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Research article

Development and testing of an instrument to measure the collegiality competence of social and health care educators

M. Koskenranta [a,*], H. Kuivila [a], S. Pramila-Savukoski [a], M. Männistö [b], K. Mikkonen [a]

[a] Research Unit of Nursing Science and Health Management, University of Oulu, Oulu, Finland
[b] Health care and nursing, Oulu University of Applied Sciences, Oulu, Finland

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ABSTRACT

Background: Previous studies have investigated the competence of social and health care educators from different perspectives. However, there has been little research on the collegiality competence of social and health educators.
Aim / Objective: The purpose of this study was to develop and psychometrically test a new collegiality competence instrument (CollegialityComp) designed to enable social and health care educators to self-evaluate their competence in collegiality.
Design: A cross-sectional study design for instrument development and psychometric testing.
Methods: Data were collected in the winter of 2020–2021 from social and health care educators at ten universities of applied sciences and ten vocational institutions in Finland ($N = 1179$), of whom 243 decided to participate. Face and content validity was assessed by seven experts, while structural validity and internal consistency were evaluated using exploratory factor analysis and Cronbach's alpha, respectively.
Results: The CollegialityComp development and testing process produced an instrument that includes 35 items representing five factors: (1) individual-centered collaboration, (2) educator action and fairness, (3) collaboration among colleagues, (4) collaboration outside the organization, and (5) communication and trust.
Conclusion: The CollegialityComp instrument can be used to measure the collegiality competence of social and health care educators in the context of vocational and higher education. It may also be useful during the training of teacher candidates.

1. Introduction

The competence of educators in a broad sense has been studied quite extensively (see e.g., Salminen et al., 2021; Vauhkonen et al., 2020; Kotilainen et al., 2020; Mikkonen et al., 2020) but to our knowledge there has been little or no research on collegiality and collegiality competence despite its intrinsic connection to collaboration. Assessing the collegiality and collegiality competence of social and health care educators is important for the development and teaching of collegiality, both for educators already in employment and for teacher candidates in training. This paper describes the development and psychometric testing of a collegiality instrument designed to describe educators' collegiality and collegiality competence.

2. Background

A previous systematic review (Koskenranta et al., 2022) revealed that the collegiality of social and health care educators has mainly been studied using qualitative methods, although there has been one quantitative (Zipp et al., 2015) and one mixed methods study (Direko and Davhana-Maselesele, 2017). The systematic review (Koskenranta et al., 2022) also indicated that the collegiality of social and health care educators has many different aspects, including various forms of collaboration, communication, and ethics.

Although collaboration is an integral part of collegiality (Koskenranta et al., 2022) and a core competence of a social and health educator (WHO, 2016; Salminen et al., 2021), collegiality is also much more, as noted above. It is important to study and understand collegiality because it creates a basis for collaboration and allows educators to receive

* Corresponding author at: Research Unit of Nursing Science and Health Management, Faculty of Medicine, P.O. Box 5000, FI- 90014, University of Oulu, Finland.
E-mail addresses: miro.koskenranta@oulu.fi (M. Koskenranta), heli-maria.kuivila@oulu.fi (H. Kuivila), sari.pramila-savukoski@oulu.fi (S. Pramila-Savukoski), kristina.mikkonen@oulu.fi (K. Mikkonen).

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support (Ning et al., 2015; Shah, 2012) As a result, educators gain confidence in their own professional skills as well as opportunities to leverage experiences and ideas (Burton, 2015). Collaboration between educators in social and health care is conducted in a variety of ways including between colleagues (Koskenranta et al., 2020; Miner, 2019; Koskinen et al., 2020; Mikkonen et al., 2019) and at the interprofessional level (Koskinen et al., 2020; Croker et al., 2016). Moreover, it does not occur only at the local or national level; international collaboration is common (Gillund et al., 2013), and Mikkonen et al. (2019) have emphasized the importance of integrating culturally and linguistically diverse colleagues into collaborations. Practical examples of collaboration between social and health care educators include team teaching (Koskenranta et al., 2020) and joint assessment of students' grades (Koskenranta et al., 2020; Chiang et al., 2010). Educators also have opportunities to develop their own professional skills during team teaching if they have good relationships with each other (Gladman, 2015).

