Educación XX1
ISSN: 1139-613X · e-ISSN: 2174-5374

Agentic engagement: the predictive effect of teaching quality and basic psychological needs

La implicación agencial: el efecto predictivo de la calidad y las necesidades psicológicas básicas

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How to reference this article:

Fernández-Zabala, A., Axpe, I., Azpiazu, L., & Izar-de-la-Fuente, I. (2025). Agentic engagement: the predictive effect of teaching quality and basic psychological needs. *Educación XX1, 28*(2), 421-441. https://doi.org/10.5944/educxx1.42912

Reception date: 14/10/2024
Acceptance date: 11/01/2025
Published online: 20/06/2025

ABSTRACT

The way in which undergraduate students become agentically involved in the classroom requires clarification, since this is an evolutionary moment characterized by the risk of suffering motivationally due to the increase in academic demands. Therefore, the aim of this study is to test a theoretical model according to which teaching quality (teaching for relevance and participation encouragement) predicts agentic engagement through the satisfaction of the basic psychological needs of autonomy, competence and relatedness. This study involved 485 students aged 17-34 years (*M* = 20.19; *SD* = 2.05) of whom 161 were male (33.2%), 320 female (66%) and 4 non-binary (0.8%). The Teaching Quality Questionnaire, the Basic Psychological Needs Satisfaction Scale and the Classroom Engagement Scale were used to assess the variables included in this study. The results show that teaching for relevance directly predicts basic psychological needs and indirectly, agentic engagement through the satisfaction of these psychological needs. On the other hand, the absence of predictive capacity of fostering participation on basic psychological needs and agentic engagement was found. This study shows the significance of basic psychological needs on agentic engagement and reveals that certain teaching quality strategies may not be directly linked to student agency in the higher education classroom. Consequently, it is observed that there is still much to be researched, and it is necessary to identify crucial and effective educational practices that foster such engagement in order to optimize the university teaching-learning process.

Keywords: agentic engagement, teaching quality, basic psychological needs, structural equation models, higher education

RESUMEN

La manera en que el alumnado universitario se implica de forma agéntica en el aula requiere de esclarecimiento, ya que se trata de un momento evolutivo caracterizado por el riesgo de sufrir motivacionalmente debido al aumento de las exigencias académicas. Por tanto, el objetivo de este estudio es someter a prueba un modelo teórico según el cual, la calidad docente (relevancia del aprendizaje y fomento de la participación) predice la implicación agencial a través de la satisfacción de las necesidades psicológicas básicas de autonomía, competencia y relación. En este estudio participaron 485 estudiantes de edades comprendidas entre los 17 y los 34 años (*M* = 20.19; *DT* = 2.05) de entre los cuales 161 eran hombres (33.2%), 320 mujeres (66%) y 4 personas no binarias (0.8%). Se utilizó el Cuestionario de Calidad Docente, la Escala de Satisfacción de las Necesidades Psicológicas Básicas y el Classroom Engagement Scale para evaluar las variables incluidas en este estudio. Los resultados muestran que la promoción de la utilidad y el interés predice directamente las necesidades psicológicas básicas e indirectamente, la implicación agencial a través de la satisfacción de dichas necesidades psicológicas. En cambio, se constata la ausencia de capacidad predictiva del fomento de la participación sobre las necesidades psicológicas básicas y la implicación agencial. Este estudio muestra la relevancia que tienen

las necesidades psicológicas básicas sobre la implicación agencial y pone de manifiesto que ciertas estrategias de la calidad docente podrían no estar directamente vinculadas a la agencia del alumnado en el aula de educación superior. En consecuencia, se observa que aún hay mucho por seguir investigando, siendo preciso identificar prácticas educativas cruciales y eficaces que fomenten dicho compromiso a fin de optimizar el proceso de enseñanza-aprendizaje universitario.

