

# THE CLASSROOM COMMUNITY SCALE IN A FACE-TO-FACE UNIVERSITY CONTEXT: FACTORIAL STRUCTURE AND CONVERGENT/DIVERGENT VALIDITY

VITTORE PERRUCCI  
STEFANO CACCIAMANI  
UNIVERSITY OF VALLE D'AOSTA

AHMAD KHANLARI  
UNIVERSITY OF TORONTO

GIULIA BALBONI  
UNIVERSITY OF PERUGIA

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The Sense of Community (SC) in the university context relates to academic achievement, social participation, and well-being. One of the most common tools to measure student SC in the university context is the Classroom Community Scale (CCS), consisting of two subscales: Connectedness and Learning. This 2-factor structure has not been confirmed in face-to-face courses yet. The present investigation was aimed to verify its factorial structure and convergent/divergent validity in face-to-face university courses. The original 2-factor structure was partially confirmed via the explorative structural equation model with the data collected from 420 university students. The two resulting factors had internal consistency. Moreover, they showed good convergent/divergent validity in relation to a different scale of SC and a scale of perceived social support — a construct similar to, but distinct from, SC — investigated in a group of 175 students. The CCS is an efficient tool for designing, monitoring, and evaluating face-to-face university courses.

Keywords: University; Sense of Community; Factorial structure; Convergent/divergent validity; ESEM.

*Correspondence concerning this article should be addressed to Giulia Balboni, University of Perugia, Department of Philosophy, Social Sciences and Education, Piazza G. Ermini 1, 06123 Perugia (PG), Italy. Email: giulia.balboni@unipg.it*

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Creating a community whose members experience a sense of belonging, feel proud to belong, and freely express their social, spiritual, and learning needs is one of the requirements for creating an effective learning environment (Krafona, 2014). The psychological construct of Sense of Community (SC), introduced by Sarason (1974), indicates the perception of similarity and strong interdependence developed among the members of a group, a willingness to do for others what is expected, and a feeling of being a member of a reliable and stable structure (Davidson & Cotter, 1991; Sarason, 1986).

In face-to-face (F2F) courses, SC predicts students' academic success and is, in turn, influenced by different factors with a varying degree of intensity, such as the interaction with campus resources, teachers, and other students (Wiseman et al., 2004). SC is associated with social participation and well-being. Indeed, Cicognani and colleagues (2008) found that SC mediates the effect of social participation on well-being for Italian and American university students, but not for their Iranian peers. Among early adolescent students, SC is related to social support from family and friends (Vieno et al., 2007).

In online learning, SC increases student participation and deep learning (Sadera et al., 2009). It also increases student self-efficacy and, as a result, influences knowledge-sharing behaviors of students in e-learning courses (Yilmaz, 2016). Furthermore, SC enhances students' ability to manage stress and promotes emotional well-being, resulting in decreasing drop-out risk (Lin & Gao, 2020; Trespalacios & Perkins, 2016).

Considering the importance of SC in higher education online learning, attention has been devoted to the measurement of SC in virtual environments and the development of strategies for its improvement (e.g., Abfalter et al., 2012; Blanchard, 2007). More recently, to assess SC in higher education online courses, the scale of Sense of Community in university online courses was developed (Balboni et al., 2018; Perrucci et al., 2008). Using this scale, researchers can measure SC in online communities and examine how different factors may influence it. For example, a recent study employed this scale and showed that a student with the role of social tutor, who facilitates online interaction, may promote the development of SC in an online course (Cacciamani et al., 2019).

One of the most common tools to measure SC in university courses is the Classroom Community Scale (CCS; Rovai, 2002) which has been developed to be used in both F2F and online courses (e.g., Trespalacios & Perkins, 2016; Yilmaz, 2016). The CCS is a self-report questionnaire based on the SC model developed by Rovai (2002) and Rovai et al. (2004) and includes two underlying dimensions: social community and learning community. Social community represents students' feelings about the community, including their spirit, cohesion, trust, interactivity, interdependence, and sense of belonging. Learning community includes the feelings of the community members regarding the degree to which they share group norms and values, and the degree to which belonging to the group meets their educational goals and expectations about their educational needs (Rovai et al., 2005). The CCS consists of 20 items organized in two subscales: Connectedness and Learning (10 items each) that correspond to the two SC model dimensions.

