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To cite this article: Davide Parmigiani, Aviva Bar Nir, Kate Ferguson-Patrick, Alona Forkosh Baruch, Eileen Heddy, Maria Antonietta Impedovo, Marcea Ingersoll, Mellita Jones, Yael Kimhi, M#nica Lourenço, Suzanne Macqueen, Valentina Pennazio, Laura Sokal, Renata Timkova, Sina Westa & Gerd Wikan (2023) Assessing the development of global competence in teacher education programmes: internal consistency and reliability of a set of rubrics, Higher Education Pedagogies, 8:1, 2216190, DOI: [10.1080/23752696.2023.2216190](https://doi.org/10.1080/23752696.2023.2216190)

To link to this article: <https://doi.org/10.1080/23752696.2023.2216190>



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Published online: 26 May 2023.



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## Assessing the development of global competence in teacher education programmes: internal consistency and reliability of a set of rubrics

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### ABSTRACT

Global competence is a complex concept as it is multifaceted, composite, multi-layered, multidimensional, and can be viewed from several perspectives. A previous study validated a set of rubrics designed to assess pre-service teachers' development of global competence. The research presented in this paper tested the internal consistency and reliability of the set of rubrics in order to create an instrument validated within the international context that was robust and consistent from a methodological point of view. The set of rubrics was self-administered online by 729 pre-service teachers studying in 12 teacher education programmes across 10 different countries around the world. The data analysis showed a high level of reliability and internal consistency of the rubrics, indicating their ability to assess pre-service teachers' global competence. The exploratory and confirmatory factor analysis suggested changes to two areas of the rubrics.

### ARTICLE HISTORY

Received 7 October 2022  
Revised 15 January 2023  
Accepted 31 March 2023

### KEYWORDS

Global competence;  
pre-service teacher training;  
initial teacher training;  
teacher preparation; teacher  
education; internal  
consistency and reliability

## Introduction

Teachers at all school levels currently face educational issues arising from global challenges: intercultural matters, economic questions, and political disputes. Creating and managing a learning environment, even in a small classroom located in a remote village, depends increasingly on the teacher's global competence (GC). This reality means that teachers are working in school contexts where both local needs and global challenges are present, and teachers must be prepared to facilitate the 'development of young people to become informed, engaged, and globally competent citizens' (Kopish, 2016, p. 76). In

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their futures, pre-service teachers will have to work in complex educational systems composed of many cultures, ideas and perspectives. GC represents the concept/paradigm that can help these future teachers to build broad and inclusive educational paths where all pupils will have the opportunity to discuss and experience several forms of learning (OECD PISA, 2018; van Werven, Coelen, Jansen, & Hofman, 2021).

This article presents the third step of a study focused on developing and assessing GC within teacher education programmes. The first phase was dedicated to identifying which aspects of GC should be integrated into initial teacher education programmes across Europe, as well as how to do so (Parmigiani, Jones, Kunnari, & Nicchia, 2022). The second stage was aimed at designing, creating, and validating a set of rubrics to be used by either teacher educators or pre-service teachers to assess pre-service teachers' development of GC (Parmigiani et al., 2022). Through a Delphi method and the involvement of 31 international experts, we created a specific set of rubrics (Appendix A) to be used in teacher education programmes to help both teacher educators and pre-service teachers assess and monitor individual levels of GC development.

There were three main objectives in the third step. The first was to analyse the structure and features of the rubrics in order to identify positive aspects and inadequacies. The second aim was to test the internal consistency and reliability of the rubrics in order to validate them within an international context that would be considered robust from a methodological point of view. Finally, the third goal was to offer a consistent instrument for the assessment of pre-service teachers' development of GC within teacher education programmes. To do so, the set of rubrics was administered to pre-service teachers from several countries from all around the world.

### **Global competence as a theoretical framework**

There are a number of GC frameworks, with many of these sharing similarities with cultural competence, global citizenship and a host of related terms (Parmigiani, Jones, Kunnari, & Nicchia, 2022). In particular, most relevant frameworks include components related to cultural awareness, knowledge, skills and values (Kahn & Agnew, 2016; Reimers et al., 2010; Schleicher, 2018). The research leading to the rubrics presented in this paper has been guided by the Asia Society/OECD (2018) definition of GC as a theoretical framework, as it refers not only to understandings, but also a capacity 'to act for collective well-being and sustainable development' (p. 7), which is essential for teachers in the 21<sup>st</sup> century.

### **Fostering pre-service teachers' global competence**

Three main approaches to fostering GC in post-secondary students have been broadly supported (Shultz, 2007). The first approach – a neo-liberal approach – focuses on students acquiring the skills necessary for global economic participation and mobility. The second approach focuses on student activism and critique of existing global systems. The third and most common approach within post-secondary institutions is the transformational approach (Aboagye & Dlamini, 2021). Transformational learning allows students to develop 'attitudes and values that shift their meaning perspective [...] towards humanity, critical thinking, cross-cultural understanding, and orientation toward social justice' (Stanlick, 2021, p. 43) through active processes based on

disorienting events and reflection (Mezirow, 1991). Indeed, Asia Society/OECD (2018) definition of GC captures all three post-secondary approaches to GC:

Global Competence is a multi-dimensional construct that requires a combination of knowledge, skills, attitudes and values successfully applied to global issues or intercultural situations. Global issues refer to those that affect all people, and have deep implications for current and future generations. Intercultural situations refer to face-to-face, virtual or mediated encounters with people who are perceived to be from a different cultural background (p. 4).

Given the importance of experience and reflection as central to the development of students' GC (Stanlick, 2021), teaching practices related to its development across disciplines within post-secondary education have included service learning, signature projects, and international projects (for examples, see Aboagye, 2021; Broom & Bai, 2021; Gisolo & Stanlick, 2021; Naidoo & Benjamin, 2021). Moreover, research supports curricular inclusion of GC pedagogy and content across courses in a habitual, integrated, and active learning format rather than a stand-alone course structure (Mostafa, 2020). Of particular note are the additional needs of post-secondary students who intend to become teachers, as these students must not only develop their own GC but must also develop the practical skills to foster it within their future students (Kerkhoff & Cloud, 2020). Recent research has confirmed that the same active learning processes that foster GC in post-secondary students are also useful with school children; these strategies include debates, discussions, games, project-based learning, and service learning (Asia Society/OECD, 2018).

### ***Assessing the development of global competence in teacher education programmes: State of the art***

Assessing GC is not an easy task, especially as there is no common understanding among the scientific community of what GC is exactly (Sälzer & Roczen, 2018). Thus, 'scientific theory-building is in this regard relatively young and undeveloped' (Sälzer & Roczen, 2018, p. 7). Often no clear distinction exists between connected concepts such as global competence, global citizenship education, or intercultural competence to name just a few. Intercultural competence focuses mainly on an individual's communication and behaviour in intercultural contexts (Deardorff, 2006) whereas global citizenship education 'refers to a sense of belonging to a broader community and common humanity. It emphasises political, economic, social and cultural interdependence and interconnectedness between the local, the national and the global' (UNESCO, 2015, p. 14). In contrast, GC refers to competencies connected to global issues and intercultural situations (Asia Society/OECD, 2018). Another difference between GC and global citizenship education is the latter's focus on conceptions and frameworks of citizenship education and hence, its roots in the context of education policies and curricula, as well as in teaching and learning (UNESCO, 2015).

