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University Students' Perspectives on Reflective Learning: Psychometric Properties of the Eight-Cultural-Forces Scale

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Abstract: This study emerges from the development of higher-order thinking skills recognised as influential attributes to be considered for quality of learning in preservice teachers; hence, this quantitative research is a systematic attempt to obtain metric-quality pieces of evidence for identifying university students' perspectives on reflective learning standards throughout their initial training period utilising an adapted cultural-forces scale. The earlier mentioned tool is an adaptation of Ritchhart's scale (2015) for the assessment of cultural forces from the model of the Culture of Thinking. The selected sample of preservice teachers encompasses 700 university students of education from 7 faculties of education in Spain. Research results reveal that the use of the scale displayed high reliability and suitability. Similarly, significant statistical differences were observed in the eight scales of cultural forces assessment, where the prime-valued by the students were interactions, expectations, environment, language and time. Apropos of statistics, research results manifest as relevant. Such significance reveals how classroom culture and practical strategies acquire meaning and show connections with learning purposes—likewise with the developmental encouragement of cognitive skills and dispositions towards reflective learning.

Keywords: psychometrics; metacognition; reflective learning; culture of thinking; cultural forces; higher education

1. Introduction

Higher-order thinking skills (HOTS) are recognised as influential attributes for the quality of teaching and learning in higher education institutions around the world [1]. HOTS are defined as a set of neurocognitive abilities required to involve goal-oriented thoughts, actions and emotions control [2–4]. HOTS involve cognitive flexibility (thinking about something in various ways), working memory (taking information into account and, usually, manipulating it in some way) and inhibitory control (deliberately suppressing attention process to provide a response to something [5,6]). These skills not only allow students to learn more effectively but also help them to transfer the previously acquired knowledge to real situations in their daily lives. Thinking skills are essential for analysing situations or problems, making predictions, identifying patterns and representing conclusions. During the teaching and learning process, facilitating students' HOTS helps them become more aware of their own thinking processes. Though self-awareness implies metacognitive and reflective thinking skills, it also encourages in students the development of other intellectual skills, making it possible for them to transfer the previously acquired scientific knowledge and apply it to new situations, favouring learning acquisition [7–9].

Reflective thinking is a type of higher-order thinking (HOT) defined as a form of thinking aimed at determining the factors affecting the level of learning and the methods of solving problems by students [10]. Reflective thinking presupposes a state of perplexity, hesitation or doubt, and mental difficulty. It is also an act of inquiry—a sophisticated search for the finding of solutions and decision making [11]. Metacognition is a high-order thinking ability defined as the awareness and control of self-thinking. It is an executive control system of the human mind that oversees a person's thoughts, knowledge and thinking actions [12,13]. It comprises two components concerning knowledge and regulation. The knowledge component is referred to as the cognitive self-knowledge process. Constituents of this component are the knowledge of oneself as a thinker, the characteristics of a given task and the strategies required to carry out a compelling performance. The regulatory component refers to the actual strategies that are applied to control cognitive processes. Constituents of this component are as follows: planning on how to approach a task, monitoring understanding, evaluating progress, performance [14,15].

The link between the above-mentioned cognitive skills—knowledge and regulatory components—is explained by Halper [16]. This author states that when both critical and reflexive thinking is involved, students need to monitor their thinking process to verify if the goal is being achieved with precision—required functions for the activation of metacognitive skills. Consequently, metacognition is an undoubtedly central component in various forms of high-order thinking providing the understanding on how cognition works, and allows humans to develop intrapersonal skills related to understanding, argumentation, reasoning, self-reflection and other forms of higher-order thinking [17].