The CCS has been considered a useful tool in education, both from the theoretical and application point of view, and has been adopted in studies examining the sense of classroom community among university students (Dawson, 2006; Overbaugh & Lin, 2006; Rovai & Wighting, 2005; Shea et al., 2006; Vora & Kinney, 2014) and high school students (i.e., Rovai et al., 2004). The CCS has been used not only in North America but also in other countries, such as Iran (i.e., Ahmady et al., 2018).

The 2-factor structure of the CCS was confirmed in online university courses (Ahmady et al., 2018; Rovai, 2002) but not in blended university courses (i.e., a confirmative factor analysis model did not show acceptable goodness-of-fit indexes; Barnard-Brak & Shiu, 2010). Moreover, to the best of our knowledge, no studies have investigated the 2-factor structure of the CCS in F2F university courses or have conducted convergent and divergent validity for this factorial structure. To fill these gaps, we adapted the CCS to the Italian F2F university course context and investigated first its factorial structure. Then, the convergent/divergent validity of the CCS was verified in relation to scales measuring SC or another construct that is similar to, but distinct from, SC (i.e., perceived social support).

## METHOD

### Participants

Initially, 609 students enrolled in 24 courses at four different public Italian universities (Milano-Bicocca, Perugia, Torino, and Valle d'Aosta) joined the study. However, 14 students were excluded from the analyses because they omitted to answer more than one item in at least one of the questionnaires they

filled out. Therefore, 595 students participated. A subgroup of 420 students — 84% female, 18-52 years old ( $M = 22.98$ ,  $SD = 4.64$ ) —, enrolled in 14 courses, participated in the first part of the study that aimed to investigate the factorial structure and internal consistency. The remaining 175 students — 89% female, 18-58 years old ( $M = 22.01$ ,  $SD = 6.22$ ) —, attending 10 courses at the University of Valle d'Aosta, participated in the second part of the study that aimed to conduct convergent/divergent validity analyses.

The participants were informed that their participation in the study was totally voluntary, no incentive would be provided for their participation, and their responses would be kept confidential. All participants voluntarily signed and returned the informed consent forms, allowing us to use their data for research. Participant data was anonymized, and a number was assigned to each participant. Moreover, we took further steps to protect participants, ensuring that they were not disadvantaged by their participation.

### Setting

The majority of the 24 courses were in Psychology (12; 438 students = 72%), while the other courses were in Education (6; 67 students = 11%), Social sciences (3; 55 students = 9%) and Languages (3; 49 students = 8%). All the courses included between 24 and 60 hours of F2F lessons.

### Instruments

*Classroom Community Scale (CCS)*. The 20 items of the CCS are rated on a 5-point Likert scale (ranging from *strongly agree* to *strongly disagree*), in which the highest scores indicate stronger SC. The total score of the two Connectedness and Learning subscales ranged from 0 to 40. The overall scale has a Cronbach's  $\alpha$  equal to .93, while the Connectedness and Learning subscales have an  $\alpha$  of .92 and .87, respectively (Rovai, 2002).

Two researchers followed the International Test Commission Guidelines for Translating and Adapting Tests (International Test Commission, 2017) and independently translated each CCS item (Rovai, 2002) from English to Italian. The two Italian versions were then compared. The same two researchers discussed any discrepancies, and, for four items, three independent researchers were questioned to obtain a shared translation of the item stems<sup>1</sup>.

*Italian Scale of Sense of Community (ISSC)*. The ISSC (Prezza et al., 1999) measures four dimensions of SC in territorial communities: sense of belonging and emotional connection, needs and influences, social climate, and pleasantness of the environment. A 21-item version of the scale was used, rated on a 4-point Likert scale. The ISSC was adapted to the context of F2F university courses. For example, the original item "In this town, it's difficult to have good social relations" was adapted to "It is difficult to have good relationships in this course." Given the ordinal nature of the items, the internal consistency for the present study was investigated by computing the ordinal version of coefficients alpha proposed by Zumbo and colleagues (2007) and it was equal to .91.