These different views on what constitutes GC have also led to disputes on how to measure GC. The PISA study presents one prominent example, as more than 30 countries refrained from measuring GC in (OECD PISA, 2018; Sälzer & Roczen, 2018). Despite these problems with developing assessment instruments for GC, there are a range of tools that are used in practice. In their overview of existing assessment tools, Conolly,

Lethomäki, and Scheunpflug (2019) concluded that most existing measurement tools focus on knowledge and skills on an individual level. In contrast, the rubrics tested in this study also include a scale about action. There are only a few GC assessment tools adapted for teachers. One of them is the Global Readiness Scale (Kerckhoff, 2017), which is a measurement model and scale of teacher practices related to global readiness instruction. This scale can be used in teaching situations and was developed in the US context. Another example is the Globally Competent Teaching Continuum (Tichnor-Wagner, Parkhouse, Glazier, & Cain, 2019), an interactive tool to help teachers develop GC and connected teaching practices. Overall, this tool is a self-reflection tool rather than an assessment tool and, like the Global Readiness Scale, was developed for the US context. Both tools are highly connected to classroom practices of in-service teachers and thus, cannot be easily adopted to initial teacher education. Moreover, they do not account for other national contexts. The set of rubrics tested in this study is hence a rare example of an assessment tool for GC that can be used within initial teacher education and has been validated in an international context.

## Research design

### *Global competence in the different contexts of the study*

Across the various countries surveyed for the purpose of the current study, there exists a wide range of approaches to GC in teacher education and school education. In some nations there is a clear focus on GC within teacher education and accreditation approaches, while in others GC is more evident in terms of student outcomes and school curricula. Some countries have a combined approach, where GC is a focus in both teacher accreditation and school curriculum. Additionally, aspects of GC are explicitly outlined in some countries, while in others, principles of GC can be inferred through close inspection of relevant documents.

The following countries in the current study have formal Teacher Standards: Australia (Australian Institute for Teaching and School Leadership, 2022); U.S.A (Council of Chief State School Officers, 2013); Canada, by province, for example New Brunswick (Government of New Brunswick, n.d.); Slovakia (University portal of the Ministry of Education, Science, Research and Sport of the Slovak Republic 2019); Germany (KMK Kultusministerkonferenz, 2019); and France (Ministère de l'éducation nationale et de la jeunesse, 2013). Typically, Teacher Standards outline the knowledge and skills which teachers are expected to gain through teacher education programmes and demonstrate prior to being accredited/qualified (Santoro & Kennedy, 2016). Within these various standards, it is possible to identify aspects related to GC either specifically or tangentially. For example, one Australian Standard includes that teachers must 'Demonstrate knowledge of teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural, religious and socioeconomic backgrounds' (Australian Institute for Teaching and School Leadership, 2022, p. 10). In the U.S.A Standards, reference is made to teacher candidates developing their students' cultural competence, for example: "The teacher promotes an understanding of inter- and intra-group diversity to facilitate learners' development of cultural competence and build respect across communities" (Council of Chief State School Officers, 2013, p. 19).

While Norway's Teacher Standards make no specific reference to GC, these are addressed in the Norwegian Qualifications Framework (Ministry of Education and Research, 2014).

In Portugal, there are no specific teacher standards, but similar competencies are identified in Decree-Law no. 240/2001 outlining a teacher profile which includes an expectation to identify and respect cultural differences among students and value various knowledge and cultures (Ministry of Education Portugal, 2001). GC can also be identified in documentation related to what school students should be learning (Ministry of Education Portugal, 2017). In Italy, despite not having specific teacher standards, representatives of education ministries from many regions have campaigned for the national Ministry of Education to include global citizenship in teacher education programmes (AICS - Agenzia italiana per la cooperazione allo sviluppo 2018). In Israel, a document outlining teacher education requirements (The Council of Higher Education, 2020) infers the inclusion of GC through aspects such as multiculturalism, anti-racism and civil education.

### ***Aims and research question***

This study was aimed at testing the internal consistency and reliability of a set of rubrics designed to assess pre-service teachers' development of GC. The rubrics are available in the appendix ([Appendix A](#)). The study sought to answer the following research question: what are the levels of internal consistency and reliability of a set of rubrics about pre-service teachers' development of GC? As mentioned previously, the purpose of the study was to deeply analyse the characteristics of the rubrics in order to identify strengths and weaknesses and offer a reliable and coherent instrument to be used within teacher education programmes.

### ***Participants and data collection procedure***

To pursue the aims of the study and answer the research question, we involved 12 institutions located in 10 countries around the world. These institutions offer at least one of the following teacher education programmes for pre-service teachers at different levels: pre-primary/kindergarten, primary, lower/upper secondary, vocational or special education. [Table 1](#) shows the number of participants from each institution.

[Table 2](#) reports the demographic and the school/educational variables: participants' birth country, gender, birth year categories, future intentions of grade/school levels and English level.

[Tables 1 and 2](#) indicate some differences between the number of participants involved by each institution engaged in the study. The differences are due mainly to two factors. The first element is the total number of pre-service teachers recruited in each institution. The second element is the number of pre-service teachers able to complete an assessment tool written in English.

The set of rubrics was administered online by the representative of each teacher education programme involved in the study. Thus, the set of rubrics was completed by the respondents without the intervention of the research team collecting the data. The research procedure was strictly governed by ethical codes of conduct. The procedure was approved by the ethical committee of the principal investigator's university and

**Table 1.** Participants and institutions.

Country	Institution	Participants
Australia	Australian Catholic University, Ballarat (Victoria)	49
Australia	University of Newcastle (New South Wales)	170
Canada	St. Thomas University, Fredericton (New Brunswick)	33
Canada	University of Winnipeg (Manitoba)	115
France	Aix-Marseille Université	19
Germany	Universität Erfurt	71
Israel	The Academic Center Levinsky-Wingate (former Levinsky College of Education)	39
Italy	University of Genoa	83
Norway	Høgskolen i Innlandet, Hamar	46
Portugal	University of Aveiro	15
Slovakia	Univerzita Pavla Jozefa Šafárika v Košiciach	60
USA	The College of New Jersey, Ewing	29
total		729

**Table 2.** Demographic and school/educational variables.

	Participants	%
<b>Birth country</b>		
Australia	209	28.67
Canada	126	17.28
Italy	83	11.39
Germany	71	9.74
Slovakia	54	7.41
Norway	45	6.17
USA	34	4.66
Israel	31	4.25
France	17	2.33
Portugal	12	1.65
Philippines	10	1.37
Ukraine	6	.82
Other	31	4.25
<b>Gender</b>		
Male	134	19.68
Female	539	79.15
Other	5	.73
I don't wish to say	3	.44
Missing	48	
<b>Birth year categories</b>		
70s	22	3.23
80s	55	8.08
90s	374	54.92
2000s	230	33.77
Missing	48	
<b>Future intention of grade/school levels</b>		
Kindergarten/Primary	395	54.79
Lower/Upper Secondary	231	32.04
Vocational Education	15	2.08
Special Education	80	11.10
Missing	8	
<b>English Level</b>		
Native	360	49.45
Advanced (C1/C2)	189	25.96
Intermediate (B1/B2)	153	21.02
Beginner (A1/A2)	26	3.57
Missing	1	



permissions to conduct the research were obtained from each institution involved in the project. The set of rubrics were completed anonymously, and the preamble stated that the researchers would not have access to the identities of the people who completed the tool. Respondents were free to participate in the study or not. They were also given the option to cease involvement in the study at any time. No risks were associated with completing the anonymized survey outside of those of daily life. No incentives were offered, but respondents who completed the instrument may have benefitted from knowing that they contributed to the understanding of global competence in pre-service teachers.