The culture of every educational organisation has a profound effect on the development of the aforementioned skills, as well as on its trainers and trainees, since it shapes the identity of both entities and groups and determines the dispositions, decisions and responses of individuals to circumstantial challenges [18,19]. Consequently, through classroom environment cultures, practical strategies display themselves as meaningful for the connection with learning purposes. This factor leads to the importance of creating a culture of thought that helps students recognise the social and environmental contexts in which both individual and collective thought are fostered and valued, focuses the attention on and access to resources and routine practices and promotes the cognitive processes during the construction of learning [20,21]. Such enculturation of thought makes reference to shared social practices in classrooms, which create thought dispositions, mental inclinations and habits that benefit students' productive thinking such as being reflective, seeking and evaluating reasons, exploring strategic solutions, constructing explanations, assuming risks and having dispositions to be metacognitive [18,22–24].

Considering the above-mentioned, Ritchhart [22] proposes the promotion of eight cultural forces to promote thought among those who learn and are present in any educational context. The cultural forces as the foundations on which the acquisition and development of students' critical and reflective thinking dispositions and skills are promoted. The promotion of the eight cultural forces is also shaped by the expectations about thinking and learning, the time to think, the interactions and the supportive relationships for the fostering of thinking, the modelling of thinking dispositions, the created opportunities for thinking, the thinking on language, the thinking routines and structures and the environment—factors encouraging expectations.

Expectations constitute a set of firm beliefs about future results or theories of action that influence humans' efforts concerning the achievement of established objectives and desired results [21]. In this particular case, expectations correspond to given demands from teachers towards students. Among the expectations that influence the required results are the orientation to the students in learning, the teaching for the understanding (instead of for mere rote knowledge), the promotion of deep learning, the promotion of the autonomy and independence of students upon the construction of learning and the promotion of thinking skills and cognitive flexibility [25]. In consequence, the language of thought

refers to the language used by teachers. Apropos of the vocabulary of thought and the reflexive process stimulations, the language of thought does also refer to its impact on students [23].

The aforementioned lexical-reflexive processes encompass different terms of action that also describe the states and mental processes of each subject (analyse, justify, reason). In the same way, lexical-reflexive processes describe products, such as the formulation of hypotheses, questions or statements, that manifest epistemic attitudes that reflect, in turn, the position of the person towards an idea (I consider, I conclude, etc.) [25]. In this sense, language takes on transcendent importance in providing feedback to people. The reason is that it helps to make teaching and learning visible entities in the classroom. Likewise, language helps to recognise the dispositions of thought and the power of the students during the process of feedback of learning [26]. For the stimulation of lexical-reflexive processes, time is a relevant element, as a cultural force that constitutes a set of measurable periods to manage learning strategies. The sequence of events, discussions and reflections on the actions allow the scaffolding and the creation of a conductive thread through articulated learning opportunities to create uniformity. When students endure time to think, opportunities are encouraged at the same time for them to deepen their responses, to seek considerable evidence of their reasoning and to build deeper learning [26].

Modelling is a necessary condition for a reflective practice, where conscious imitation allows the student to acquire the skills necessary to learn. By considering the modelling procedure and reflecting on it, students can acquire a conceptual understanding grounded in practice [27]. Likewise, modelling offers subjects the opportunity to accept different perspectives, as well as new ways of acting and thinking. Modelling thinking, learning and independence skills require identifying the different models of thinking. It also requires reflection on the actions of such models, characteristics, attitudes and behaviours, to incorporate them routinely in the development of tasks [26]. Creating opportunities implies clarifying the expected learning, applying the criteria of the novel application, meaningful research, efficient communication and the perceived value of the task. The purpose is to favour collaborative, autonomous and self-regulated learning [22]. Posing a variety of instructional formats or potentially meaningful and constructive tasks helps to activate the different cognitive processes, in addition to deepening the reflection and deep learning of the students.

