to each scale.

**Figure 3**  
Brief Goal Orientation Questionnaire. Multigroup analysis by COUNTRY. Standardized regression weights, and correlations between factors.



**Figure 4**  
Brief Goal Orientation Questionnaire. Multigroup analysis by SEX. Standardized regression weights, and correlations between factors



**Table 3**  
Reliability indexes, means, standard deviations, and standard errors of the Brief Goal Orientation Questionnaire Scales.

Goal Orientation Scales	McDonald ω		Mean	SD	SEE
	Costa Rica	Spain			
Learning Orientation	.83	.84	2.77	1.39	.02
Performance Orientation	.83	.78	2.68	1.38	.02
Avoidance Orientation	.84	.78	1.30	1.30	.02

**Correlation and regression analysis**

Table 4 shows the descriptive statistics and the correlations between direct scores on each variable, first for the whole sample and then for each country and gender. GO correlations with CMC are like those found using different questionnaires. Though most of them are significant due to sample size, only the correlation of LO with CMC is above or near .30 in all samples. Besides, the correlation levels between countries and between genders are very similar.

Table 5 shows the results of the regression analyses. In all of them, R<sup>2</sup> is significant, and the GO that most contributes to this result is LO. The contribution of AO is also statistically significant, but its relevance is minimal. Besides, multiple group analyses between countries and between genders have shown that there were no significant differences between the regression patterns. In the case of “country”:  $\chi^2 = 6.62, p = .09$ ; in the case of “gender”:  $\chi^2 = 3.37, p = .38$ .

**Table 4**  
Correlations between Goal Orientations and CMC.

Sample	M	SD	LO	PO	AO
Whole Sample (5394)					
CMC	117.47	23.78	.34**	.05**	-.07**
LO	10.91	2.96	-	.14**	.04**
PO	12.34	2.46	-	-	.07**
AO	7.65	3.17	-	-	-
Costa Rican Sample (1960)					
CMC	124.03	21.14	.28**	.18**	-.11**
LO	12.16	2.63	-	.51**	-.04
PO	12.21	2.51	-	-	.08**
AO	8.05	3.15	-	-	-
Spanish Sample (3434)					
CMC	113.72	24.38	.294**	-.01	-.08**
LO	10.19	2.89	-	-.03	.03*
PO	12.42	2.43	-	-	.07**
AO	7.42	3.16	-	-	-
Female Sample (2797)					
CMC	118.61	23.98	.34**	.03	-.09**
LO	11.22	2.88	-	.11**	.02
PO	12.52	2.38	-	-	.09**
AO	7.83	3.25	-	-	-
Male Sample (2597)					
CMC	116.24	23.50	.32**	.06**	-.05**
LO	10.57	2.99	-	.16**	.05*
PO	12.15	2.54	-	-	.03
AO	7.46	3.06	-	-	-

Note: \*\*  $p < .01$ ; \*  $p < .05$ ; CMC: Classroom motivational climate; LO: Learning orientation; PO: Performance orientation; AO: Avoidance orientation.

**Table 5**  
Regression analyses. Criterion: CMC.

Sample	R <sup>2</sup>	Predictors. Standardized Regression Coefficients		
		Learning Orientation	Performance Orientation	Avoidance Orientation
Whole sample	.12 ***	.34***	.01	-.08***
Country				
Costa Rica	.10***	.25***	.07**	-.11***
Spain	.10***	.30***	.01	-.09***
Gender				
Females	.13***	.35***	.00	-.10***
Males	.11***	.33***	.01	-.07***

\*\*\*  $p < .001$ ; \*\*  $p < .01$

## Discussion

The first objective was to develop a very brief and valid questionnaire for assessing GOs. The CFA results showed that the questionnaire has a solid structure, allowing for an accurate assessment of the three orientations described in the trichotomous model (Midgley et al., 1998). All estimated weights were significant, and the model fit remained within confidence limits, indicating a robust and valid structure for the questionnaire. Having a brief questionnaire of these characteristics can be particularly relevant in research, where it is often necessary to request participants to complete several questionnaires. The number of questions extends the time, but it also poses a potential threat to data validity due to fatigue and decreased response rates (Holtom et al., 2022). The validity of the questionnaire, confirmed by factor analyses, along with its reliability, indicates that it is an adequate tool for assessing learning orientations.

The second objective was to analyze how GOs, assessed by the new questionnaire, moderate students' perceptions of the CMC. The results indicated that LO positively and significantly correlates with CMC. This supports the hypothesis that LO is associated with a stronger perception of a learning-oriented motivational climate. The positive correlation of LO with CMC across all samples highlights the importance of promoting a learning orientation to enhance the motivational environment in the classroom (Alonso-Tapia, et al., 2020). On the other hand, although the correlations of PO and AO with CMC were also significant, their values were lower. This might indicate that PO and AO have more subtle effects on how CMC is perceived. Understanding student behavior necessarily involves considering the interaction between personal characteristics and situational factors (Alonso-Tapia, et al., 2023); similarly, influencing the way students approach academic challenges requires attention to both aspects.