The rubrics were written and administered in English, because we wanted to create an instrument available potentially all over the world. For this reason, all pre-service teachers who filled in the rubrics were requested to declare their level of English language skills in order to check any significant difference linked to this factor.

### ***Instrument and quantitative data analysis procedure***

As mentioned previously, a specific set of rubrics was used to assess pre-service teachers' development of GC. The rubrics were designed and created in two previous research steps (Parmigiani et al., 2022; Parmigiani, Jones, Kunnari, & Nicchia, 2022). The rubrics are composed of three areas:

- Exploring: 4 dimensions and 6 indicators/criteria
- Engaging: 5 dimensions and 7 indicators/criteria
- Acting: 7 dimensions and 19 indicators/criteria.

The three areas combined contain a total of 32 indicators. The first area, Exploring, is aimed at assessing initial approaches to GC issues. The dimensions, such as 'openness' or 'intent to experience/interact' indicate the first steps in facing global issues. Sample indicators/criteria of this area include: 'I feel responsibility to address ethical, social, economic and environmental challenges' (dimension: global responsibility) and 'I support rights, equity and social justice in different sectors such as gender, racial, religion, disability, etc.' (dimension: ethical orientation).

The second area, Engaging, focuses more precisely on pre-service teacher's reflections on their development and their attitudes regarding 'global self-awareness' or 'inclusion and diversity.' It is important to emphasise that the first area, Exploring, can be used with all higher education students enrolled in a variety of disciplines, as the dimensions are general. The second area also focuses on overall dimensions of GC, but the criteria become more specific to higher education students who are undertaking a teacher education programme. Sample indicators/criteria for this area include: 'I demonstrate awareness of diverse and multiple perspectives when teaching/practising in classrooms with students from diverse backgrounds' (dimension: world views, perspectives and cultural diversity) and 'I try to contribute to the development of a more just, peaceful, and sustainable world' (dimension: sustainability).

The third area, Acting, is specific to pre-service teachers and all dimensions and indicators/criteria focus on school and educational contexts and situations (e.g. 'managing complex learning environments' or 'active teaching strategies'). Sample indicators/criteria of this area include: 'I'm able to create effective learning environments and



manage classes with students from diverse backgrounds' (dimension: managing complex learning environments) and 'I'm able to design and implement formative assessment methods to inform instruction with students from diverse backgrounds (self and peer assessment, portfolios, etc.)' (dimension: interactive assessment strategies).

The indicators/criteria are assessed using four levels: emerging; developing; achieving; extending. For each level, a descriptive caption is provided. The captions are different for each area. For instance, the caption for the level Emerging in the Exploring area is: 'I show a low willingness to *explore* the criterion'. However, the caption for the same level in the Acting area is: 'I show a low willingness to *act* in relation to the criterion'. There is also the option to not indicate any level by selecting 'Not applicable' in cases where the pre-service teacher is not involved in that criterion or does not want to respond. The rubrics also include text boxes for additional qualitative comments.

The set of rubrics has been designed in two versions: 'self-administered' and 'administered by the teacher educators'. The first version is available in the appendix, and can be used by each pre-service teacher. The second version can be used by the teacher educators observing the pre-service teachers while they are acting in an educational context/situation, such as: teaching practice, internship, workshop, etc.

From a technical point of view, a rubric is not a questionnaire but there are some similarities. First of all, the areas can be considered as subscales. Secondly, the indicators/criteria can be considered as items and, ultimately, the levels can be considered as Likert scales. But, in this case, it is necessary to consider them as ordinal scales and to conduct the data analyses with non-parametric tests.

The quantitative analysis concentrated on the instrument's reliability, so we used the following coefficients: Cronbach Alpha ( $\alpha$ ); McDonald's Omega ( $\omega$ ); average inter-item correlation. To explore the instrument's internal consistency more deeply, we performed both Exploratory (EFA) and Confirmatory Factor Analysis (CFA). Ultimately, to investigate potential significant differences between the groups of participants (based on the demographic and school/educational variables) involved in the study, we conducted non-parametric tests for independent samples: Kruskal-Wallis (used when the groups are more than two) and Mann-Whitney U. The quantitative analyses were conducted using SPSS 26 and JASP 0.16.2.

## Data analysis and findings

### Reliability analyses

To calculate the reliability of the rubrics, we used the following coefficients: Cronbach's alpha ( $\alpha$ ) (Taber, 2017; Tavakol & Dennick, 2011); McDonald's omega ( $\omega$ ) (McDonald, 1999; Padilla & Divers, 2015; Raykov & Marcoulides, 2014; Zhang & Yuan, 2015) and the average inter-item correlation (De Vaus, 2014; Schutte, Wissing, & Khumalo, 2013).

Because the rubrics were written in English, the participants were asked to indicate their English level as shown in Table 2. Consequently, the instrument's reliability was first calculated underlining the results of the participants' groups labelled as 'Beginner' (1), 'Intermediate' (2), 'Advanced' (3) and 'Native' (4). Table 3 shows low values of reliability in the Areas A and B for the pre-service teachers who indicated a 'Beginner' English level. By contrast, the coefficient values calculated for the participants who

**Table 3.** Reliability Coefficients for English Levels.

Area	Cronbach $\alpha$ English level				McDonald $\omega$ English level				Average inter-item correlation English level			
	1	2	3	4	1	2	3	4	1	2	3	4
A – Exploring (6 items)	.585*	.811	.772	.866	.508*	.811	.783	.866	.197*	.418	.353	.518
B – Engaging (7 items)	.596*	.812	.850	.861	.479*	.796	.837	.860	.192*	.383	.451	.472
C – Acting (19 items)	.954	.937	.960	.961	.954	.939	.961	.961	.533	.438	.557	.569
Critical values				good .900 > $\alpha$	excellent $\alpha$ > .900					.400 to .500 (Spiliotopoulou, 2009)		.300 to .700 (DeVon et al., 2007)

indicated ‘Intermediate’, ‘Advanced,’ or ‘Native’ as their English level were good or excellent, as indicated in the critical values. Therefore, to avoid bias, we decided not to consider the 26 rubrics filled in by pre-service teachers with a low English level. These rubrics originated as follows: 16 from Italy, 7 from Germany, 2 from Portugal and 1 from Israel.

Table 4 shows the overall coefficients calculated to investigate the reliability of the instrument after deleting the rubrics of pre-service teachers with an English level indicated as ‘Beginner’.

The values of both coefficients  $\alpha$  and  $\omega$  indicate a good level of reliability for areas Exploring and Engaging and an excellent level of reliability for the third area: Acting. Table 5 confirms that the reliability is stable for all areas when a single item is dropped.