The use of structures and routines to anchor and support the thinking and deep learning of students consists in creating strategies that demand a series of cognitive behaviours, orient the thinking of the learners, structure group or individual discussions and operate with curricular content. Such facilitation invites teachers and students to observe, record, interpret and share ideas, thoughts and understanding of the contents and discussions addressed. Similarly, such routines become behavioural patterns to deepen understanding, reasoning and reflection on self-learning [28]. Considering that student learning in higher education occurs in an environment of academic learning, where language, space organisation, the transmission of values and key information converge, the teacher must know the specific strategies to support and motivate students. Instructors must also know how to provide learners with valid learning resources that arouse their interest and curiosity, generate an excellent emotional climate and become the scaffolding of learning [11].

In addition to being an individual process, interaction as a cultural force is supported by the theories considering that the development of critical and reflexive thinking is mediated by social discourse [27]. From the previous reflection emanates the importance of teachers generating teaching situations that, in turn, cause new opportunities for inquiries. The formulation of generative questions soaking through higher-level thinking skills might provide interpretations and connections between previous knowledge and new knowledge in a shared and distributed way among students and teachers. From all the referenced shapes, students' ways of thinking and learning encourage the adoption of positive values and habits of mind. These shapes do also encourage learners to be aware of and sensitive to the contexts in which they are located, as well as to broaden their perspective and to develop flexible metacognitive thinking skills.

Current research findings reveal this is not the case, and that some students still leave college having acquired rather limited cognitive skills to meet the challenges of the global community nowadays [29–31].

Therefore, due to the relevance of the inculturation of thinking for the teaching staff and the implications for the improvement of their educational action based on university training programmes, the paper provides evidence concerning a validation study of the Eight-Cultural-Forces Scale [22] in a sample of Spanish university students of education.

2. Materials and Methods

2.1. Participants

A nonrandom sampling of an intentional peak was used on a sample of 700 education degree students from two Spanish public universities: Universidad de Castilla-La Mancha and Universidad de Valladolid. The nonrandomised sample selection was due to accessibility to the rooms where participants were grouped. Despite the authorisation of the leading professor granting access to implement the instrument, only 12 professors gave authorisation to it. In consequence, it was possible to access a total of 13 group-rooms within 7 Faculties of Education integrated into 2 public universities offering educational degrees in 7 different campuses. Participants' average age was 20.67 (SD = 3.19; range: 18–50). From the sample, 72.9% were female and 27.1% were male. Concerning university degrees, 45.9% of the participants were first-year students, 24.4% were second-year students, 18.3% were third-year students and 11.4% were fourth-year students.

2.2. Process

The selected scale was based on the theoretical approach of Visible Thinking [28] and the Culture of Thinking [22], pointing towards the promotion of HOTS [20,21]. As mentioned, the scale was adapted from the checklist on the self-assessment and the promotion of classroom thinking by teachers [12] used in research in different international contexts [23,32].

The procedure of transcultural adaptation of the items was carried out over the course of the year 2017, using the conceptual translation/retranslation method and following the recommendations of the scientific literature. Based on previous research [4,22,33], the implementation process was divided in two phases involving four actions as follows:

(A)   Translation of the original version and evaluation of conceptual equivalence.

- Translation of the English version to Spanish for grammatical, linguistic, semantic and legibility analysis of the questionnaire.
- Retro-translation.
- Expert judgement.

(B)   (1) Piloting of the instrument adapted to Spanish students and (2) analysis of psychometric properties in a wider sample.

- Administration of the questionnaire. It was administered to the students within the classrooms, along with lectures. Participants were informed by researchers on the goal of the study, as well as of the instructions. The nonrandomised selection of participants was as follows: (a) Official contact with the faculty members requesting the collection of data. (b) Planning and consensus of schedules, timing and places for the questionnaire implementation. (c) Application of the questionnaire.
- Analysis and proposal of a Spanish version of the questionnaire. The adjusted analysis was used to evaluate the psychometric properties of the questionnaire, based on the data obtained with the fieldwork.