Ethical competence is vital for the work of educators (Koskimäki et al., 2020) and is also an important part of collegiality (Koskenranta et al., 2020; Koskinen et al., 2020). When acting collegially, educators' value, support (Koskenranta et al., 2020; Koskinen et al., 2020; Miner, 2019; Chiang et al., 2010; Matthew-Maich et al., 2007), and help each other (Koskenranta et al., 2020; Koskinen et al., 2020; Mikkonen et al., 2019; Chiang et al., 2010). Previous research has shown that social and health care educators value each other (Salminen et al., 2017), and Tourangeau et al. (2014) note that collegial support increases commitment to work. In addition, the skills and job satisfaction of the work community can be increased by helping others (Poorman and Mastorovich, 2017; Emamzadeh Ghasemi et al., 2014). Educators can help each other in many ways, for example by sharing teaching materials (Koskenranta et al., 2020) and ideas (Stanley and Stanley, 2019; Witchger Hansen, 2015).

Interaction is important in the work of educators (Metsäpelto et al., 2020), and social and health care educators have emphasized the value of meeting in person (Koskenranta et al., 2020; Koskinen et al., 2020; Cotter and Clukey, 2019). Such meetings allow educators to discuss various issues with their peers, including their own feelings, fears, and experiences (Koskenranta et al., 2020). It is also important that educators listen to each other, take others' opinions into account (Koskenranta et al., 2020; Chiang et al., 2010), and give each other feedback (Koskenranta et al., 2020; Gillund et al., 2013). Unfortunately, the ongoing Covid-19 pandemic has prompted many organizations including educational establishments to switch to teleworking, which has limited the scope for face to face meetings between educators (Lizana et al., 2021).

Some previously developed instruments that are strongly related to collegiality among social and health care educators were identified in the above-mentioned systematic review (Koskenranta et al., 2022) and have been used to describe mentoring between educators (Zipp et al., 2015) and collaboration between nursing education institutions (Direko and Davhana-Maselesele, 2017). Instruments for evaluating collaboration have also been developed in the field of government (dos Santos et al., 2020) and health care to describe interprofessional collaboration (Akuamoah-Boateng et al., 2019; Orchard et al., 2012). In addition, the various competencies of social and health educators have been studied (Salminen et al., 2021; Kotilainen et al., 2020; Vauhkonen et al., 2020), but collegiality competence was not considered in these studies despite the need for research on this topic, especially in higher education (Palaniandy, 2017). Previously, Lund et al. (2010) have included a section on collegiality-related behaviors in their survey for faculty members. Shah (2011) instead has developed a collegiality instrument for educators in the past, but this focused on secondary school educators. Unfortunately, no validated tools for assessing social- and health care educators' collegiality and collegiality competence currently exist.

Collegiality in the context of social and health educators is an important target for the research and development of validated instruments, because it contains important elements that have a broad impact. Shah (2012) notes that collegiality has a positive effect on educators, the institutions in which they work, and their students; it enables students to perform better (Goddard et al., 2007) and obtain better grades (Shah, 2012), and increases educator retention (Vangrieken et al., 2015). Educators also act as role models for students (Koskinen et al., 2020; Rosenkotter and Milstead, 2010), who upon graduating will typically find work in multi-professional contexts where similar collegiality skills are needed (Schot et al., 2020). It is therefore important for educators to set examples for their students by working together collegially.

3. The study

3.1. Aims

The purpose of this study was to develop and psychometrically test a new collegiality competence (CollegialityComp) instrument designed to enable social and health care educators to self-evaluate their competence in collegiality. More specifically, the following research questions are considered: (i) what is the face and content validity of the CollegialityComp instrument?; (ii) what is the structural validity of the CollegialityComp instrument?; (iii) what is the internal consistency of the CollegialityComp instrument?