Palabras clave: implicación agencial, calidad docente, necesidades psicológicas básicas, modelos de ecuaciones estructurales, educación superior

INTRODUCTION

Many theories have emerged over the years to try and explain how teaching can help train students to learn independently, with most highlighting the importance of student agency in this process (Naidu, 2024). In higher education, agency is considered both a means for learning and a learning aim in its own right (Marginson, 2024). The present study focuses on agency as a dimension of school engagement.

Engagement, understood as students' degree of active participation in their own learning, or as 'energy in action' (Skinner & Raine, 2022), is one of the factors that most influence learning, academic success (Wong & Liem, 2022) and student wellbeing (Chaudhry et al., 2024). However, engagement processes linked to aspects other than the cognitive, affective and emotional dimensions, such as agency, for example, have received much less attention in studies on student engagement (Wong & Liem, 2022), even though agentic engagement may be considered the most important type of engagement for students in the 21st century (Reeve & Jang, 2022).

Agentic engagement

Agentic engagement refers to 'students' active contribution into the flow of instruction they receive to enrich the instruction for themselves and their peers' (Patall, 2024) and includes actions such as stating opinions, expressing preferences, finding interesting activities to do, asking for resources and learning opportunities, finding solutions to questions and requesting clarification (Reeve & Jang, 2022). In other words, agentic engagement is a way for students to become involved in their own learning in a proactive, planned and collaborative manner, enabling them to customise and enrich both the contents they must learn and the circumstances in which they must do so by making suggestions, expressing preferences and/or sharing their internal motivations (Reeve & Shin, 2020). This

in turn results in stronger motivation, since they can participate and contribute to their instruction throughout their opinions and assessments (Gómez-Carrasco et al., 2021). Agentically-engaged students feel that the activities they carry out are more interesting and that they have more material and social resources at their disposal; this in turn enhances their motivational satisfaction, positive development and academic progress (Reeve & Jang, 2022). It is important to note that, like other higher-order capacities, agentic engagement does not just emerge out of nowhere. Rather, as Vygotsky argues, it is constructed and developed through collaborative practices occurring in a social context (Singh, 2024). In other words, agency refers to students' active engagement in and mobilisation of the resources available in their environment, which in turn gives rise to constantly evolving interactions that enhance their development and learning (Singh, 2024).

This type of agency is particularly important in the transition to university, a period which requires students to simultaneously adapt to numerous new demands in different areas of their life: cultural, social and academic (Chaudhry et al., 2024). Undergraduate degrees can prove challenging for students, due to the new material they must learn, the new problems and situations they must face, the skills they must hone and the tasks they must complete in short spaces of time (Reeve et al., 2020). These obstacles may weaken students' motivation, which is why one of the principal challenges facing higher education in the 21st century is how to maintain adequate student engagement (Skinner et al., 2014). It is therefore important to identify possible facilitators of agentic engagement, such as teaching quality and students' basic psychological needs.

Teaching quality: highlighting the relevance of what is being learned and fostering participation

The study of teaching quality, understood as the set of specific teacher behaviours that have been shown to have a positive impact on student learning (Christ et al., 2022), has attracted growing interest recently among the educational community (Christ et al., 2022; Núñez & León, 2019), due to its impact on positive academic outcomes (Christ et al., 2022), including emotional, behavioural (Quin et al., 2017) and global engagement (Wong et al., 2017). Despite this, however, few studies in this field have focused on agentic engagement, probably because this dimension of engagement has received less attention than the behavioural, cognitive and emotional ones (Jiang & Zhang, 2021).

In other words, there is, at yet, no clear consensus regarding what high-quality teaching entails (Murtonen et al., 2024) and the concept is still insufficiently defined and its dimensions not yet fully identified (León et al., 2017). Two key dimensions that have received little attention to date in the scientific literature

(Quin et al., 2017) are: (1) the relevance of what is being learned, or in other words, the degree of usefulness and interest the student perceives in the content and activities presented and carried out in class; and (2) fostering participation, referring to the degree to which teachers encourage students to take part in class by asking them questions and eliciting their opinion. One way in which teachers can ensure high-quality teaching is by demonstrating the usefulness or personal benefits of a specific learning activity or content (Reeve & Shin, 2020); they can also ask students what they want, listen to what they say and respond to their suggestions, since this may help foster their interest and motivation (Reeve & Shin, 2020). These specific behaviours may help students feel more motivated and encouraged to participate in the instruction process, thereby demonstrating more agentic engagement, although this association requires further empirical verification.