2.3. Instruments

The implemented of the Eight-Cultural-Forces Scale [22] was carried out to explore how students themselves perceive the enculturation of thinking being favoured during their preservice teacher training. Through a total of 40 items, grouped into 8 dimensions with 5 items each, the eight subsequent dimensions were registered (Table 1). The type of scaling presents a Likert-type numerical rating of 1 to 5, where 1 represents the lowest rating (referenced as Never) and where 5 represents the highest rating (referenced as Always).

Table 1. Dimensions and items of the Eight-Cultural-Forces Scale.

Dimension		Items
Expectations (E)	1	Teachers make a conscious effort to communicate to students that their classroom is a place where thinking is valued.
	2	Teacher establishes with his students a set of expectations for learning and thinking, in the same way as he would when setting behavioural expectations.
	3	The teacher stresses that thinking and learning, as opposed to "completion of work", are the outcomes of our class activity.
	4	Developing understanding, as opposed to knowledge acquisition only, is the goal of classroom activity and lessons.
	5	Student independence is being actively cultivated so that students are not dependent on me to answer all questions and direct all activity.
Language (L)	1	The teacher makes a conscious effort to use the language of thinking in his teaching, discussing with students the sort of thinking moves required with such verbs as "elaborate", "evaluate", "justify", "contrast", "explain" and so on.
	2	The teacher seldom uses generic praise comments ("good job", "great", "brilliant", "well done") and instead gives specific, targeted, action-oriented feedback that focuses on guiding future efforts and actions.
	3	The teacher uses "conditional" phrases such as "could be", "might be", "one possibility is", "some people think" or "usually it is that way, but not always".
	4	The teacher tries to notice and name the thinking occurring in his classroom, saying things like "Juan is supporting his ideas with evidence here" or "María is evaluating the effectiveness of that strategy".
	5	The teacher uses inclusive, community-building language, talking about what "we" are learning or "our" inquiry.
Time (T)	1	The teacher makes time for students' questions and contributions.
	2	The teacher provides the "space" for students to extend, elaborate or develop the ideas of others.
	3	The teacher avoids disseminating an abundance of ideas without providing the time to process them.
	4	The teacher gives students time to think and develop ideas before asking for contributions.
	5	The teacher monitors the amount of time he talks so as not to dominate the classroom conversation.
Modelling (M)	1	Thinking (both yours and ours) is regularly on display in the classroom.
	2	The teacher demonstrates his own curiosity, passion and interest to students.
	3	The teacher displays open-mindedness and a willingness to consider alternative perspectives.
	4	The teacher states that he is learning too, taking risks and reflecting on my learning.
	5	Students model their thought process by spontaneously justifying and providing evidence for their thinking.

Table 1. *Cont.*

Dimension	Items	
Opportunities (O)	1	The teacher ensures that rich thinking opportunities are woven into the fabric of his teaching and that students are not just engaged in work or activity.
	2	The teacher focuses students' attention on big subject matter issues, important ideas in the world and meaningful connections within his discipline and beyond.
	3	The teacher provides students with opportunities to direct their own learning and become independent learners.
	4	The teacher takes pains to select content and stimuli for class consideration in order to provoke thinking.
	5	The teacher provides opportunities to reflect on how one's thinking about a topic has changed and developed over time.
Routines (R)	1	The teacher uses thinking routines and structures to help students organize their thinking.
	2	The teacher uses thinking routines flexibly, spontaneously and effectively to deepen students' understanding.
	3	The teacher is good at matching a routine with appropriate content so that students are able to achieve a deeper level of understanding.
	4	Thinking routines have become patterns of behaviour in his classroom; that is, students know particular routines so well that they no longer seek clarification about the mechanics of the routines.
	5	Students use routines and structures to further our understanding and as a platform for discussion, rather than as work to be done.
Interactions (I)	1	The teacher ensures that all students respect each other's thinking in his classroom. Ideas may be critiqued or challenged, but people are not.
	2	I make it clear that mistakes are acceptable and encouraged within my classroom.
	3	Students are pushed to elaborate their responses, to reason and to think beyond simple answers or statements (for example, by using the "What makes you say that?" routine).
	4	The teacher listens to students and shows a genuine curiosity and interest in their thinking. It is clear that he values their thinking.
	5	The teacher listens in on groups and he allows us to act independently, rather than always inserting himself into the process.
Environment (E)	1	Displays in the room communicate positive messages about learning and thinking, to inspire learning in the subject area and connect students to the larger world of ideas.
	2	The teacher arranges the space of his classroom to facilitate thoughtful interactions, collaborations and discussion.
	3	The wall displays have an ongoing, inchoate and/or dialogic nature to them; they are not merely static displays of finished work.
	4	The teacher uses a variety of ways, including technology, to document and capture thinking.
	5	A visitor would be able to discern what I care about and value with respect to learning.