The average inter-item correlation also shows good levels of reliability. According to Clark and Watson (1995) and Zmnako and Chalabi (2019), the average inter-item correlation should be between .15 and .50. Spiliotopoulou (2009) proposes clarifications and specifications when considering broad versus narrow constructs. When the instrument ‘measures broad characteristics (i.e. general constructs such as extraversion)’ (p. 152) the critical values should be within the range of .15 to .20 and when the instrument is focused on narrow characteristics and specific constructs, the critical values can be considered between .40 and .50. This second case is suitable for the constructs related with GC. Ultimately, DeVon et al. (2007) indicated studies where the average inter-item correlation was considered appropriate with scores between .30 and .70, but the values generated by the GC set of rubrics met the more stringent standards proposed by Spiliotopoulou (2009).

### **Internal consistency: exploratory and confirmatory factor analysis**

To test the internal consistency, we performed both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The aim of these two analyses

**Table 4.** Reliability coefficients.

Area	Cronbach $\alpha$	McDonald $\omega$	Average inter-item correlation
A – Exploring (6 items)	.829	.830	.445
B – Engaging (7 items)	.847	.841	.443
C – Acting (19 items)	.956	.956	.534

**Table 5.** Frequentist individual item reliability statistics.

Item	If item dropped	
	Cronbach's $\alpha$	McDonald's $\omega$
A1a	0.792	0.792
A2a	0.783	0.787
A2b	0.787	0.789
A3a	0.802	0.813
A3b	0.819	0.824
A4a	0.820	0.822
B1a	0.821	0.822
B1b	0.819	0.819
B2a	0.828	0.807
B2b	0.821	0.806
B3a	0.831	0.814
B4a	0.832	0.816
B5a	0.829	0.812
C1a	0.956	0.956
C1b	0.954	0.955
C2a	0.955	0.955
C2b	0.955	0.955
C3a	0.953	0.953
C3b	0.953	0.953
C3c	0.952	0.953
C4a	0.953	0.953
C4b	0.954	0.954
C4c	0.952	0.953
C4d	0.953	0.953
C4e	0.952	0.953
C5a	0.955	0.955
C5b	0.954	0.955
C6a	0.953	0.953
C6b	0.952	0.953
C6c	0.953	0.953
C6d	0.953	0.953
C7a	0.953	0.953

was to investigate the factorial structure of the rubrics to determine whether the areas included into the rubrics can represent the concept of GC effectively. From a methodological point of view, since we had a relatively large sample size of 703 participants, we randomly divided 'the group into half so that both an EFA and a CFA could be undertaken' (Willmer, Westerberg Jacobson, & Lindberg, 2019, p. 6).

### **EFA**

Exploratory factor analysis (EFA) aims to identify 'the common factors that explain the order and structure among measured variables' (Watkins, 2018, p. 220). Firstly, we performed an EFA with promax rotation since the correlations among the factors are more than .15 (Devellis, 2017; Finch, 2006). We used maximum likelihood extraction, because the data were normally distributed, and eigenvalues  $> 1$  to highlight the number of significant factors related to GC. Then, we completed a further EFA with promax rotation again using maximum likelihood extraction but imposing a three-factor solution, because we needed to examine the original structure of the set of rubrics which was composed of three areas.

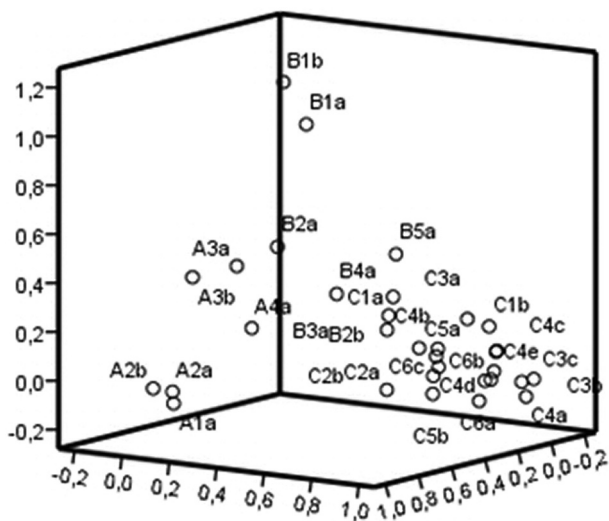
**Table 6.** Factor loadings of EFA without a forced solution.

Indicators/criteria	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
A1a			.772		
A2a			.845		
A2b			.817		
A3a			.407		
A3b			.396		
A4a					
B1a				.837	
B1b				1.012	
B2a					.850
B2b					.755
B3a					.364
B4a					
B5a				.361	
C1a	.327				
C1b	.584				
C2a	.381				.401
C2b	.371				
C3a	.441				
C3b	.791				
C3c	.933				
C4a	.769				
C4b	.556				
C4c	.804				
C4d	.946				
C4e	.832				
C5a		.704			
C5b		.688			
C6a	.429	.478			
C6b		.599			
C6c		.650			
C6d		.842			
C7a	.483	.352			

Regarding the EFA without a forced solution, the result of the Kaiser-Meyer-Olkin test was .939, proving that the sample was adequate. In addition, Bartlett's Test of Sphericity showed a  $p$ -value of  $< .000$  (Chi-square 4314.227;  $df = 496$ ). The goodness of fit test for this model was 641.581 ( $df = 319$ ;  $p < .000$ ).

The analysis revealed five factors that explained 64.378% of the total variance. In particular, each factor explained the following percentages of total variance: F1 42.94%; F2 8.74%; F3 5.13%; F4 4.05%; F5 3.52%. Table 6 shows the factor loadings for each indicator/criterion. As shown in Table 6, Area C of the rubrics is separated into two factors. Factor 1 includes the first four indicators/criteria (from C1a to C4e) of Area C – Acting. In addition, Factor 2 is composed of the remaining indicators/criteria from the same area, being C5a to C7a. The indicators/criteria of Area A – Emerging are included into the Factor 3 (except A4a). Factors 4 and 5 include the indicators of Area B – Engaging. Figure 1 effectively represents the relationships among the factors in three dimensions.

For the EFA with a forced three-factor solution, the result of the Kaiser-Meyer-Olkin test was .918, proving that the sample was adequate. In addition, Bartlett's Test of Sphericity showed a  $p$ -value of  $< .001$  (Chi-square 4369.524;  $df = 496$ ). The goodness of fit test for this model was 1058.163 ( $df = 403$ ;  $p < .000$ ). The extracted three factors explained 56.81% of the variance, specifically Factor 1 explained 42.99% of the variance, Factor 2 explained 8.74%, and Factor 3 explained 5.13%. In this case (see Table 7), Factor 1 includes all indicators/criteria of Area C plus two indicators/criteria from Area B (B2b



**Figure 1.** Factorial components' plot in the rotated space.

**Table 7.** Factor loadings of EFA with forced 3-factor solution.

Indicators/criteria	Factor 1	Factor 2	Factor 3
A1a			.791
A2a			.786
A2b			.827
A3a			.395
A3b			.438
A4a			.393
B1a		.888	
B1b		1.044	
B2a		.443	
B2b	.450		
B3a	.450		
B4a			
B5a		.404	
C1a	.415		
C1b	.708		
C2a	.540		
C2b	.626		
C3a	.677		
C3b	.881		
C3c	.880		
C4a	.900		
C4b	.637		
C4c	.800		
C4d	.796		
C4e	.804		
C5a	.556		
C5b	.646		
C6a	.793		
C6b	.820		
C6c	.675		
C6d	.651		
C7a	.809		

and B3a). The remaining indicators/criteria of Area B are included into Factor 2 and, lastly, Factor 3 is composed of all indicators/criteria of Area A.