Basic psychological needs: autonomy, competence and relatedness

According to León et al. (2017) and Vansteenkiste et al. (2020), high-quality teacher behaviours should be aimed at satisfying students' basic psychological needs. In other words, they should be designed to respond to the innate needs that must be satisfied in order to guarantee good functioning, psychological health and psychosocial adjustment (Ryan & Deci, 2017). There are three basic psychological needs: (1) autonomy, or feelings of self-determination and of not being controlled; a sense of willingness and disposition; (2) competence, or feelings of efficacy and mastery; feeling secure in one's social interactions; and (3) relatedness, or feelings of warmth, connection and of being cared for and supported by the significant others in one's life. Little attention has been paid to date to analysing the way in which teachers can satisfy these needs through their teaching (Santana-Monagas & Núñez, 2022), fostering greater commitment and engagement among students (Núñez & León, 2019; Leo et al., 2022).

Previous research has shown that relevant and interesting activities are, in themselves, activities that support autonomy (Reeve & Cheon, 2021), since these types of exercise encourage students to participate voluntarily, enabling them to make the most of their vitality to self-regulate their actions (Krpanec et al., 2024; Ryan et al., 2021). Indeed, the extant literature shows that active interest and self-perceived willingness to learn not only result in high levels of perceived autonomy (Ryan & Deci, 2017), but also in high levels of perceived competence (Khuram et al., 2021) and relatedness (DeLay et al., 2016). In terms of fostering participation, the use of active methodologies (designed to encourage students to play a more active role in class) has been found to improve relational aspects such as empathy and group responsibility (Bohórquez & Checa, 2019), along with teamwork,

engagement, responsibility, veracity, loyalty and respect (Palazuelos et al., 2018), all of which contribute to satisfying students' need for relatedness. Moreover, this type of methodology, in which students participate in the active construction of their knowledge, has been found to help foster autonomy and commitment (Albarrán-Torres & Díaz-Larenas, 2021), since it promotes deep, active, self-regulated and collaborative learning (Murtonen et al., 2024).

Teaching quality, basic psychological needs and agentic engagement

The few studies that have analysed the impact of teaching quality on school engagement suggest that this variable and, in particular, the relevance of what is being learned and teachers' efforts to foster participation, influence agentic engagement through the three inherent, motivational and universal psychological variables mentioned above; in other words, teaching quality influences agentic engagement through students' three basic psychological needs: autonomy, competence and relatedness. According to Self-determination Theory (Ryan & Deci, 2020), high-quality teaching that supports students' autonomy, competence and relatedness (Jiang & Zhang, 2021; Krpanec et al., 2024) fosters a stronger commitment to academic activities (Núñez & León, 2019).

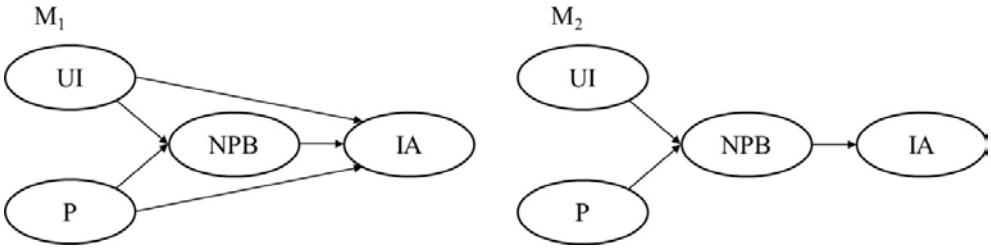
The present study

In sum, the interest and relevance of what is being learned and teachers' efforts to foster students' participation in the classroom may be associated with students' basic psychological needs, which in turn are associated with greater school engagement (Leo et al., 2022) and foster greater agentic engagement (Molinari & Mameli, 2018). Previous studies suggest that the association is a staggered one (Christ et al., 2022; Leo et al., 2022), although it has yet to be determined whether it is fully or partially mediated by the satisfaction of basic psychological needs. To the best of our knowledge, very few multivariate studies exist that analyse the dynamics generated by all these associations and further exploration is required to determine how these variables relate to one another.