2.4. Data Analysis

The Kappa index (*k*) was used for the cross-cultural validation of the questionnaire. The nonparametric Kendall W test was considered for consensus by expert judgement (*n* = 10). Similarly, the INFLESZ Scale, to evaluate the readability of written texts, was considered to quantify the degree of difficulty in the translation. The expert judgement for validation provided significant

input for fitting the scale ($n = 10$; W: 0.991, $p < 0.01$). After that, the research team debated on these contributions to reach a consensus on the grammatical, linguistic, semantic and legibility dimensions of the scale, measuring the legibility throughout the INFLESZ Scale, obtaining a value >0.40.

All of the statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS, version 22) (IBM, Armonk, NY, USA), licensed by the Universidad de Castilla-La Mancha. The Kolmogorov–Smirnov test ($n > 50$) displayed a normal distribution of the sample. A descriptive analysis of the data was carried out obtaining Cronbach's alpha, as well as Pearson's correlations between measures and the analysis of the variance (ANOVA: analysis of the differences between the members of the groups based on the procedures developed by Fisher) for independent samples, to study the differences in the "academic year" variable, as suggested by Lloret-Segura, Ferreres-Traver, Hernández-Baeza and Tomás-Marcos [34]. A confirmatory factorial analysis has also been performed using structural equations with EQS Structural Equation Modelling Software, version 6.1 (MVSOFT, Los Angeles, CA, USA).

2.5. Ethical Considerations

The research was conducted in accordance with the following ethical considerations: (a) voluntary, confidential and informed participation of participants; (b) the final purpose of the validation study was to have a quality questionnaire to improve the impact of reflective learning at the university; (c) at all times, the research has sought scientific validity in its design, application and data analysis; (d) the commitment to share the results with the participants.

3. Results

3.1. Latent and Factorial Structure

Description and Reliability

The scale latent dimensions manifest response values within the range of 1–5. Means tend to fluctuate, displaying a maximum value of 3.32 on the dimension Expectations and a minimum average of 2.91 on the dimension Environment. In no case does the distribution of responses exceed more than one standard deviation. Table 2 reveals the descriptive statistics and the Cronbach alpha coefficients for each of the eight dimensions forming the questionnaire, that is, Expectations, Language, Time, Model, Opportunities, Routines, Interactions and Environment. As observed in the upcoming table, these values are satisfactory except for the dimension Language, which reveals a moderate value of 0.65.

Table 2. Descriptive statistics and test reliability.

Dimension	Minimum	Maximum	Media	Standard Deviation	Reliability Coefficient
Expectations	1	5	3.32	0.62	0.79
Language	1	5	3.14	0.58	0.63
Time	1	5	3.15	0.69	0.80
Model	1	5	3.20	0.70	0.82
Opportunities	1	5	3.23	0.72	0.85
Routines	1	5	3.03	0.76	0.87
Interactions	1	5	3.54	0.78	0.86
Environment	1	5	2.91	0.87	0.85

Concerning the confirmatory factorial analysis (Table 3), the approximation error to the theoretical model reveals a magnificent fitting (>0.05) on the eight dimensions. With the intention of verifying these results, the analysis of the single-factor model shows acceptable results, which leads us to differentiate the dimensions contemplated in the theoretical model.