### CFA

Jackson, Gillaspay, and Purc-Stephenson (2009) affirmed that ‘confirmatory factor analysis (CFA) is a powerful statistical tool for examining the nature of and relations among latent constructs’ (p. 6). They also note that ‘CFA is often the analytic tool of choice for developing and refining measurement instruments and assessing construct validity [...] and plays an essential role in measurement model validation in path or structural analyses’ (p. 6).

On one hand, the structure of the rubrics is based on three areas, suggesting a model with three factors. On the other hand, the EFA without a forced number of factors offered a five-factor solution with some peculiarities mainly for Area B and in part for Area A. For these reasons, we ran three CFAs following three models. The first one was based on the three original areas provided by the set of rubrics: Factor 1 with all indicators/criteria of Area C; Factor 2 with all indicators/criteria of Area A; Factor 3 with all indicators/criteria Area B. The second model was based on five factors as indicated by the EFA without forced solution (as shown in Table 6) whilst the last model was based on the disposition of the indicators/criteria within the three factors highlighted by the EFA with three-factor forced solution (as shown in Table 7). For all models, we used standardised coefficients and maximum likelihood as estimation models. Lastly, we excluded the observations with missing values.

To investigate the models’ goodness of fit, we calculated a series of statistics: overall chi-square (Hooper, Coughlan, & Mullen, 2008); root mean square error of approximation (RMSEA) (Hooper, Coughlan, & Mullen, 2008; Steiger, 1990), comparative fit index (CFI) (Bentler, 1990), Tucker-Lewis index (TLI) (Bentler, 1990; Tucker & Lewis, 1973), and the standardised root mean square residual (SRMR) (Bentler, 1995; Hooper, Coughlan, & Mullen, 2008). Tables 8 and 9 show, respectively, the summary of the CFA results for the three models and the CFA results and decision matrix. As indicated in Table 9, the model with five factors arising from the non-forced EFA can be accepted. Also, the factor loadings’ analysis confirms this result since all loadings for those areas are acceptable, ranging from .573 to .720.

### Differences among groups

As mentioned before, we considered the four levels to assess the indicators/criteria as ordinal scales, so we performed non-parametric tests to find potential significant differences between the groups of pre-service teachers involved in the study. In particular, we used the U Mann-Whitney test for dichotomous variables and the Kruskal-Wallis test for polytomous variables. Specifically, in the Kruskal-Wallis test, we performed the pairwise

**Table 8.** Results summary of CFA models.

Model	Chi-square	RMSEA	CFI	TLI	SRMR
3 factors original areas	1306.934 ( <i>df</i> 461; $p < .001$ )	.099	.786	.770	.077
5 factors non-forced EFA	814.624 ( <i>df</i> 314; $p < .001$ )	.092	.858	.841	.065
3-factors forced EFA	934.833 ( <i>df</i> 296; $p < .001$ )	.107	.810	.791	.079

**Table 9.** CFA results and decision matrix.

Model	Chi-square	RMSEA	CFI	TLI	SRMR	
Critical values	$p < .01$	*	**	**	***	Model fit decision
3 factors original areas	good	marginal	marginal	marginal	acceptable	marginal fit
5 factors non-forced EFA	good	marginal	acceptable	acceptable	acceptable	acceptable fit
3-factors forced EFA	good	poor	acceptable	marginal	acceptable	marginal fit

\*value  $<.050$  good model fit;  $.051 < \text{value} < .080$  acceptable model fit;  $.081 < \text{value} < .100$  marginal model fit; value  $> .100$  poor model fit (Browne & Cudeck, 1992; Davidson, Tripp, Fabrigar, & Davidson, 2008).

\*\*value  $>.950$  good model fit;  $.949 < \text{value} < .800$  acceptable model fit;  $.799 < \text{value} < .600$  marginal model fit (Hu & Bentler, 1999; Xia & Yang, 2018).

\*\*\*value  $<.05$  good model fit;  $.06 < \text{value} < .10$  acceptable model fit; value  $> .11$  marginal model fit (Cangur & Ercan, 2015; Iacobucci, 2010; Kline, 2015).

comparisons to assess the differences. We considered the following variables: gender; birth year categories; country where the pre-service teacher attended the teacher education programme; future intention of grade/school levels. We considered gender as a dichotomous variable since the number of pre-service teachers who chose the options 'other' (5) and 'I don't wish to say' (3) were too small for an effective calculation. Table 10 shows the results of the analyses, indicating the significant differences among groups. We indicated the area and the indicator/criterion; the variable and the test used for that variable. Ultimately, we indicated the direction of the result, underlining the groups who achieved higher scores in that indicator/criterion.

## Discussion

As mentioned previously, the purpose of this study was to examine an instrument designed to assess pre-service teachers' development of GC, test its internal consistency and reliability validated within the international context, and make it robust and consistent from a methodological point of view. Before going into the technical and methodological details of the discussion, it is important to underline that, within teacher education programmes, teacher educators use many instruments to assess the professional growth of pre-service teachers. For instruments not validated at an international level, through extensive and deep data collection, accuracy and reliability may not be ensured. Consequently, some of these instruments risk not reflecting the content dimensions of the objectives of the instruments themselves (Benson & Clark, 1982). The crucial point of the discussion, broadly clarified in the following paragraphs, is that this set of rubrics represents a validated instrument that measures what is intended to measure. In this case, teacher educators can use this set of rubrics with the awareness of sustaining the professional development of pre-service teachers in the issues related to GC in educational contexts.

## Methodological issues

The results of the analysis indicate some important reflections and considerations both from a methodological and an educational point of view. In this section, we begin with the technical issues related to the structure of the rubrics.

The reliability of the rubrics, measured with Cronbach's alpha ( $\alpha$ ), McDonald's omega ( $\omega$ ) and the average inter-item correlation, shows high scores in particular for Area C –