*Multidimensional Scale of Perceived Social Support (MSPSS)*. The MSPSS (Zimet et al., 1988; Italian adaptation by Prezza & Principato, 2002) consists of 12 items rated on a 7-point Likert scale to measure perceived support and help from three different sources: family, friends, and a significant person. Considering the context and objectives of the present study, the scale was adapted to measure the support and help perceived by university students in the classroom. For example, the MSPSS item "My friends really try to help me" was modified to "Course attendees really try to help me." The Likert scale of the

adapted MSPSS was modified from 7 to 4 points to make it easier to answer and more comparable with the other scales used.

To investigate the content validity of each scale, we conducted several field tests. Specifically, we asked students of F2F university courses to complete the scale and then answer questions about the difficulties encountered in interpreting the item stems, answering the items with their answer scale, and following the questionnaire instructions. Based on the received feedback, we edited a few items for each scale to make them clear, concise, and exhaustive. The rating scale resulted in being always applicable. The ISSC and the MSPSS were adapted-to-classroom versions, and we do not know if the adaptation affected the validity of the tools. However, these adapted versions resulted adequately related to the scale of Sense of Community in university online courses (Balboni et al., 2018), the validity of which was supported by other independent studies (Cacciamani et al., 2019; Kuo & Kuo, 2020; Pelati et al., 2020). Given the ordinal nature of the items of both ISSC and MSPSS, their internal consistency for the present study was investigated by computing the ordinal version of the Cronbach's  $\alpha$  proposed by Zumbo and colleagues (2007). Cronbach's  $\alpha$  was equal to .91 and .85 for ISSC and MSPSS, respectively.

#### Procedure

All students filled out the CCS after attending 50% of the class hours scheduled for each course. In addition to the CCS, the participants of the convergent and divergent validity study also filled out ISSC and MSPSS in random order.

#### Data Analysis

*Factor analysis.* Any missing answer in no more than one item of the CCS was substituted by the average response value given by the respondents to that same item. Preliminary analyses were performed to identify outlier participants. Following Tabachnick and Fidell's (2013) suggestions, we first checked for the presence of univariate outliers (i.e., students with a CCS total score higher or lower than 3.29 *SD* from the mean). We normalized the CCS total score, and, based on the Mahalanobis distance, we also investigated the presence of multivariate outliers. Each time a univariate or multivariate outlier was detected and excluded, the CCS score distribution was normalized. This procedure was repeated until no outlier was detected.

The 2-factor structure of the CCS (i.e., Connectedness and Learning) was assessed first by confirmatory factor analysis (CFA) and then by the explorative structural equation model (ESEM) approach (Asparouhov & Muthén, 2009). ESEM allows the items to freely load in both the two factors and allowed us to take into account that data independence was not guaranteed because the participants were selected in 14 courses. For both CFA and ESEM, given that the item score distributions were still far from being multivariate normal (based on Mardia's test), the robust maximum likelihood (MLR) estimator was used, followed by a Geomin rotation. The estimation of the goodness of the model was based on the following fit indexes: root-mean-square error of approximation (RMSEA), standardized root-mean-square residual (SRMR), comparative fit index (CFI), and Tucker-Lewis index (TLI) (Schermelleh-Engel et al., 2003). Values greater than .95 for CFI and TLI, and smaller than .05 for RMSEA and SRMR suggest a reasonable fit (Hu & Bentler, 1999; Jackson et al., 2009; Schermelleh-Engel et al., 2003). Items with factor loading  $\geq |.30|$  on one or both dimensions were selected (Comrey & Lee, 1992; Kline, 1994). Measures of reliability of the CCS and its factors were computed using Cronbach's  $\alpha$ .

*Convergent/Divergent validity.* Any missing answer in no more than one item for each of the ISCS and MSPSS scales was substituted by the average response value given by the respondents to that same item. Preliminary analyses were performed in order to check for the presence of univariate outliers on the total scores of each scale: CCS, ISSC, and MSPSS.