Table 3. Confirmatory Factor Analysis indexes of the models.

Models	SBc2	df	NNFI	CFI	RMSEA	90% CI
Model 1Factor	2854.94 **	740	0.811	0.821	0.064	(0.061, 0.066)
Model 8Factors	1389.15 **	712	0.937	0.943	0.037	(0.034, 0.040)

** $p < 0.01$, SBc2 = Satorra–Bentler's chi-square, df = degrees of freedom, NNFI = non-normed fit index, CFI = comparative fit index, RMSEA = root-mean-square error of approximation, 90% CI = confidence interval of RMSEA.

The saturation calculation (Table 4) of each of the 40 items showed that all the items present an adequate saturation in their corresponding factor (>0.40), except for the second item of Language (L-item 2). Specific feedback, which is slightly lower (0.34), and the third item of this same variable (L-item 3), make use of conditional phrases, reaching a value at the limit of 0.39. The highest saturation (0.84) has been obtained in the second item of the Routine dimension (R-item 2), using flexible, spontaneous and efficient thinking routines.

Table 4. Correlation indexes.

Variables	E	L	T	M	O	R	I	E
E-item 1	0.70							
E-item 2	0.73							
E-item 3	0.73							
E-item 4	0.63							
E-item 5	0.51							
L-item 1		0.57						
L-item 2		0.34						
L-item 3		0.39						
L-item 4		0.60						
L-item 5		0.58						
T-item 1			0.62					
T-item 2			0.74					
T-item 3			0.56					
T-item 4			0.75					
T-item 5			0.67					
M-item 1				0.57				
M-item 2				0.73				
M- item 3				0.72				
M-item 4				0.78				
M-item 5				0.86				
O-item 1					0.73			
O-item 2					0.71			
O-item 3					0.71			
O-item 4					0.76			
O-item 5					0.72			
R-item 1						0.78		
R-item 2						0.84		
R-item 3						0.78		
R-item 4						0.68		
R-item 5						0.71		
I-item 1							0.66	
I-item 2							0.76	
I-item 3							0.72	
I-item 4							0.81	
I-item 5							0.78	
A-item 1								0.78
A-item 2								0.77
A-item 3								0.77
A-item 4								0.54
A-item 5								0.75

The correlation analysis (Table 5) between each of the dimensions composing the questionnaire reveals that the highest correlation was obtained between Opportunities and Modelling ($r = 0.72$) and the lowest between Environment and Language ($r = 0.46$).

Table 5. Correlations between measured dimensions ($p = 0.001$).

Dimensions	1	2	3	5	6	7	8
Expectations							
Language	0.61						
Time	0.63	0.61					
Model	0.62	0.58	0.70				
Opportunities	0.69	0.65	0.71	0.72			
Routines	0.54	0.58	0.59	0.62	0.71		
Interactions	0.54	0.53	0.62	0.68	0.70	0.60	
Environment	0.50	0.46	0.49	0.55	0.60	0.60	0.53

Concerning the one-factor ANOVA, the average scores according to the course range oscillate between 2.2 and 3.68 points, on a maximum rating scale of 6. First- and second-year students are those revealing higher average scores, compared with third- and fourth-year students. In fact, it is the third-year students who feel that the promotion of cultural forces in their training is lower (Table 6).

Table 6. One-factor ANOVA. Independent variable: classroom level.