The aim of the present study is therefore to analyse a theoretical model based on the results of previous research in order to explore possible associations between teaching quality (relevance of what is being learned and fostering of participation), basic psychological needs (autonomy, competence and relatedness) and agentic engagement in a developmental stage characterised by the risk of decreased motivation in the classroom due to increased academic demands (Skinner et al., 2014). To this end, we tested two structural models (Figure 1) to determine whether

satisfaction of basic psychological needs partially (M_1) or fully (M_2) mediates between teaching quality and agentic engagement. The following associations were hypothesised: (H1) promoting the usefulness and interest of what is being learned and fostering participation predict agentic engagement directly and indirectly through basic psychological needs (M_1); (H2) promoting the usefulness and interest of what is being learned and fostering participation predict agentic engagement indirectly through basic psychological needs (M_2).

Figure 1
Hypothesised theoretical models



Note. UI = promoting usefulness and interest, *P* = fostering participation, *BPN* = basic psychological needs, *AE* = agentic engagement.

METHOD

Participants

Participants were 485 students at the University of the Basque Country/Euskal Herriko Unibertsitatea (UPV/EHU), aged between 17 and 34 years (*M* = 20.19; *SD* = 2.05). All were undergraduates on the Preschool Education (195 students, 40.2%) and Primary Education (290 students, 59.8%) degree courses. In terms of gender, 161 were men (33.2%), 320 were women (66%) and 4 identified as non-binary individuals. Just over one third (167 students, 34.4%) were in the first year of their degree, 132 (27.2%) were in their second year, 132 (27.2%) were third-year students and 54 (11.1%) were fourth years (the number of fourth-year students was lower because at the time of recruitment they were engaged in teaching practice). An incidental sampling method was used.

Measurement instruments

To measure teaching quality, we used the *Cuestionario de Calidad Docente* - Teaching Quality Questionnaire (León et al., 2017), which comprises 53 items rated on a 7-point Likert-type scale ranging from 1 = *totally disagree* to 7 = *totally agree*. The instrument measures a total of 9 factors. In the present study, we used only the '*promotion of usefulness and interest*' and '*fostering participation in class*' scales, both of which were found to have good reliability indexes for the sample used (Cronbach's α = .91, McDonald's ω = .91 and Average Variance Extracted = .54 in the first scale and α = .87, ω = .87 and AVE = .59 in the second).

To determine the degree to which each basic psychological need (autonomy, competence and relatedness) was satisfied, we used the *Escala de Satisfacción de las Necesidades Psicológicas Básicas* - Basic Psychological Need Satisfaction Scale (León et al., 2011), which comprises 5 items rated on a 7-point Likert-type scale (1 = *totally disagree* to 7 = *totally agree*). In the present study, the overall scale was found to have good reliability values: α = .89, ω = .94 and AVE = .52, as were the subscales for the three dimensions: *autonomy* (α = .80, ω = .81 and AVE = .47), *competence* (α = .86, ω = .86 and AVE = .55) and *relatedness* (α = .84, ω = .85 and AVE = .53).

Agentic engagement was assessed using the 3-item subscale of the Classroom Engagement Scale by Jang et al. (2012), translated into Spanish and validated by Nuñez and León (2019). Responses are given on a 7-point Likert-type scale. In the present study, the scale was found to have good reliability values (α = .74, ω = .76 and AVE = .55).