**Table 10.** Differences between groups.

Area	Indicator/ criterion	Variable	Test				
			U Mann-Whitney	Kruskal-Wallis	Direction		
A	A1a	Country	-	103.107 $p < .049$	Germany > Slovakia		
				105.758 $p < .002$	Australia > Slovakia		
				140.194 $p < .000$	Italy > Slovakia		
	A2a				178.555 $p < .000$	Israel > Slovakia	
					101.623 $p < .017$	Canada > Slovakia	
					139.215 $p < .007$	Israel > Slovakia	
					132.718 $p < .000$	Australia > Slovakia	
					86.942 $p < .019$	Australia > Italy	
					152.084 $p < .006$	USA > Slovakia	
	A2b				98.665 $p < .026$	Canada > Slovakia	
					104.950 $p < .002$	Australia > Slovakia	
					156.463 $p < .001$	Israel > Slovakia	
A3a				158.602 $p < .003$	USA > Slovakia		
				179.666 $p < .044$	Portugal > Slovakia		
B	B1a	Gender	29,772.000 $p < .028$	-	Male > Female		
	B1a	Country				Italy > Australia	
						86.218 $p < .045$	
						84.706 $p < .007$	80s > 90s
	B3a	Grade/ school level				80s > 2000s	
						64.985 $p < .047$	Special education > Lower/upper secondary
	B4a		Country			Norway > Slovakia	
						128.656 $p < .015$	
						153.685 $p < .000$	Australia > Slovakia
						152.275 $p < .000$	Italy > Slovakia
						177.168 $p < .000$	Canada > Slovakia
179.912 $p < .000$						Germany > Slovakia	
199.292 $p < .000$						Israel > Slovakia	
200.954 $p < .000$						USA > Slovakia	
131.510 $p < .016$						Germany > Norway	
124.662 $p < .002$						Australia > Norway	
132.120 $p < .013$						Italy > Norway	
143.443 $p < .000$						Canada > Norway	
175.496 $p < .004$	USA > Norway						
180.730 $p < .001$	Israel > Norway						
B4a	Grade/school level				Vocational education > lower/upper secondary		
					182.240 $p < .016$	Vocational education > kindergarten/ primary	
C	C1b	Country			Norway > Slovakia		
					133.035 $p < .016$		
					137.246 $p < .000$	Australia > Slovakia	
					189.906 $p < .000$	Canada > Slovakia	
					218.256 $p < .000$	Germany > Slovakia	
					229.640 $p < .000$	USA > Slovakia	
					174.100 $p < .016$	Germany > France	
					185.484 $p < .034$	USA > France	
					99.962 $p < .014$	Canada > Italy	
					128.312 $p < .004$	Germany > Italy	
					139.696 $p < .035$	USA > Italy	
					116.482 $p < .002$	Canada > Slovakia	
C2a	Gender		35,893.000 $p < .023$	-	Female > Male		
C2b							
C3b					Grade/school level		

(Continued)

**Table 10.** (Continued).

Area	Indicator/ criterion	Variable	Test			
			U Mann-Whitney	Kruskal-Wallis	Direction	
		Country	-	125.638 $p < .002$ 163.366 $p < .003$ 166.024 $p < .000$ 233.513 $p < .000$ 109.819 $p < .004$ 147.546 $p < .009$ 150.205 $p < .000$ 217.693 $p < .000$ 90.912 $p < .046$ 158.401 $p < .006$ 148.770 $p < .017$ 138.953 $p < .000$ 139.039 $p < .000$ 170.629 $p < .000$ 208.756 $p < .000$ 211.589 $p < .000$ 104.349 $p < .007$ 142.476 $p < .010$ 145.309 $p < .018$ 104.410 $p < .007$ 125.715 $p < .001$ 135.173 $p < .010$ 145.082 $p < .001$ 150.289 $p < .007$ 182.217 $p < .001$ 89.258 $p < .026$ 110.563 $p < .003$ 120.021 $p < .031$ 129.930 $p < .003$ 135.137 $p < .020$ 167.065 $p < .002$ 126.132 $p < .001$ 108.073 $p < .025$ 100.122 $p < .026$ 158.041 $p < .008$ 109.340 $p < .003$ 111.761 $p < .044$ 156.656 $p < .000$ 195.373 $p < .000$ 122.629 $p < .005$ 161.346 $p < .012$ 98.504 $p < .018$ 137.221 $p < .045$	125.638 $p < .002$ 163.366 $p < .003$ 166.024 $p < .000$ 233.513 $p < .000$ 109.819 $p < .004$ 147.546 $p < .009$ 150.205 $p < .000$ 217.693 $p < .000$ 90.912 $p < .046$ 158.401 $p < .006$ 148.770 $p < .017$ 138.953 $p < .000$ 139.039 $p < .000$ 170.629 $p < .000$ 208.756 $p < .000$ 211.589 $p < .000$ 104.349 $p < .007$ 142.476 $p < .010$ 145.309 $p < .018$ 104.410 $p < .007$ 125.715 $p < .001$ 135.173 $p < .010$ 145.082 $p < .001$ 150.289 $p < .007$ 182.217 $p < .001$ 89.258 $p < .026$ 110.563 $p < .003$ 120.021 $p < .031$ 129.930 $p < .003$ 135.137 $p < .020$ 167.065 $p < .002$ 126.132 $p < .001$ 108.073 $p < .025$ 100.122 $p < .026$ 158.041 $p < .008$ 109.340 $p < .003$ 111.761 $p < .044$ 156.656 $p < .000$ 195.373 $p < .000$ 122.629 $p < .005$ 161.346 $p < .012$ 98.504 $p < .018$ 137.221 $p < .045$	Australia > Norway Israel > Norway Canada > Norway USA > Norway Australia > Slovakia Israel > Slovakia Canada > Slovakia USA > Slovakia Canada > Italy USA > Italy USA > Germany Germany > Slovakia Australia > Slovakia Canada > Slovakia Israel > Slovakia USA > Slovakia Canada > Italy Israel > Italy USA > Italy Australia > Slovakia Canada > Slovakia Norway > Slovakia Germany > Slovakia Israel > Slovakia USA > Slovakia Australia > Italy Canada > Italy Norway > Italy Germany > Italy Israel > Italy USA > Italy Canada > Slovakia Canada > Norway Canada > Slovakia USA > Slovakia Australia > Slovakia Germany > Slovakia Canada > Slovakia USA > Slovakia Canada > Norway USA > Norway Canada > Italy USA > Italy Female > Male
	C3c					
	C4a					
	C4b					
	C4c					
	C4d					
	C4e	Gender	34,940.000 $p < .043$	-		
		Country	-	153.638 $p < .000$ 166.302 $p < .000$ 210.170 $p < .000$ 212.072 $p < .000$ 215.579 $p < .000$ 244.666 $p < .000$ 115.995 $p < .003$ 150.491 $p < .015$ 103.873 $p < .007$ 138.370 $p < .032$	Germany > Norway Australia > Norway Canada > Norway Israel > Norway Portugal > Norway USA > Norway Canada > Slovakia USA > Slovakia Canada > Italy USA > Italy	

(Continued)

Table 10. (Continued).