Pearson correlation coefficients were calculated between the CCS scores, both total and of its two factors, and the total scores (a) on the ISCS for convergent validity and (b) on the MSPSS for divergent validity. In agreement with the European Federation of Psychologists Associations criteria (Muñiz, 2008), convergent correlation coefficients were evaluated as inadequate ( $r < .55$ ), adequate ( $.55 \leq r < .65$ ), good ( $.65 \leq r < .75$ ), and excellent ( $r \geq .75$ ). The *t*-test for comparisons of dependent correlation coefficients (Steiger, 1990) was used to investigate whether the convergent correlation coefficients were statistically significantly higher than the corresponding divergent correlation coefficients.

## RESULTS

### Factor Analysis

Four hundred twenty students filled out the CCS answering at least 19 out of the total 20 items in the scale. Nineteen missing answers in at most one item (0.22%) were substituted by the average response value given by the respondents to that same item. While no univariate outliers were found, we identified 12 multivariate outliers who were excluded from subsequent analyses. Therefore, the subsequent analyses were conducted on the answers provided by the remaining 408 participants.

The CFA analyses to assess the CCS 2-factor structure resulted in indexes that were not adequate according to the criteria of goodness-of-fit previously described: RMSEA [CI] = .106 [.100, .113]; SRMR = .100; CFI = .829; TLI = .807. Conversely, the ESEM 2-factor solution showed better and fairly acceptable goodness for all the values fit indexes: RMSEA [CI] = .078 [.071, .085]; SRMR = .051; CFI = .918; TLI = .896. As can be seen in Table 1, according to the factor loading  $\geq |.30|$ , all the 20 items displaced in at least one factor as provided by Rovai's (2002) CCS. The first factor, labeled Connectedness, corresponds to the social component of the classroom community of the model by Rovai (2002). It consists of 12 items (five of which must be reversed) regarding the students' feelings of connection, cohesion, team spirit, trust, and interdependence in the community. The second factor, labeled Learning, corresponds to Rovai's dimension that refers to the common goal of the classroom community. It consists of 10 items (seven of which are negative) concerning the students' feelings of mutual interactions, shared values, and beliefs as a means to pursue the learning goals in the community. Differently from the proposed structure of the CCS, Item 14 (i.e., "I feel that other students do not help me learn") shifts from the original Learning factor to the Connectedness factor. Item 9 (i.e., "I feel isolated in this course") and Item 4 (i.e., "I feel that it is hard to get help when I have a question") that in the original CCS structure loaded only the Connectedness or the Learning factor, respectively, loaded both factors of the ESEM. As can be seen in Table 1, the item factor loadings of the selected items ranged from .32 to .83 (mean = .56, median = .56) and estimated residual variance ranged from .32 to .85 (mean = .60, median = .61). Item-total score Pearson's correlation ranged from .35 to .69 (mean = .55, median = .55), and item mean ranged from 1.37 to 3.30 (mean = 2.63, median = 2.66). The total explained variance was 69.26%. The correlation between the two factors was between small and medium. Cronbach's  $\alpha$  coefficients were equal to .89 for Connectedness, to .81 for Learning, to .88 for the total CCS, indicating a good internal consistency.

TABLE 1  
Exploratory Structural Equation Model: Item factor loadings, estimated residual variance (*SE*),  
item-total score Pearson's correlation, mean (*SD*), factor variance explained, and inter-factor correlation