Procedure

The study followed a cross-sectional, ex post facto (meaning that the hypotheses were validated - in this case the pathways of the structural model were tested - once the phenomenon had already occurred), retrospective, single-group design, the aim of which was to analyse possible associations between the following variables: *promoting usefulness and interest, fostering participation in class*, the satisfaction of *basic psychological needs* and the *agentic engagement* of university undergraduate students.

First, the study was designed in accordance with the ethical principles outlined in the Declaration of Helsinki and approval was gained from the UPV/EHU (M10_2020_208) Ethics Committee for research with Human Beings. Next, we asked lecturers teaching all groups and courses on the Preschool and Primary Education undergraduate degrees run by the Faculty of Education and Sport at the University

of the Basque Country (UPV/EHU) to help us access students, present the research project and encourage participation. The research team visited the different groups to explain the purpose of the study and encourage them to take part, emphasising that participation was both voluntary and anonymous. Students who agreed to participate completed the instruments in the form of an online questionnaire.

Data analysis

Atypical values (n = 22, 4.34% of the sample) were eliminated using the SAS software package. To calculate the descriptive data and correlation coefficients, we used the SPSS 25 statistical program, and to check the structural regression models, we used EQS v.6.1.

To verify the hypotheses, we analysed the structural equations models (SEMs). It is important to note that these analyses were carried out using the maximum likelihood procedure with robust standard errors (MLR), due to the deviation of the multinormal data (all normalised Mardia coefficients > 5, $p < .01$). Diverse indexes were used to determine the goodness of fit of the models (Hair et al., 2018): the Satorra-Bentler chi-squared statistic (Sbχ2) and the consecutive Sbχ2/df ratio, for which values of 2.00-3.00 or lower are considered indicative of good fit; the CFI, TLI and IFI comparative fit indexes, for which values of over .90 are deemed to indicate good fit; and the RMSEA and SRMR error measures, for which values lower than .08 are considered indicative of a plausible model. To compare nested models, we calculated and compared the Chi-squared statistics.

RESULTS

1. Descriptive statistics and correlations between the study variables

Prior to analysing the measurement model, a Pearson correlation analysis was conducted, along with an analysis of the means and standard deviations. The results are shown in Table 1.

Table 1
Bivariate correlations, means and standard deviations of the study variables

Variables	1	2	3	4	5	6
1. Promoting usefulness and interest	1	.662*	.583*	.433*	.261*	.380*
2. Fostering participation		1	.432*	.383*	.247*	.266*
3. Autonomy			1	.637*	.375*	.508*
4. Competence				1	.502*	.257*
5. Relatedness					1	.480*
6. Agentic engagement						1
Mean	4.40	5.35	4.41	4.83	5.67	4.23
SD	1.02	1.05	1.12	.88	1.01	1.28

Note. *p< .01.

2. Measurement model

The measurement model included four latent variables. In the case of the variables *promoting usefulness and interest, fostering participation* and *agentic engagement*, the indicators were the items of the questionnaires administered. In the case of satisfaction of basic psychological needs (*autonomy, competence* and *relatedness*), the indicators were the parcels of the different scales. The analysis of the measurement model revealed acceptable indexes: SBχ^2[df] = 415.48[164], SBχ^2/df = 2.53, TLI = .932, CFI = .941, IFI = .942, SRMR = .060, RMSEA[CI] = .056[.050–.063]. All factor loadings of the indicators pertaining to the latent variables were significant (p <. 05), implying that all latent factors were correctly represented by their corresponding indicators, which in turn confirms the theoretical structural equations models.

3. Comparison of the proposed structural equations models

The goodness of fit analyses of the proposed models (M_1 and M_2) returned acceptable results (Table 2).