Dimensions	Class	Media	Standard Deviation	F	Sig	Eta²	Dimensions	Class	Media	Standard Deviation	F	Sig	Eta²
E	1	3.47	0.61	16.447	<0.001	0.066	O	1	3.39	0.66	16.340	<0.001	0.066
	2	3.33	0.61					2	3.24	0.71			
	3	3.05	0.58					3	2.90	0.75			
	4	3.18	0.60					4	3.10	0.69			
L	1	3.23	0.57	8.383	<0.001	0.035	R	1	3.12	0.73	9.125	<0.001	0.038
	2	3.19	0.57					2	3.06	0.74			
	3	2.98	0.59					3	2.72	0.79			
	4	2.98	0.57					4	3.05	0.72			
T	1	3.23	0.69	5.508	<0.002	0.022	I	1	3.68	0.78	15.982	<0.001	0.064
	2	3.16	0.71					2	3.64	0.69			
	3	2.96	0.70					3	3.20	0.77			
	4	3.09	0.55					4	3.32	0.76			
M	1	3.27	0.68	5.531	<0.001	0.023	E	1	3.03	0.85	8.543	<0.001	0.036
	2	3.26	0.72					2	2.87	0.88			
	3	2.99	0.73					3	2.59	0.82			
	4	3.13	0.67					4	3.04	0.87			

The Environmental dimension was the lowest rated by the students, with scores between 2.59 and 3.04 points, followed by the Language dimension between 2.98 and 3.23. The Interactions dimension was the best rated by the sample (3.20 and 3.68).

Considering the course of belonging, statistically significant differences can be seen along with the eight dimensions. Regarding the size of the effect, in general, a small size is appreciated (between 1% and 6%), although in the Expectations, Opportunities and Interactions, this size turns into a medium size of the effect (between 6% and 14%).

4. Discussion and Conclusions

The implemented scale reveals itself as a highly reliable instrument, a fact clearly related to the data in previous studies [4,22]. Scientific literature [35] suggests that in initial or exploratory studies, reliability values of up to 0.6 can be valid as well. In the same line of thought, Lowental [36] points out that in scales with few items encompassing a maximum of 10, a reliability of 0.4 can also be

acceptable. Considering these last words, there is only one of the implemented scales in this research with a reliability value close to 0.6, the Language dimension. This fact could be due to several aspects, but the one believed is that there is a possibility that items 2 and 3 were poorly defined. Similarly, item sensitivity to the sense of scale may be due to the fact that, in the university context, feedback is a barely common practice [37]. For example, the use of conditionals can be interpreted differently by pupils in those university contexts where a teaching culture oriented towards the development of reflective thinking is not deliberately disclosed [38]. In any case, this shows that in future applications of the questionnaire, the stability or variation of this indicator should be studied [33].

The evidence of validity reveals that the underlying relational structure of the questionnaire (RMSEA = 0.037; CFI = 0.943) is integrated by eight dimensions in coherence with the established theoretical model [24]. Thus, the number of items and their accuracy to measure the dimension account for their adequate stability [39]. The interaction of item commonalities and sample size are high, resulting in latent dimensions being very well represented [40]. The results of the AFC show that the conceptual reference is well defined. These results are highly comparable to previous studies [4,22]. In the same way, correlations between dimensions that present an adequate behaviour are displayed, leading to the observation that all the latent variables maintain a statistically significant correlation. This observable pattern is linked to the data obtained in a five-year longitudinal study in learning communities in Melbourne, where researchers stated that an exploration of these eight cultural forces provides the conceptual and practical backbone to focus the exploration of thinking for the active construction of student learning and to create a classroom culture [24].

In this validation study, it is possible to establish that the empirical criterion is ideal for the process of validation of the scale through a sample of university students. In consequence, three things can be concluded:

(1) The instrument displays a high value to discriminate the impact of teacher training oriented to the promotion of reflexive learning. Such criterion represents the degree of adjustment for how the empirical model provides good evidence to the objectives of this study, which is mixed up with the theoretical criterion found in the "why" of the interrelation established a priori in an endorsement to be taken into account [40]. Hence, this questionnaire provides eight dimensions that make it possible to identify students' perspectives of the enculturation of thought in their initial teacher training (appointment). Nevertheless, this fact should be carefully reviewed in future studies for better adjustment of items and the saturation in each of the dimensions, but especially in those linked to the latent dimension referred to as Language [22].