3.2. Design

A cross-sectional study design for instrument development and psychometric testing was used.

3.3. Participants

The participants were social and health care educators who were employed at ten universities of applied sciences and ten vocational institutions in Finland at the time of the survey. A total of 1179 educators were invited to participate in the study, of which 243 responded to the invitation (response rate: 20.6%). The inclusion criteria required respondents to be working in a vocational institution or university of applied sciences as a social or health care educator. The sample size was predetermined by the need to have at least 5 participants per item in order to perform structural validation of the instrument and test its internal consistency and reliability (DeVon et al., 2007).

3.4. Instrument and its development phases

The new CollegialityComp instrument consists of 35 items and five sub-dimensions: *Individual centered collaboration* (11 items); *Educator action and fairness* (9 items); *Collaboration among colleagues* (6 items); *Collaboration outside the organization* (4 items); and *Communication and trust* (5 items). Respondents score each item on a four-point Likert scale (1 - Completely disagree; 2 - Partially disagree; 3 - Partially agree; and 4 - Completely agree). The instrument development process had four different phases: (I) establishing a theoretical background, (II) testing face and content validity, (III) examining structural validity, and (IV) testing the instrument's internal consistency (Fig. 1).

3.4.1. Phase I

In the first phase of the CollegialityComp instrument's development, the theoretical background for the items was established. This background was initially based on a qualitative study describing the collegiality of social and health care educators on the basis of eight group interviews with 22 educators from four universities of applied sciences and one vocational institution in Finland (Koskenranta et al., 2020). Additionally, a systematic review was conducted to identify the best evidence on social and health care educators' experiences of collegiality in educational institutions (Koskenranta et al., 2022).