Area	Indicator/ criterion	Variable	Test		Direction
			U Mann-Whitney	Kruskal-Wallis	
	C5a		103.209 $p < .000$	126.867 $p < .000$	Australia > Norway
			169.817 $p < .000$	209.522 $p < .000$	Canada > Norway
			123.706 $p < .004$	163.411 $p < .000$	Israel > Norway
			136.920 $p < .003$	106.314 $p < .028$	USA > Norway
			106.314 $p < .028$	74.221 $p < .028$	Israel > Slovakia
	C5b		101.122 $p < .035$	160.713 $p < .000$	USA > Slovakia
			159.883 $p < .026$	122.28 $p < .011$	USA > France
			144.752 $p < .000$	186.540 $p < .000$	USA > Italy
	C6a		225.939 $p < .000$	112.675 $p < .004$	Canada > Norway
			154.463 $p < .003$	193.862 $p < .000$	Israel > Norway
			130.595 $p < .013$	130.595 $p < .013$	USA > Norway
			95.505 $p < .022$	103.879 $p < .017$	Canada > Slovakia
	C6b		188.648 $p < .000$	208.856 $p < .000$	Israel > Slovakia
			189.323 $p < .031$	165.530 $p < .003$	USA > Slovakia
			185.738 $p < .001$	141.535 $p < .012$	USA > Australia
			161.742 $p < .004$	131.351 $p < .026$	Australia > Slovakia
			151.558 $p < .009$	190.470 $p < .000$	Canada > Slovakia
	C6c		190.470 $p < .000$	195.971 $p < .000$	Israel > Slovakia
			215.914 $p < .000$	215.914 $p < .000$	USA > France
			225.184 $p < .000$	251.032 $p < .001$	Israel > Norway
			251.032 $p < .001$	290.205 $p < .000$	USA > Germany
			300.326 $p < .000$	183.525 $p < .031$	Israel > Italy
			183.525 $p < .031$	193.647 $p < .010$	USA > Italy
			193.647 $p < .010$	101.752 $p < .015$	Italy > Norway
			101.752 $p < .015$	166.772 $p < .002$	Australia > Norway
			166.772 $p < .002$	176.894 $p < .000$	Germany > Norway
			176.894 $p < .000$	105.615 $p < .001$	Canada > Norway
	C6d		105.615 $p < .001$	146.013 $p < .000$	Portugal > Norway
			146.013 $p < .000$	182.827 $p < .000$	USA > Norway
			182.827 $p < .000$	207.973 $p < .000$	Israel > Norway
			207.973 $p < .000$	98.592 $p < .026$	USA > France
			98.592 $p < .026$	135.406 $p < .028$	Israel > France
			135.406 $p < .028$	160.552 $p < .005$	Canada > Slovakia
			160.552 $p < .005$	100.240 $p < .007$	Israel > Slovakia
	C7a		100.240 $p < .007$	172.134 $p < .000$	USA > Slovakia
			172.134 $p < .000$	177.546 $p < .000$	Australia > Slovakia
			177.546 $p < .000$	184.321 $p < .000$	Canada > Slovakia
			184.321 $p < .000$	153.116 $p < .000$	Israel > Slovakia
			153.116 $p < .000$	158.529 $p < .001$	USA > Slovakia
			158.529 $p < .001$	165.303 $p < .001$	Canada > Italy
			165.303 $p < .001$	71.894 $p < .013$	Israel > Italy
			71.894 $p < .013$		USA > Italy
					Canada > Australia

Acting, which represents the professional area to be developed specifically by the pre-service teachers. It is important to underline that the rubrics, because they are written in English, must be used only with pre-service teachers who have, at least, an intermediate level of proficiency in English, otherwise the scores' reliability decreases in a significant way.

The internal consistency was calculated with both an EFA and a CFA. In particular, the EFA was performed in two main ways: without and with a forced solution. The first solution was aimed at investigating the potential latent factors included into the rubrics and not considered by the authors. The EFA without a forced solution revealed five factors, as shown in Table 6. Factor 1 explains the highest level of variance (42.94%) and is composed of most indicators/criteria of Area C (from C1a to C4e) except indicators/criteria from C5a to C7 which are included into Factor 2 (8.74% of total variance). The first group of indicators/criteria can be named 'professional matters' since they refer to the ability of pre-service teachers to self-reflect, interact with colleagues and other school actors (parents, pupils, etc.), manage complex environments and design learning contexts founded on intercultural teaching. In contrast, the second group of indicators/criteria is composed of very specific items, such as international experiences, teaching and assessment strategies. This factor can be called 'in the classroom' since the criteria concern the actions to be carried out in the classroom. In total, the first two factors explain more than 50% of the total variance, confirming the high reliability of Area C. Area A is completely included into Factor 3 (5.13%), whereas Area B is split into two factors (F4, 4.05% and F5, 3.52%). Factor 4 contains indicators B1a, B1b and B5. These indicators represent the importance of actions to support sustainability, and for this reason, it can be named 'actions for sustainability'. Factor 5 is composed of indicators from B2a to B4a. In this case, Factor 5 can be called 'multiple perspectives and inclusion' since the indicators refer to the capacity of pre-service teachers to consider multiple perspectives and include all pupils in their classrooms. Area B appears the most critical sector of the rubrics. The EFA with forced solution confirms the high reliability of Areas C and A whilst Area B is again split into two factors, overlapping with Area C (B2b and B3a).

The CFA was performed with three models since the indicators/criteria were distributed following: the original areas of the rubrics; the EFA without forced solution; the EFA with forced solution. As shown in Tables 8 and 9, only the second model shows an acceptable fit.

The combination of the results of reliability and internal consistency analysis implies some important considerations. The rubrics show a high reliability and a good internal consistency. We can state that pre-service teachers' development of GC can be assessed through use of the rubrics by teacher educators and/or the pre-service teachers themselves, but attention should be given to some aspects. First of all, it is necessary to consider the results of Area C, focusing and underlining the scores of the indicators/criteria from C1 to C4, on the one hand, and C5 to C7, on the other. These two factors can be considered as two subscales of the Area C. Area A is quite consistent so it can be confirmed as it is. Area B should split into two subscales composed, respectively, by the indicators B1a, B1b and B5 (actions for sustainability) and B2, B3 and B4 (multiple perspectives and inclusion).

The final consideration is that Area C is specific to pre-service teachers but Areas A and B can be used for all higher education students. When used with post-secondary

students not intending to be teachers, the indicator/criterion B3 requires slight modification, by deleting reference to the classroom.

The comparisons among groups show small differences for the variables: ‘gender’, ‘birth year categories’ and ‘future intention of grade/school levels.’ In contrast, the variable ‘country where the pre-service teacher is attending the teacher education programme’ reveals a high number of significant differences in all areas. This specific analysis does not invalidate and affect the reliability and the internal consistency of the rubrics. In future studies, it will be interesting to investigate the reasons why pre-service teachers in some countries, such as Italy, Norway, France, Germany or Slovakia, had lower scores in certain indicators/criteria.

### **Educational issues**

The rubrics are intended as a means of measuring ‘progressive self-assessment’ of ‘professional growth’ (Islam & Stamp, 2020; Parmigiani et al., 2022). Understanding this intended use of the rubrics suggests several pragmatic considerations. First, given that research (Killick, 2020) shows that education for GC occurs best across courses in a progressive and integrated fashion, the rubrics are best used at selected time points throughout the teacher education programme in an ongoing manner. Given the poor reliability of the rubrics when used with students with beginner language skills in English, the rubrics should not be used in their current forms with these students. A possible solution to this issue would be translation of the rubrics into other languages. Second, given that experiential learning is a key factor in the development of GC, the rubric could be used prior to, during, and after a focussed GC activity (e.g. service learning, signature projects, and international projects). Importantly, upon return from these intensive experiential learning activities, growth through additional reflection over time by the pre-service teacher with the crucial support of the teacher educator is also likely, so the rubrics could be used once again after a suitable developmental period (Gisolo & Stanlick, 2021). By using the rubrics in this repeated manner, not only are they useful in providing evidence of GC growth in students, but they are also useful in determining which experiences (e.g. international practicum) or courses foster the greatest GC growth in students collectively. Finally, although primarily intended for pre-service teacher self-assessment, the rubrics may also be used by teacher educators to help guide student focus and development toward GC (Parmigiani et al., 2022). Given that there is sparse evidence about the specific, *course-based* active pedagogies that best promote GC in teacher candidates, these rubrics provide a new and reliable way to track teacher candidate progress, informing the need to modify and enhance teacher candidate experiences and preparation as indicated by the rubrics, with the goal of maximising courses’ impact on GC development.