The third objective focused on comparing data across different countries and genders to determine if these variables affect the structure of the questionnaire and the relationships between GOs and CMC. Multigroup analyses showed that the model fit remained acceptable in country comparisons, although with some significant differences. In the Costa Rican sample, a high correlation was found between LO and performance orientation PO, which could suggest that students in Costa Rica might not clearly differentiate between learning and achieving good grades. This contrasts with the low correlation in the Spanish sample, which could reflect cultural differences in the perception and valuation of learning versus performance. This difference underscores the importance of considering specific cultural contexts when interpreting results on motivation and CMC (Urdan & Kaplan, 2020).

Regarding gender-based analyses, although the model fit was generally acceptable, some differences in correlations between orientations were observed. Specifically, there was a slightly higher correlation between PO and AO in women,

and between LO and PO in men. This result could reflect differences in how different genders perceive and value learning and performance orientations (Alić, 2017; Kuśnierz et al., 2020). This, in turn, suggests the need to consider gender in developing and implementing intervention strategies (Alonso-Tapia, et al., 2010).

## Limitations and Directions for Future Research

Although the sample was extensive and diverse, it focused on only two specific countries (Costa Rica and Spain), which limits the generalizability of the findings to other cultural contexts. We acknowledge that our results cannot be generalized to other cultures (Guo et al., 2023) or educational levels, emphasizing the need for similar studies to be conducted in different educational settings and cultural contexts. Additionally, the study employed a cross-sectional design, which prevents the establishment of causal relationships. A test-retest study could be conducted in future research to assess the stability of the findings over time. Future research could further explore cultural and gender differences in learning orientations and their impact on the motivational climate.

## Conclusions

This study provides a new and brief tool for assessing GO that can be used in research and educational practice. GOs affect perceptions of the classroom climate; therefore, promoting a LO will have positive implications for the CMC. Finally, the study highlights the importance of considering cultural and gender differences when studying classroom effects on motivation.

The findings of this study have several practical implications. First, the brief and valid questionnaire developed can be utilized in future research and educational practice to assess learning orientations efficiently. The positive association between LO and CMC highlights the interactive relationship between these variables, underscoring the importance of fostering a LO to influence the classroom's motivational climate positively. Additionally, the differences between countries and genders suggest that strategies to improve CMC should be adapted to specific contexts. Educational interventions could benefit from being culturally sensitive and considering potential gender differences in their design.

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## Appendix

### Brief goal orientation questionnaire (BGOQ)

#### *English version*

*Instructions:* Below, you'll find several statements about yourself that you may more or less agree with. Indicate the option that best represents your grade according to the content of the statement, using the following scale:

1	2	3	4	5
Totally disagree	Rather disagree	Indifferent	Rather agree	Totally agree

1. Even though I study to prepare for an exam, what interests me most is understanding what I study. (LO)
2. If I have to do a class assignment, I think first is whether it will help me get a good grade. (PO)
3. If I have to do a task or a problem, I immediately think that if I do it wrong, I will look bad in front of the others (AO)
4. When I prepare for an exam, I think mainly about getting a good grade. (PO)
5. When I do a job, I worry about making it worse than everyone else and that everyone knows (AO)
6. When I do tasks or problems, what interests me most is to learn how to do them well. (LO)
7. If someone tells me that I must do an exam, what worries me most is that if I fail, I'll look terrible in front of my peers (AO)
8. If I have to do a job, first I try to understand each step to learn how to do it well. (LO)
9. When I do homework or class problems, I think mainly about the grade. (PO)

#### *Español*

*Instrucciones:* A continuación, encontrarás una serie de afirmaciones sobre ti mismo con las que puedes estar más o menos de acuerdo. Señala la opción que mejor representa tu grado de acuerdo con el contenido de la afirmación, según la siguiente escala:

1	2	3	4	5
Total desacuerdo	Más bien en desacuerdo	Indiferente	Más bien de acuerdo	Total acuerdo

1. Aunque estudie para preparar un examen, lo que más me interesa es llegar a comprender lo que estudio.
2. Si he de hacer un trabajo para clase pienso si me va a servir para conseguir una buena calificación.
3. Si he de hacer una tarea o un problema, enseguida pienso que si los hago mal voy a quedar mal ante los demás
4. Cuando tengo que preparar un examen, pienso más que nada en conseguir una buena nota.
5. Cuando realizo un trabajo me preocupa mucho hacerlo peor que los demás y que todos enteren.
6. Cuando realizo tareas o problemas, lo que más me interesa es llegar a saber cómo hacerlos bien.
7. Si me dicen que va a haber un examen, lo que más me preocupa es que si me sale mal voy a quedar fatal ante los compañeros
8. Si tengo que hacer un trabajo, ante todo trato de comprender cada paso para aprender a hacerlo bien.
9. Cuando hago las tareas o problemas de clase, en lo que más pienso es en la calificación.