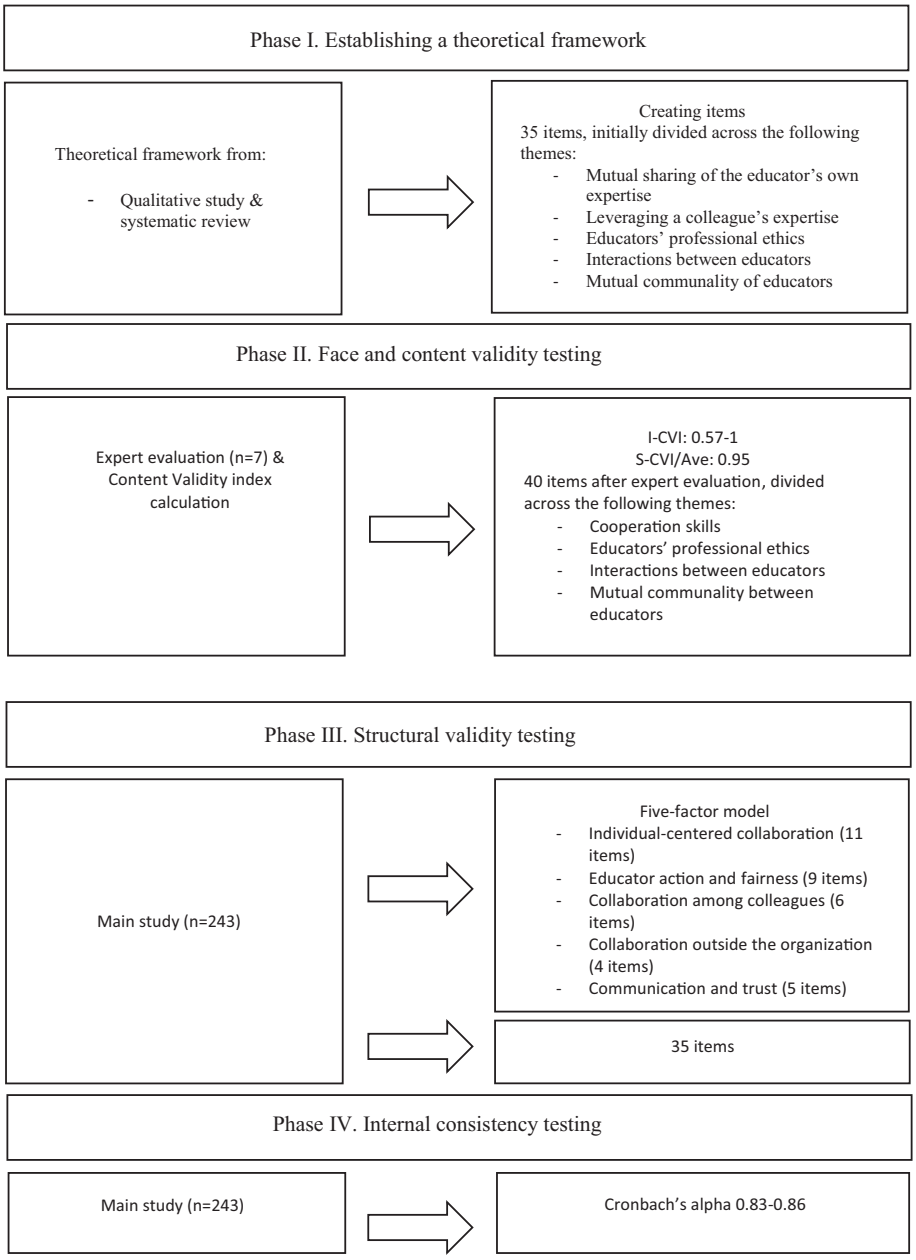

Fig. 1. The four phases in the development and testing of the CollegialityComp instrument.

3.4.2. Phase II

After the first phase, the face and content validity of the items were validated by expert evaluation. Seven experts were recruited for this purpose, including university teachers, a principal lecturer, a university lecturer, researchers, and a professor representing a health education and competence research group. Content validity was measured using the Content Validity Index, which consists of the I-CVI (individual item evaluation) and S-CVI/Ave (overall instrument validation) (Polit et al., 2007). During the evaluation, the experts rated the relevance and clarity of the proposed items using a four-point scale: not relevant/clear; needs some revision; relevant/clear but needs minor revision; and very relevant/clear (Zamanzadeh et al., 2015). The I-CVI and S-CVI/Ave results can be considered acceptable if the scores are $\geq$0.78 (for each item) and 0.80–1.00 (for the instrument as a whole), respectively (DeVon et al., 2007; Polit et al., 2007).

3.4.3. Phases III & IV

Structural validity was tested by performing exploratory factor analysis using Principal Axis Factoring and Promax rotation. The factor loadings of the items were then examined and items with loadings $<$0.300 were removed (Yong and Pearce, 2013). The Kaiser-Mayer-Olkin test with Bartlett's test of sphericity was used to ensure sample adequacy. Principal Axis Factoring was used as the extraction method of the factor model and Promax with Kaiser Normalization as the rotation method, and its functionality was validated on the basis of eigenvalues $>$1 (Williams et al., 2010). The instrument's reliability was evaluated using Cronbach's alpha, for which values of 0.70 are considered adequate for a newly developed instrument, 0.80 and above indicate a well-established instrument, and 0.90 and above indicate a clinically well-established instrument (DeVon et al., 2007).

3.5. Data collection

Data was collected through a Webropol online survey during the winter of 2020–2021. Selected educators ($N = 1179$) were invited to participate via three emails sent from a contact person at their institution. The invitations provided information about the study's aims, the method of data collection, and its ethical aspects. Data collection was monitored, and reminder messages were sent two to three times at intervals of two weeks. The questionnaire included 15 background questions and the 35 items of the CollegialityComp instrument. The background questions collected information on the respondents' age, gender, education, work experience and completion of pedagogical studies. An analysis of the responses to these questions will be presented in a forthcoming publication describing educators' competence in collegiality.

3.6. Data analysis

IBM SPSS Statistics 26 was used for data analysis. Descriptive statistics were used to describe the demographic data of the participants. Exploratory factor analysis (EFA) was used to test the instrument's construct validity by identifying items needing to be removed or grouped together (Williams et al., 2010). Factor analysis also provided information on latent variables and their content (DeVellis, 2017). Cronbach's alpha coefficient was used to evaluate the instrument's internal consistency (Rattray and Jones, 2007).