### **Conclusion**

Based on our findings, we can state that this study, conducted in 10 different countries, revealed that the set of rubrics has a high level of internal consistency and reliability, so it can be used within teacher education programmes as a self-assessment instrument to monitor the development of GC of pre-service teachers.

As stated in the discussion paragraph, Area A revealed high consistency whilst Areas B and C showed some overlaps. As a result, we recommend that Area B and C scales can be administered as presented, but the results should split into two subscales for each area in order to focus better on specific facets of GC development. For these reasons, we suggest that all teacher educators who use this set of rubrics pay attention to these aspects so that they can observe and supervise effectively the development of GC among their pre-service teachers. In particular, we recommend using the rubrics in specific contexts such as a pre- and post-test before and after an international placement/internship. In addition, the rubrics can be administered, as a formative assessment method, during an academic course or a workshop focused on intercultural/international issues. The rubrics can also represent a self-reflection exercise after simulations based on real-life/real-world situations.

In addition to the affordances of the current study, we would like to highlight some limitations. First, the set of rubrics was administered only in institutions located in Western countries. Although the sample size of participants is high, it will be necessary, in the future, to administer the rubrics in other areas of the world. The second limitation is represented by the unique version of the rubrics in English. In the future, it will be important to consider the opportunity to translate the rubrics into several languages to allow a larger number of teacher educators and pre-service teachers to use the rubrics in an easily accessible way.

Ultimately, linked to the last limitation, an upcoming study should focus on the differences connected to the variable ‘country where the pre-service teacher is attending the teacher education programme.’ It would be interesting to investigate levels of global competence and reasons for the differences across countries so that we can support the professional growth of pre-service teachers and enhance their GC awareness and development on an international scale.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Funding

This work was funded by the EU Erasmus+ KA2 project “Global Competence in Teacher Education” European Commission 2019-1-UK01-KA203-061503

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## Appendix A

### Area A. Global competence – Exploring

Dimensions	Indicators/Criteria	not applicable	Levels			
			emerging	developing	achieving	extending
A1	openness					
	I'm open to knowing and learning from people from diverse backgrounds					
A2	intent to experience/interact					
	A2a I'm willing to experience diverse contexts					
	A2b I'm willing to seize opportunities to interact with people from diverse contexts					
A3	global responsibility					
	A3a I feel responsibility to address ethical, social, economic and environmental challenges					
	A3b I view the world as interconnected					
A4	ethical orientation					
	I support rights, equity and social justice in different sectors such as gender, racial, religion, disability, etc.					

#### Free additional comments

This box may be used to write additional qualitative comments.

#### Caption

The levels are structured as follows:

not applicable – I'm not involved in this criterion.

emerging – I show a low willingness to explore the criterion.

developing – I show a willingness to explore the criterion but I tend to give up and not to deal with it thoroughly.

achieving – I thoroughly explore the criterion.

extending – I thoroughly explore, extend, and practice the criterion independently.



*Area B. Global competence – Engaging*

Dimensions	Indicators/Criteria	not applicable	Levels			
			emerging	developing	achieving	extending
B1 global self-awareness	B1a	I'm aware of the global impact of my actions on the natural and human world				
	B1b	I'm aware of the global impact of others' actions on the natural and human world				
B2 world views, perspectives and cultural diversity	B2a	I'm aware of multiple worldviews while interacting with people from all over the world				
	B2b	I demonstrate awareness of diverse and multiple perspectives when teaching/practising in classrooms with students from diverse backgrounds				
B3 inclusion and diversity		I seek inclusion and integration of all students in my classroom				
B4 global challenges and conditions		I explore resources from varied perspectives and opportunities to stay informed on local and global issues				
B5 sustainability		I try to contribute to the development of a more just, peaceful, and sustainable world				

**Free additional comments**

This box may be used to write additional qualitative comments.

**Caption**

The levels are structured as follows:

not applicable – I'm not involved in this criterion.

emerging – I show a low willingness to be engaged in the criterion.

developing – I show a willingness to be engaged in the criterion but I tend to give up and not to deal with it thoroughly.

achieving – I'm thoroughly engaged in the criterion.

extending – I'm thoroughly engaged in the criterion, they extend and practice it independently.



*Area C. Global competence – Acting*

Dimensions	Indicators/Criteria	Levels			
		not applicable	emerging	developing	achieving extending
C1 self-reflection	C1a I'm able to reflect deeply on the ways that I think about myself				
	C1b I'm able to reflect deeply on the ways that I think about the curriculum design and the teaching strategies				
C2 professional interaction/cooperation and multilingualism	C2a I'm able to interact and cooperate with colleagues, students, parents, etc. from diverse backgrounds				
	C2b I'm able to interact and cooperate with colleagues, students, parents, etc. from diverse linguistic backgrounds				
C3 managing complex learning environments	C3a I'm able to observe the features of several learning environments and critically analyse diverse school contexts and systems				
	C3b I'm able to create effective learning environments and manage classes with students from diverse backgrounds				
C4 intercultural teaching	C3c I'm able to adapt my teaching strategies to several educational situations				
	C4a I'm able to design instruction that matches my students' developmental needs				
	C4b I'm able to critically examine the curriculum to determine whether it reinforces negative cultural stereotypes				
	C4c I'm able to create learning environments where everybody can develop plural multifaceted learning, considering different points of view				
C5 international practice	C4d I'm able to design a learning environment that embraces cultural diversity				
	C4e I'm able to use experiences and perspectives of diverse students as conduits for teaching more effectively				
C5 international practice	C5a I'm able to practice in international school contexts				
	C5b I'm able to transfer into the school system of origin that I observed during the internship/ placement abroad				

*(Continued)*

(Continued).

*Area C. Global competence – Acting*

Dimensions	Indicators/Criteria	Levels				
		not applicable	emerging	developing	achieving	extending
C6 active teaching strategies	C6a I'm able to adopt interactive and cooperative strategies with students from diverse backgrounds					
	C6b I'm able to carry out inquiry-based models of teaching to enable students from diverse backgrounds to actively work on ideas in order to construct knowledge, solve problems, and develop their own understanding of the content					
	C6c I'm able to support students from diverse backgrounds in working together on community-based authentic projects and real-world experiences					
	C6d I'm able to develop global learning through discussions about news events occurring around the globe and to connect them to classroom subjects					
C7 interactive assessment strategies	I'm able to design and implement formative assessment methods to inform instruction with students from diverse backgrounds (self & peer assessment, portfolios, etc.)					

**Free additional comments**

This box may be used to write additional qualitative comments.

**Caption**

The levels are structured as follows:

not applicable – I'm not involved in this criterion.

emerging – I show a low willingness to act in relation to the criterion.

developing – I show a willingness to act in relation to the criterion but I tend to give up and not to deal with it thoroughly.

achieving – I thoroughly act in relation to the criterion.

extending – I thoroughly act in relation to the criterion, I extend and practice it independently.