Table 2
Comparison of the hypothesised partial and full mediation models

Model	$SB\chi^2_{(gl)}$	$SB\chi^2/gl$	TLI	CFI	IFI	SRMR	$RMSEA_{(IC)}$
$M_{1\ partial}$	$312.28_{(145)}$	2.15	.951	.958	.959	.053	$.049_{(.041-.066)}$
$M_{2\ full}$	$348.42_{(148)}$	2.35	.942	.950	.950	.059	$.053_{(.046-.060)}$
$\Delta M_2 – M_1$	$36.14_{(3)}$						

The χ^2 test to detect discrepancies between the two nested models ($\Delta S\chi^2$ = 36.14, $p > .05$) was not statistically significant, indicating a high degree of similarity. Consequently, the full mediation model (M_2) was accepted, since it was the most parsimonious. This result fails to support H1, which proposed a partial mediation, and suggests that the relationship between the variables is fully mediated, as proposed in model M_2.

4. Standardised regression coefficients

The individual analysis of the regression coefficients of the first-choice model (M_2) revealed that most of the pathways proposed had a significance level of $p < .05$, with the exception of *fostering participation-basic psychological needs* (β = .042, $p > .05$) and *fostering participation-agentic engagement* (β = - .026, $p > .05$) (Table 3).

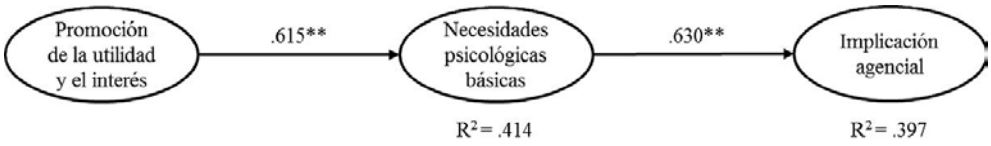
Table 3
Standardised regression coefficients

Direct effects	**β**
Promoting usefulness and interest→ Basic psychological needs	.615**
Fostering participation→ Basic psychological needs	.042
Basic psychological needs→ Agentic engagement	.630**
Indirect effects	**β**
Promoting usefulness and interest→ Agentic engagement	.388**
Fostering participation→ Agentic engagement	.026

Note. *p < .001. R^2 (basic psychological needs) = .414; R^2 (agentic engagement) = .397.

The results partly support H2, confirming the predictive association between *promoting usefulness and interest* and the satisfaction of *basic psychological needs*, but providing no evidence that *fostering participation* is a significant predictor of these same needs. Specifically, *promoting usefulness and interest* was found to have a predictive capacity of 41.4% in relation to satisfaction of *basic psychological needs*, whereas together, *promoting usefulness and interest* and satisfaction of *basic psychological needs* were found to have a predictive capacity of 39.7% in relation to *agentic engagement*. The variable *promoting usefulness and interest* indirectly determined *agentic engagement*, and satisfaction of *basic psychological needs* was found to fully mediate the association between *promoting usefulness and interest* and *agentic engagement*. The final structural model with its regression coefficients is shown in Figure 2.

Figure 2
Final structural model



DISCUSSION AND CONCLUSIONS

University students are immersed in an important developmental moment in which they are required to adapt to many simultaneous changes in different areas of their life (Chaudhry et al., 2024). They are also faced with new tasks and challenges in the academic field (Reeve et al., 2020), which may lead to a drop in motivation during their time at university (Skinner et al., 2014). Agentic engagement has attracted growing interest as one of the factors that most influences motivation and learning in higher education (Marginson, 2024; Naidu, 2024). It is considered the most important type of engagement for students in the 21st century (Reeve & Jang, 2022). The aim of the present study was to analyse a theoretical model based on previous research, to explore associations between two dimensions of teaching quality (promoting the usefulness and interest of what is being learned and fostering participation in the classroom), basic psychological needs (autonomy, competence and relatedness) and agentic engagement among university undergraduates.