3.7. Ethical considerations

Good scientific practice was followed at all stages of the study. A research permit was obtained from each organization (Finnish National Board on Research Integrity, 2012). The study did not require an ethical opinion as it did not violate the integrity of the participants, no data was used without informed consent, the participants were not under 15 years of age, and there was no security threat to the participants (World Medical Association, 2013; Medical Research Act, 1999/488). Participation in the study was voluntary and participants received information about the study before answering the questionnaire. The information included details of the study's purpose and implementation, and a statement that respondents could stop answering the survey at any stage. Responding to the questionnaire was considered to indicate the granting of informed consent (Finnish National Board on Research Integrity, 2019). Throughout the process, the research material has been stored in a password-protected file on a computer that requires an access code. Only the researcher has had access to the data. The data obtained will be properly disposed of at the end of the study (Data Protection Act, 1050/2018; GDPR, 2016).

4. Results

4.1. Participants

Most of the participants were female (89.7%, $n = 218$) and their mean age was 52 years. Most participants had a master's degree (70.8%, $n = 172$), but 11.5% had a doctoral degree ($n = 28$). Participants had an average of 13.6 years of work experience as an educator and the majority (66.3%, $n = 161$) worked in the health care sector. Just over half of the participants (56.5%) worked at a university of applied sciences and the rest in a vocational institution (Table 1).

Table 1
Demographic information of participants ($n = 243$).

Characteristics	Percentages
Gender n (%)	
Male	22 (9.1%)
Female	218 (89.7%)
Other	3 (1.2%)
Education n (%)	
College degree / Bachelor's degree from a university of applied sciences	3 (1.2%)
Master's degree from a university of applied sciences	32 (13.2%)
Master's degree from university	172 (70.8%)
Doctoral degree	28 (11.5%)
Other	8 (3.3%)
Teacher training, (pedagogical education, 60 ECTS) n (%)	
Vocational teacher training	108 (44.4%)
Teacher training in health sciences	110 (45.3%)
Teacher training in educational sciences	25 (10.3%)
Current educators' work field n (%)	
Social services	57 (23.5%)
Health care	161 (66.3%)
Rehabilitation	14 (5.8%)
Other	11 (4.5%)
Current employment n (%)	
Part-time educator	2 (0.9%)
Full-time educator	38 (15.6%)
Lecturer	178 (73.3%)
Principal lecturer	13 (5.3%)
Head of education	3 (1.2%)
Other	9 (3.7%)

4.2. The process of developing and testing a collegiality instrument

The results are presented according to the four different phases of collegiality instrument development and psychometric testing, specifically: (I) establishing a theoretical background; (II) testing face and content validity; (III) examining structural validity; and (IV) testing the instrument's internal consistency.

4.3. Phase I – theoretical framework establishment

In the first phase of the instrument's development, a theoretical framework was formed. This framework was initially based on a systematic review (Koskenranta et al., 2022) and qualitative research (Koskenranta et al., 2020) on the collegiality of social and health care educators. In the qualitative study, 22 social and health care educators from four universities of applied sciences and one vocational institution in Finland were interviewed. Following content analysis of the interviews, two main categories pertaining to collegiality were identified: the shared expertise of social and health educators and a unified work culture. These main categories were formed from six categories. The systematic review (Koskenranta et al., 2022) examined the experiences of social and health educators with collegiality during their work in higher education or vocational institutions and highlighted reported associations between collegiality and social- and health care educators' background factors. Two main categories pertaining to the collegiality of social- and health care educators were identified in the review: (i) a united and safe work culture among social- and health care educators, and (ii) shared expertise of social- and health care educators. As in the qualitative study, these main categories were formed from six categories, which included ethics, collaboration, communication, work culture, and utilization of knowledge and expertise. The systematic review also indicated that mentoring and collaboration between nursing educational institutions were associated with collegiality. Based on the outcomes of the qualitative study and systematic review, 35 items were created for the instrument. These items were split across the following themes: 1) Mutual sharing of the educator's own expertise; 2) Leveraging a colleague's expertise; 3) Educators' professional ethics; 4) Interactions between educators; and 5) Mutual communality of educators.