| Item                                                                                                                                  | Factor              |                | Estimated<br>residual<br>variance<br>( <i>SE</i> ) | Item-total<br>Pearson's<br>correlation | <i>M</i><br>( <i>SD</i> ) |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|----------------------------------------------------|----------------------------------------|---------------------------|
|                                                                                                                                       | 1.<br>Connectedness | 2.<br>Learning |                                                    |                                        |                           |
| 11. Mi fido dei miei compagni [I trust others in this course] (C)                                                                     | <b>.83</b>          | -.04           | .33 (.04)                                          | .68                                    | 2.43<br>(0.89)            |
| 13. Posso contare sui miei compagni di corso [I feel that I can rely on others in this course] (C)                                    | <b>.83</b>          | -.02           | .32 (.03)                                          | .69                                    | 2.59<br>(0.90)            |
| 19. Ho fiducia nel sostegno dei miei compagni [I feel confident that others will support me] (C)                                      | <b>.78</b>          | .00            | .39 (.04)                                          | .67                                    | 2.38<br>(0.90)            |
| 17. In questo corso i miei compagni non mi danno certezze [I feel uncertain about others in the course] (C, R)                        | <b>.73</b>          | .06            | .45 (.04)                                          | .68                                    | 2.53<br>(0.88)            |
| 5. Non sento lo spirito di gruppo con i miei compagni [I do not feel a spirit of community] (C, R)                                    | <b>.70</b>          | .05            | .49 (.03)                                          | .66                                    | 2.38<br>(1.09)            |
| 3. Ho dei buoni legami con i miei compagni [I feel connected to others in this course] (C)                                            | <b>.62</b>          | -.01           | .61 (.06)                                          | .54                                    | 2.95<br>(0.80)            |
| 14. In questo corso gli altri non mi aiutano a imparare [I feel that other students do not help me learn] (L, R)                      | <b>.58</b>          | .20            | .57 (.05)                                          | .64                                    | 2.77<br>(0.86)            |
| 15. I miei compagni di corso contano su di me [I feel that members of this course depend on me] (C)                                   | <b>.55</b>          | -.01           | .70 (.04)                                          | .49                                    | 2.08<br>(0.88)            |
| 1. In questo corso, gli studenti si interessano gli uni degli altri [I feel that students in this course care about each other] (C)   | <b>.49</b>          | .06            | .74 (.04)                                          | .50                                    | 2.24<br>(0.89)            |
| 7. Sento che questo corso è come una famiglia [I feel that this course is like a family] (C)                                          | <b>.48</b>          | .24            | .65 (.06)                                          | .63                                    | 1.37<br>(0.97)            |
| 20. In questo corso non viene promosso il desiderio di apprendere [I feel that this course does not promote a desire to learn] (L, R) | -.05                | <b>.73</b>     | .49 (.05)                                          | .44                                    | 3.30<br>(0.80)            |
| 18. I miei bisogni formativi non sono soddisfatti da questa esperienza [I feel that my educational needs are not being met] (L, R)    | -.02                | <b>.69</b>     | .53 (.06)                                          | .45                                    | 3.05<br>(0.89)            |
| 12. Questo corso consente solo un modesto apprendimento [I feel that this course results in only modest learning] (L, R)              | .01                 | <b>.65</b>     | .58 (.04)                                          | .45                                    | 3.01<br>(0.87)            |
| 16. In questo corso mi sono date ampie opportunità di apprendimento [I feel that I am given ample opportunities to learn] (L)         | -.02                | <b>.56</b>     | .69 (.05)                                          | .39                                    | 2.93<br>(0.81)            |
| 2. Mi sento incoraggiato a fare domande [I feel that I am encouraged to ask questions] (L)                                            | .08                 | <b>.54</b>     | .68 (.07)                                          | .51                                    | 2.67<br>(0.97)            |
| 9. Mi sento non considerato in questo corso [I feel isolated in this course] (C, R)                                                   | <b>.32</b>          | <b>.45</b>     | .62 (.05)                                          | .62                                    | 3.10<br>(0.84)            |

(table 1 continues)

Table 1 (continued)