In broad terms, the results revealed that the teaching dimension promoting usefulness and interest directly predicted the basic psychological needs autonomy (Reeve & Cheon, 2021; Ryan & Deci, 2017), competence (Khuram et al., 2021)

and relatedness (DeLay et al., 2016), and indirectly predicted agentic engagement through the satisfaction of these needs. A staggered association was therefore observed, as previous research results had suggested (Christ et al., 2022; Leo et al., 2022), although it was not clear whether this association was fully or partially mediated by basic psychological needs. Indeed, one key finding of the present study is that satisfaction of basic psychological needs fully mediates the relationship between promoting usefulness and interest and agentic engagement. This is a novel finding (mainly because very few studies in the extant literature have analysed these associations in a multivariate manner) that contradicts H1, which postulated that the two dimensions of teaching quality would directly predict agentic engagement. In other words, the results of the present study reveal that the relevance of what is being learned predicts (with medium to moderate coefficients) the satisfaction of basic psychological needs. This partially supports H2, but does not enable its full confirmation, since the hypothesis also postulated that fostering participation would predict the satisfaction of students' basic psychological needs, which was not the case.

It therefore seems that when teachers focus on different topics in the classroom, set exercises and assignments differently, ask students what they think in order to set more entertaining classroom tasks and find practical applications for the content being taught, they make students feel they are able to make their own decisions (autonomy) and foster feelings of competence and the ability to respond to the demands of the subject syllabus (Khuram et al., 2021; Reeve & Cheon, 2021; Ryan & Deci, 2017). It also seems that teachers who promote the usefulness and interest of the subject they teach help university students feel more appreciated and valued by the people with whom they interact (Bohórquez & Checa, 2019; Palazuelos et al., 2018), which helps satisfy their need for relatedness.

Nevertheless, in contrast to the relevance of what is being learned, the results of the present study did not indicate any significant predictive power of fostering participation on satisfaction of basic psychological needs. Previous studies have highlighted a possible controversy in relation to this issue, since when teachers ask students questions, this can, on occasions, be interpreted as forced participation or self-imposed or obligatory participation (Rocca, 2010). The characteristics of higher education may explain the lack of significance found in our study, since the university setting is often seen as an environment in which students should be autonomous and in control of their own behaviour (Granero-Gallegos et al., 2022). Consequently, this type of encouragement to participate by teachers could be interpreted as undermining students' autonomy, or even as a way of checking their understanding of the content being taught and ability to respond correctly (Granero-Gallegos et al., 2021). In other words, it could be seen as a means of assessing performance, which would do nothing to satisfy students' basic need for autonomy, competence

and relatedness. This finding is particularly interesting, since it may indicate that asking questions or encouraging students to contribute to classroom sessions does little to make them feel that their need for competence and autonomy is met; it may also make them feel intimidated, thereby interfering with their need for relatedness (Cohen et al., 2020). Contributions that demonstrate a high level of motivation in the classroom are proactive in nature and are the result of the student's own initiative. Examples include asking questions, answering questions, suggesting options, requesting clarification and communicating ideas (Montenegro, 2019). In other words, it is a type of participation that stems from the student's intrinsic motivation and interest, rather than being elicited by the instructor (Cook-Sather et al., 2021).

This is probably one of the reasons for our failure to observe a direct predictive relationship between fostering participation and agentic engagement, since the type of participation that teachers would need to foster in order to have an impact on this kind of engagement would require deep listening on their part, in order to generate a climate conducive to student contributions, coupled with a willingness to be open to the proposals received and to adjust their teaching accordingly. In other words, students' agency is constructed during their interactions with their social environment, which includes their instructor, who must respect the point at which their students currently find themselves, and the resources available to them, and be willing to allow students themselves to mobilise them, thereby enhancing their development and learning in an ongoing manner (Singh, 2024). According to Fletcher (2024), agency mainly emerges in the proximal development zone, a factor that should be taken into consideration in future studies, since this concept implies an optimal level of challenge for students. Teachers' encouragement of participation should be calibrated to fall into this zone, in which students are able to develop new skills with the required support. This suggests that the efficacy of fostering participation may depend on how well it adjusts to students' current capacities and potential. Participation that is located outside the proximal development zone, because it is either too simple or too complex, may make no significant contribution to increasing students' agentic engagement.