4.4. Phase II – face and content validity testing

After establishing the theoretical framework, the items were further evaluated for relevance and clarity by a panel of experts following the CVI method. In addition, the experts provided comments and recommendations on the items; based on this feedback, some items were modified slightly. In addition, the I-CVI and S-CVI/Ave were calculated for the instrument on the basis of the evaluations. The I-CVI results for the items varied; one had a value of 0.57 while the rest had values of either 0.86 or 1. With the exception of the outlier item having a value of 0.57, these values can be considered acceptable. The outlier was removed due to its low score and two other items were removed due to excessive similarity to other items. The instrument's S-CVI / Ave was 0.95, which is considered good.

After the expert evaluation, eight additional items were developed, giving a total of 40 items that were used to evaluate the instrument's structural validity. The items were distributed across the themes of cooperation skills, educators' professional ethics, interactions between educators, and mutual communality between educators.

4.5. Phase III – construct validity testing

Structural validity was tested using data from a sample of social- and health care educators ($n = 243$). At the start of the exploratory factor analysis, the instrument had a total of 40 items. Five items were subsequently removed because their loadings were found to be <0.300. The Kaiser-Mayer-Olkin measure (0.903) indicated that the gathered data were suitable for factor analysis, and Bartlett's Test of Sphericity ($x^2 = 4573.085$, df = 595, $p < 0.001$) gave an acceptable result. After conducting principal axis factoring with promax rotation, a five-factor structure including 35 items was chosen.

The first factor, *individual-centered collaboration*, had an eigenvalue of 11.406. This factor included 11 items and explained 32.59% of the total variance. The second factor, *educator action and fairness*, had an eigenvalue of 3.132, consisted of 9 items, and explained 8.95% of the total variance. The eigenvalue of the third factor, *collaboration among*

Table 2
Exploratory factor analysis of the *CollegialityComp* instrument (n = 243).

Factor describing a social- and health care educator's collegiality	Item including in the factor, measured with Likert scale 1–4 (1 – Completely disagree; 2 – Partially disagree; 3 – Partially agree; 4 – Completely agree)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Individual centered collaboration	1. I can take the opinions of my colleagues into account	0.929				
	2. I can listen to my colleagues	0.836				
	3. I can have constructive and reciprocal discussions with all my colleagues	0.654				
	4. I try to discuss things with my colleagues face to face	0.513				
	5. I can give feedback on my colleagues' work	0.456				
	6. I value my colleagues' competence	0.450				
	7. I have enough competence to work in a team with my colleagues	0.438				
	8. I can collaborate in the assessment of students with my colleagues	0.431				
	9. I can correct the situation if conflicts arise during team teaching in the presence of students	0.418				
	10. I let my colleagues implement instructions in their own way	0.396				
	11. I can act to prevent loneliness in the work community	0.395				
Educator action and fairness	12. I know how to face challenges in my work		0.823			
	13. I can act flexibly in my work when changes occur		0.792			
	14. I can challenge my competence by taking on new challenges (e.g., tasks or working methods)		0.752			
	15. I will be heard in my work community		0.635			
	16. I can act as an employee for the benefit of the work community		0.628			
	17. I am able to develop my own competence in relation to the organization's strategy		0.595			
	18. I can contribute to the goals set by the organization through my own activities		0.433			
	19. I can hold on to my own rights at work		0.412			
	20. I feel that I am valued as an educator, and I get enough feedback from it		0.380			
Collaboration among colleagues	21. I ask my colleagues for advice on matters that are unclear to me			0.785		
	22. I want to work communally with my colleagues			0.764		
	23. I want to share my own learning materials with colleagues			0.753		
	24. I can produce learning materials in collaboration with my colleagues			0.709		
	25. I can share my own ideas openly with my colleagues			0.563		
	26. I help my colleagues with orientation			0.375		
Collaboration outside the organization	27. I can develop multidisciplinary collaboration networks to develop operations				0.860	
	28. I can develop collaboration in working life with different parties (e.g., public sector and third sector organizations or companies)				0.835	
	29. I can make extensive use of the opportunities for collaboration in teaching between working life and educational organizations				0.730	
	30. I can develop international and multicultural collaborations				0.636	
Communication and trust	31. I have opportunities to talk to my colleagues about my own feelings and experiences					0.952
	32. I have opportunities to talk to my colleagues about the problems I face					0.837
	33. I can discuss non-work matters with my colleagues					0.472
	34. I can trust my colleagues					0.362
	35. I can go straight to the point when talking to colleagues					0.331
		1	2	3	4	5
Eigenvalue		11.406	3.132	1.878	1.630	1.597
Percentage of variance explained		32.59	8.95	5.37	4.66	4.56
Total proportion of variance explained by the factor model						56.2
Cronbach's alpha		0.85	0.86	0.84	0.84	0.83