(2) The instrument provides valid information to make teachers aware of whether or not they are addressing their students' reflexive learning. The questionnaire also provides an assessment of each of the cultural forces fostering, at the same time, the development of thinking skills, expectations, language, time to think, modelling, opportunities to think, thinking routines, interactions and the environment. These dimensions represent worthy instruments for professors to get accurate feedback on how students perceive that the mediation of the learning process is favoured with the emphasis on the promotion of thought. The dimensions also provide lecturers information on how to facilitate the reflection of the teaching action, to optimise the educational quality since, as other research has shown, teachers need evidence that makes them aware of the importance of promoting routines and situations linked to reflective thinking [41–43].

(3) The instrument complements the research efforts to improve the formative processes of university students around reflective learning. Consequently, the obtained results might amplify the intention along with other questionnaires like, for example, the Student Evaluation of Educational Quality scale [44]. Although the Student Evaluation of Educational Quality scale items are dissimilar from the ones implemented in our research, they evaluate eight similar dimensions: learning, enthusiasm, organisation, interaction with the group, updated presentation of the subject, interaction of the teacher with individual students, evaluation and feedback. Though

they are different items [45], they have also been used in a psychometric questionnaire for the assessment of (German) university students.

To sum up, the use of this type of questionnaire is essential to strengthen reflective thinking at university. It contributes to the implementation of successful teaching and learning models [22,24,33,46–49], that is, models that simultaneously facilitate the learning of conceptual domains and the development of cognitive skills such as thinking, language, communication, perception, comprehension and reasoning. Such models are also expected to promote the use of narrative methodologies [42] or the reflective narrative learning through writing [50,51] that expose students to real-life situations, allowing them to approach real problems, to participate in debates and to propose solutions to the given problems. In that matter, universities are responsible for helping future professionals to acquire the knowledge and to develop cognitive/mental skills and habits ensuring trainees to be able to reflect on their own beliefs and decisions. The reason is that trainees need to be aware and critical of their own assumptions, able to engage openly with different cultural forms and historical moments and able to develop problem-solving skills—all in a sustained paradigm of transformational, critical and reflective lifelong learning. Such expectations are established by potential employers expecting employees to own these skills [43].

The promotion of reflective thinking through the didactical implementation of cultural forces in the training of education degree students has little development from quantitative approaches [4,22]. Generally, the vast number of investigations approaching the topic qualitatively [20,38,42] have provided evidence on the benefits of training teachers and leading classroom learning towards reflexive learning about education fostering the professional development of the students. Fostering is barely promoted in quantitative guidance, where research is starting to experience more significant growth, although these studies are still moderate on the impact of reflexive learning of cultural forces [4,22,33].

5. Research Constraints

This research manifests a series of limitations that must be considered when interpreting its results, some of which have been reported in previous similar studies [4,33]. The study constraints are as follows:

I. Sample limitation. The sample is relevant for the two Spanish university students' population—but only of two public universities—and participants are only students of education degrees. A larger sample with significant values will be part of further research.

II. Technical limitations. One of the limitations attributed to self-report questionnaires is the possibility of collecting biased responses based on social desirability—these types of instruments tend to measure in retrospect, not in responses collected during the process in which they are generated. Nevertheless, as Tadesse, Robyn and Campbell [47] say, "empirical evidence shows that students are credible sources of information on matters related to what they have experienced in universities and how much they have benefitted from their learning experiences" (p. 10).

III. Students' thoughts. Further research will be conducted on not only the opinion of the students, but also it would seem necessary to have a more adjusted idea on the promotion of what type of reflective thinking is done in the classrooms: (1) Know the opinion of teachers and contextualise the study, since there might be measures or methodological actions that may be influencing. (2) View complements by a qualitative approach to provide more information on the complexity of the phenomenon studied.

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