| Item                                                                                                                            | Factor           |             | Estimated residual variance (SE) | Item-total Pearson's correlation | M (SD)      |
|---------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|----------------------------------|----------------------------------|-------------|
|                                                                                                                                 | 1. Connectedness | 2. Learning |                                  |                                  |             |
| 4. Sento che è difficile ottenere aiuto quando ho un quesito [I feel that it is hard to get help when I have a question] (L, R) | <b>.31</b>       | <b>.40</b>  | .68 (.05)                        | .57                              | 3.13 (0.83) |
| 6. In questo corso ricevo feedback tempestivi [I feel that I receive timely feedback] (L)                                       | .04              | <b>.38</b>  | .85 (.05)                        | .35                              | 2.66 (0.80) |
| 8. Mi sento a disagio a manifestare le mie difficoltà di comprensione [I feel uneasy exposing gaps in my understanding] (L, R)  | .26              | <b>.36</b>  | .75 (.06)                        | .56                              | 2.66 (1.03) |
| 10. Sono restio a parlare apertamente [I feel reluctant to speak openly] (L, R)                                                 | .15              | <b>.36</b>  | .82 (.05)                        | .47                              | 2.41 (1.15) |
| Number of items                                                                                                                 | 12               | 10          |                                  |                                  |             |
| Explained variance (%)                                                                                                          | 40.12            | 29.14       |                                  |                                  |             |
| Inter-factor correlation                                                                                                        | .248             |             |                                  |                                  |             |

Note. C = Item belonging to the original Connectedness subscale. L = Item belonging to the original Learning subscale. R = reversed score. Factor loadings  $\geq |.30|$  are in bold. Items were reprinted from The Internet and Higher Education, 5(3), A. P. Rovai, Development of an instrument to measure classroom community, 197-211, Copyright (2002), with permission from Elsevier.

### Convergent/Divergent Validity

As described above, 175 students completed all three questionnaires omitting at most one answer for each scale. Twenty-five missing answers in at most one item for each of the three scales (0.27%) were substituted by the average response value given by the respondents to that same item. No univariate outliers were found.

As can be seen in Table 2, convergent correlation coefficients with the ISSC were good for both the total CCS and its Learning factor, and close to adequate for its Connectedness factor. Convergent correlation coefficients between CCS, its factors, and ISSC were statistically significantly higher than the corresponding divergent correlation coefficients between CCS, its factors, and MSPSS.

TABLE 2

Pearson's correlation coefficients between the Classroom Community Scale (CCS), its factors, and the Italian Scale of Sense of Community (ISSC; convergent validity) and the Multidimensional Scale of Perceived Social Support (MSPSS; divergent validity)

| CCS              | Convergent validity<br>$r_p$ | Divergent validity<br>$r_p$ | Comparisons between corresponding<br>convergent and divergent correlation<br>coefficients $t$ -value |
|------------------|------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------|
|                  | ISSC                         | MSPSS                       | ISSC vs. MSPSS                                                                                       |
| Factors          |                              |                             |                                                                                                      |
| 1. Connectedness | .544**                       | .411**                      | 2.07*                                                                                                |
| 2. Learning      | .698**                       | .422**                      | 4.69**                                                                                               |
| Total            | .692**                       | .477**                      | 3.76**                                                                                               |

Note. ISSC and MSPSS were adapted to the 2F2 learning context.

\* $p < .05$ . \*\* $p < .001$ .

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## DISCUSSION

The present study aimed to examine the factorial structure of the CCS in F2F university courses. The convergent and divergent validity of the CCS was also investigated in relation to the construct of SC, measured with the ISSC, a scale of SC different from the CCS, and with the construct of perceived social support, which is similar to, but distinct from, SC, measured with the MSPSS.

The analysis of the factorial structure of the CCS through ESEM confirmed the 2-factor structure of the original scale: Connectedness and Learning. The Connectedness subscale refers to the students' feelings regarding their connection, cohesion, team spirit, trust, and interdependence in the community. The Learning sub-scale includes the community members' feelings on mutual interactions in pursuing the understanding of the topics under study and indicates the extent to which members share values and beliefs about the fact that their learning goals and their expectations will be met by belonging to the community. However, two differences are identified with respect to the original scale: (1) Item 14 "I feel that other students do not help me learn" loaded the Connectedness rather than the Learning factor; (2) Items 9 "I feel isolated in this course" and 4 "I feel that it is hard to get help when I have a question" are identified as cross-loading items.

Regarding Item 14, its content makes it plausible that it was interpreted by the students as aiming to place a greater emphasis on the quality of the relationship with their fellow students; therefore, it is considered a reason for the lack of help in learning. This interpretation focuses on the sense of connection between classmates, an inherent attribute of the social community dimension, while the original version of the scale recognized this item as a component of the learning community dimension.