Extraction method: Principal Axis Factoring.
Rotation method: Promax with Kaiser Normalization.

colleagues, was 1.878; it consisted of 6 items and explained 5.37% of the total variance. The fourth and fifth factors, *collaboration outside the organization* and *communication and trust,* had eigenvalues of 1.630 and 1.597, respectively. The fourth factor included 4 items explaining 4.66% of the total variance while the fifth included 5 items explaining 4.56% of the total variance. Together, these five factors based on 35 items explained 56.2% of the total variance (Table 2).

4.6. Phase IV – internal consistency testing

The internal consistency of the 35-item instrument was evaluated using Cronbach's alpha, which ranged from 0.83 to 0.86 for the five factors – 0.85 for the first (individual-centered collaboration, 11 items), 0.86 for the second (educator action and fairness, 9 items), 0.84 for the third (collaboration among colleagues, 6 items) and fourth (collaboration outside the organization, 4 items) factors, and 0.83 for the fifth (communication and trust, 5 items).

5. Discussion

The purpose of this study was to develop and psychometrically test the CollegialityComp instrument, which was designed to measure the collegiality competence of social and health educators. The instrument can be used in the training of social and health teacher candidates and the continuing education of educators already in employment.

An instrument for evaluating the competence of social and health care educators was developed in an earlier study (Mikkonen et al., 2020), and this competence was subsequently described from diverse perspectives (see e.g., Kotilainen et al., 2020; Vauhkonen et al., 2020). Mikkonen et al. (2020) developed and psychometrically tested the HeSoEduCo instrument, which assesses the competence of social and health care educators in higher education and professional education. This instrument included collaboration competence to a limited extent. Kotilainen et al. (2020) examined the self-assessed competence of educators, which included international cooperation, while Vauhkonen et al. (2020) investigated the digital competencies of social, health, and rehabilitation educators. The latter study found that digital competence is an element of professional engagement, which also includes pair work between educators and communication between colleagues. Although these studies addressed elements of collegiality, no instrument had previously been developed for assessing collegiality alone or the collegiality competence of educators. The development of such an instrument in this work is therefore significant.

The instrument presented herein measures the collegiality and collegiality competence of social and health care educators holistically, accounting for several different aspects of the phenomenon. The instrument's reliability and the relevance and clarity of its individual items were assessed by a team of seven education experts from a university, a university of applied sciences, and a health education and competence research group (DeVon et al., 2007). After exploratory factor analysis, the validated instrument contained a total of 35 items divided across five factors: individual-centered collaboration; educator action and fairness; collaboration among colleagues; collaboration outside the organization; and communication and trust. The Cronbach's alpha values of these factors ranged from 0.83 to 0.86, indicating that the instrument is reliable (Tavakol and Dennick, 2011). The first factor, individual-centered collaboration, explained 32.6% of the total variance, and is thus a very important part of the instrument. This factor also contained substantially more items than the others. The proportion of variance explained by the other factors ranged from 4.6 to 8.9%.