The present study also found that the satisfaction of students' basic psychological needs significantly predicts agentic engagement, mediating between the relevance of what is being learned and this motivation-related variable. These findings suggest that the perceived usefulness of what is being learned helps university students feel that the task or content at hand is something they choose to engage in or something they want to do or learn; this also makes them feel more competent (Reeve et al., 2020), which, from a motivational point of view, results in greater commitment to participating in classroom activities, during which students develop agentic beliefs and behaviours (Patall et al., 2022). In other words, it seems that students who

perceive themselves as highly autonomous and competent, and moreover have the feeling that what they are learning is relevant, are more disposed to ask questions and express preferences and opinions in class and, in general, demonstrate more interest in the tasks at hand (Molinari et al., 2018; Patall et al., 2022; Reeve et al., 2020).

The present study, however, did not analyse the effect of each specific basic need on agentic engagement. This may be of great interest, since previous studies carried out at other educational levels, at which teachers, from a relational perspective, have greater presence and relevance than at university, seem to suggest that satisfying students' basic psychological need for relatedness is not associated with agentic engagement (Conesa et al., 2022). This may seem surprising, since one might assume that feeling cared for by the significant others in their life would encourage students to engage proactively in the teaching flow (Molinari et al., 2018)). However, other studies have indeed reported an absence of any significant association between the satisfaction of this need and other variables, such as academic performance, at the university level, even though significant relationships were found in the case of autonomy and competence (Chacón-Cuberos et al., 2021).

Limitations

The present study has certain limitations that should be taken into consideration when interpreting the results. First, the possible influence of students' sex or the size of the class group were not taken into consideration, even though differences in contributions demonstrating agentic engagement have been observed in accordance with these factors (Montenegro, 2019). It is also important to point out that the results pertain to a cross-sectional study carried out with a specific sample of young people from the Autonomous Community of the Basque Country, recruited using incidental sampling. This limits the representativeness of the sample and the generalisation of the results to other contexts or populations. Some strategies for overcoming this limitation would be: (1) to recruit broader and more diverse samples that are representative of different sociocultural contexts and regions; (2) to conduct longitudinal studies to enable more robust conclusions to be drawn regarding the causality of the variables; and (3) to replicate the study in other educational and cultural environments to verify the consistency of the findings. These strategies would not only enable the validation of the results reported here but would also explore possible variations in the associations observed in accordance with contextual and time-related factors.

Future avenues of research

One aspect that was not considered here was the possible effect of other contextual variables or variables mediating the association between basic psychological needs and agentic engagement. It would be interesting to include other contextual (e.g., school climate) or personal variables (e.g., emotional intelligence or self-concept) in the model (Harrison et al., 2025). Also, given the importance of social interaction in the development of agentic engagement (Singh, 2024), and bearing in mind the absence of any predictive effect of fostering participation on the variables analysed and the findings reported by Fletcher (2024), it would be interesting for future studies to explore how different forms of fostering participation interact with students' proximal development zone, and how this affects their agentic engagement and the satisfaction of their basic psychological needs in a higher education setting. This may provide valuable insight into the impact of teaching quality in higher education on students' agentic engagement, enabling the development of more effective participation strategies that truly foster students' agency and help ensure their comprehensive development during their time at university.

Conclusions

We can conclude that the predictive capacity of teaching quality and the differential satisfaction of basic psychological needs on students' engagement is still an important field of study, since the results reported in the extant literature are contradictory and inconclusive (Conesa et al., 2022). The present study demonstrates the importance of basic psychological needs in fostering agentic engagement, revealing also that certain teaching strategies may not be directly linked to fostering agency in university classrooms. Further research is still required in the field of teaching quality (Murtonen et al., 2024) and fostering student agency (Naidu, 2024), and it is important to identify effective key educational practices that promote agentic engagement in order to optimise the university teaching-learning process.

ACKNOWLEDGMENTS

The authors of this study are members of Consolidated Research Group IT1719-22 within the Basque University System, as well as the VITAL20/05 project run by the Vital Foundation and the UPV/EHU, through which this study was funded.

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