The cross-loadings of Items 9 and 4 can be explained by the fact that their content may relate to different feelings concerning both Connectedness and Learning components. Some participants may have interpreted Item 9 as not feeling included in the class by the teacher and Item 4 as finding it difficult to get help from the teacher when having questions. This interpretation considers these two items as those components of the learning dimension in which the teacher is supposed to play a central role. On the other hand, other respondents may have interpreted Item 9 as not feeling considered by their classmates and Item 4 as feeling that they were not receiving help from their classmates. From this perspective, these items are seen as those components of the Connectedness subscale which emphasize the connectedness between peers. Both these interpretations seem plausible, given the influence of both interactions with teachers and classmates on SC, highlighted in the literature (Wiseman et al., 2004). On the other hand, the ESEM model of the CCS with the two cross-loading items deleted did not improve the goodness-of-fit indexes — RMSEA [CI] = .083 [.075, .091]; SRMR = .053; CFI = .920; TLI = .897 — and showed Item 8 "I feel uneasy exposing gaps in my understanding" that didn't load any of the two factors.

The results also revealed a high internal consistency of both the overall scale and the two factors that emerged, in agreement with the original scale developed by Rovai (2002). The CCS, globally considered, also evidences convergent and divergent validity. The results show a significantly higher correlation with the ISSC than with the MSPSS. This indicates that the CCS total scale has an adequate convergent/divergent validity in measuring the construct of SC and in discriminating it from perceived social supports. Also, in the CCS, both the Connectedness and Learning factor correlation coefficients with the ISSC are significantly higher than their corresponding correlation coefficients with the MSPSS. The CCS thus effectively differentiates SC from the construct of perceived social support, even in its two dimensions. The difference between the correlations of the two dimensions of the CCS with the other two scales (i.e., ISSC and MSPSS) can be interpreted by the fact that both the ISSC and the CCS focus on the relationship of each participant with the

community. However, the MSPSS, considering the content of its items, emphasizes social support that concerns the relationship with both a group and a single person.

The present study has some limitations that may not allow researchers to generalize the results. First, the participants were university students enrolled in degree courses in the humanities and, second, most of the participants were female students. Some studies (e.g., Wiseman et al., 2004) claim that gender and academic specialization have no effects on SC, and other studies (e.g., Rovai, 2002) detect that gender has small impact on SC. However, further studies on an equal number of female and male participants from various subject areas can ensure that the results are generalizable. Until then, the CCS is suitable especially for detecting the sense of community in humanistic degree courses that present a female gender prevalence.

Moreover, many university courses are moving more and more toward blended or even remote mode. The Scale of Sense of Community in University Online Courses (Balboni et al., 2018; Perrucci et al., 2008) may be used in these contexts. However, F2F teaching cannot be completely abandoned, at least in university courses such as psychology or other health professions for which F2F is necessary for learning. In these cases, the CCS may be a useful tool.

The present work offers a novel contribution to the literature surrounding SC. First, the ESEM, the analysis used in the present study, allows to consider the effect of the different settings, such as courses, on SC. Moreover, the distinction between the Connectedness and Learning subscales allows the components of this construct to be analyzed separately. In terms of applications, the psychometric properties of the CCS and its easy administration make it a useful tool for both research and counseling. For research, the tool enables researchers to study the elements of the course that are most useful for promoting SC, measure the effectiveness of courses that intend to implement community models, and encourage the design of academic learning environments that consider this dimension, taking into account contextual factors (Ahmady et al., 2018; Lounsbury & DeNeui, 1996; Wiseman et al., 2004). For counseling, the scale can be used by university counseling services to identify students who feel isolated in their early university experience and lack social support. This tool also enables the counseling services to further examine if those students are at risk of failure in the course, with the consequent risk of dropping out. Such information and knowledge enable the university counseling services to intervene and provide the required support to promote inclusion, academic success, and persistence in the university experience.

#### NOTE

1. A copy of the Italian version of the scale can be obtained from the authors.

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