The work of modern social and health educators is very demanding in all respects (Salminen et al., 2021), and requires educators to master a very wide range of skills as shown by the list of core competencies published by the WHO (2016). One area where educators need expertise to succeed in their work is collaboration competence. Educators must collaborate both nationally with their local colleagues (Koskenranta et al., 2020; Miner, 2019; Koskinen et al., 2020; Mikkonen et al., 2019) and internationally (Gillund et al., 2013). Accordingly, previous studies have shown that social and health care educators participate in national and international networks (Konkola et al., 2021). It is also important to establish collaboration with actors in working life (Lehtonen et al., 2018). These different forms of collaboration help educators network with new people, which in turn allows them to stay up-to-date on work-related issues (Koskimäki et al., 2020; Hubers et al., 2018).

Social and health care educators help and mentor new employees during their induction period (Koskenranta et al., 2020), facilitating the transition into their new roles (Miner, 2019; Cotter and Clukey, 2019). Mentoring also affects recruitment, retention, leadership development, and career development (Nick et al., 2012). Effective mentoring requires a reciprocal and collegial relationship that makes it possible to increase work community competence and job satisfaction (Poorman and Mastorovich, 2017; Emamzadeh Ghasemi et al., 2014). However, while mentoring is common in healthcare organizations, previous studies have highlighted a lack of clear guidance on how to mentor effectively (Zipp et al., 2015).

In addition to collaboration, orientation, and mentoring, the CollegialityComp instrument measures educators' ethics and communication. Ethics are important both in an educator's daily work and in collegiality. Educators working ethically support and trust one-another and value each other's skills, experiences, and work input. In addition, they share information with colleagues and are open to new ideas (Koskenranta et al., 2020; Koskinen et al., 2020). Supporting others can increase commitment to work (Tourangeau et al., 2014). Collegial communication gives educators opportunities to discuss issues widely (Koskenranta et al., 2020) and consult a colleague if necessary (Koskenranta et al., 2020; Koskinen et al., 2020). Moreover, in addition to allowing new ideas to be brought up, collegial interaction allows them to be discussed critically (Charner-Laird et al., 2016). It is also good for educators to keep ethical issues in mind when working with students (Koskinen et al., 2020), although this instrument focuses more on the ethics of interactions between educators.

6. Limitations

There are several limitations to this study. First, although the results can reasonably be generalized to Finnish social and health care educators outside the studied institutions, they cannot necessarily be generalized to all social and health care educators. This is because the aspects of communication and related elements evaluated in this instrument may be influenced by culture. For example, in Finland it is common to discuss issues directly, but this may not be the case in other cultures. Second limitation is that the instrument had relatively few items relating to mentoring. However, this could be seen as a good thing since its items pertain to behaviors and actions that are essential in mentoring (Burgess et al., 2018). Third limitation is that only 243 educators responded to the survey, with a response rate of 20.6%, affecting the reliability of the study. It should be noted, however, that the population of Finland is small, which contributes to that. However, according to the literature, this number of responses was sufficient to meet the requirement of 5 respondents per item (DeVon et al., 2007). A 4-point Likert scale was used in this study, which could have been replaced by a 5-point scale, as this would have allowed respondents to choose a neutral alternative (Joshi et al., 2015). In the future, the instrument could be further developed and validated in an international context, enabling wider generalization. The COSMIN checklist was used to ensure the validity and transparent reporting of the study (Mokkink et al., 2010).

7. Conclusions

The new developed CollegialityComp instrument for measuring the collegiality competence of social and health care educators was shown to be valid and reliable. Additional research is needed to strengthen its

applicability outside the Finnish context. However, its development means that there is now a validated instrument that enables a holistic assessment of educators' collegiality and collegiality competence, which was previously lacking. By using this instrument, educators can identify aspects of collegiality in need of further development in their own practice and institutions, which in turn will help them to perform collegiality-promoting activities in their own work environment. In addition, information obtained with the instrument can be used in the continuing education of social and health care educators on collegiality and in the training of new social- and health care teacher candidates.

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