Quality & Quantity (2024) 58:581–602
https://doi.org/10.1007/s11135-023-01638-3

What are teacher relational skills? A defining study using a bottom-up modified Delphi method

Tiziano Gerosa[1] · **Gianluca Argentin**[2] · **Alice Spada**[2]

Accepted: 21 February 2023 / Published online: 7 April 2023

Abstract
Relational skills are an essential work-related tool for several professions, especially teaching. This specific domain of teacher competence is acquiring ever-increasing attention due to the connection between social and emotional aspects of education and student school success. Nonetheless, a persistent focus on content-related knowledge, didactic skills and digital literacy has generated uncertainties about what teacher relational skills effectively are. In this respect, our study presents an alternative bottom-up approach for the definition of teacher relational skills based on the use of a modified Delphi method. Four iterative rounds of data collection and analysis were carried out on a sample of 35 experienced teachers. This Delphi was pushed to generate innovative definitions, taking advantage of its bottom up perspective with teachers simultaneously involved as reflective professionals and as experts by experience of professional development completion. The emerging innovative elements were coherently integrated with previous literature thanks to a circular relationship between the Delphi panelists and an external group of experts. As a result, 6 relational domains, 44 relational skills and 180 practical examples of their application were identified. Our findings underline the importance of stimulating the debate around direct experiences of effective practices for the development of competence-based working approaches, especially in the areas of socialization, relations and emotions, where well established theoretical frameworks are still a long way off.

Keywords Delphi method · Relational skills · Teaching · Bottom-up deliberative approach

✉ Tiziano Gerosa
tiziano.gerosa@supsi.ch

Gianluca Argentin
gianluca.argentin@unimib.it

Alice Spada
alice.spada@unimib.it

[1] Institute of Applied Sustainability to the Built Environment, Department of Environment Constructions and Design, University of Applied Sciences and Arts of Southern Switzerland, Mendrisio, Switzerland

[2] Department of Sociology and Social Research, Università degli Studi di Milano-Bicocca, Milan, Italy

1 Introduction

In recent years, educational research has placed a growing interest on teacher practices that are not directly related to the subject teaching (Day and Qing 2009; Spilt et al. 2011; Roffey 2012). In order for students to actively connect with subject teaching, teachers have to draw on a variety of intellectual and emotional resources that are not necessarily related to the subject matter (Woolfolk Hoy and Davis 2005). Emotions, relations and social bonds are fundamental aspects, the lack of which can undermine the efficacy of the profession itself (Sutton and Harper 2009).

Going beyond teacher knowledge of their subject and their specific didactic skills, relational skills emerge as a crucial analytical dimension when observing teachers as members of a community of practice (Eckert 2006; Wenger 2009). In this framework and from a teacher standpoint, relational skills in school contexts can be experienced in three main areas: (i) relations with students (Magill and Salinas 2019); (ii) relations with peer colleagues (Hargreaves 2001) and other members of the school staff; (iii) relations with parents (Lawson 2003) and/or with adults responsible for students. All the communicative and interactive elements constituting social, emotional and relational aspects of teaching contribute not only directly to their didactic skills in the classes, but also indirectly. Indeed, these skills are crucial in order to effectively manage social networks—within and out of schools—leading to social environments which are more or less supportive of pupil achievement. In other words, relational skills seem to be able to enhance or moderate teacher effectiveness; nonetheless, this domain of competence is not properly focused when analyzing the core of the teaching profession and it is frequently reduced to "knowledge of effective classroom management" (e.g. Mascolo 2013). Despite the great relevance of relational elements in teacher practices, the tendency for sociological and pedagogical studies is to focus on the social and emotional aspects of learning (SEAL) (Banerjee et al. 2014; Hallam 2009) rather than of teaching. This focus is fully justified by the solid knowledge the scientific community has acquired regarding the link between social and emotional learning and school success (Zins et al. 2007). There is a well-established tradition of conceiving subject content and relational elements of education as strongly connected to one another, especially in the literature on students in early learning stages (Green et al. 2005; Illeris 2009; Zembylas 2007). Yet, emphasis on the relational aspects of teaching seems to reduce with the increase of student age. Thorough attention to the social and emotional aspects of learning (and teaching) for children and, specifically, primary school contexts does not seem to be counterbalanced with similar attention reserved for the later stages such as late childhood, pre-adolescence and adolescence. More generally, the interest in the social and emotional aspects of learning often seems be lacking, including also the social and emotional aspects of teaching; teacher relational skills are often underestimated in terms of educational relevance. This situation could depend on different factors, among which the practical difficulties in establishing what are the actual domains and practices regarding teacher relational skills seem to be the most relevant. From this point of view, what we underlined above is not surprising, namely that teacher relational skills are frequently reduced to their classroom management. This situation is leading to a stalling in studying and advancing the practical implications of the relational aspects of the teaching profession. A potential solution to this impasse comes from the literature on professional development that looks at teachers as critically reflective professionals and schools as learning communities (e.g. Larrivee 2000; Marsick et al. 2013). The perspective adopted in our study is that teachers have an hybrid identity when it comes to the skills investigated

in our work, themselves being at the same time experts delivering training and practitioners receiving it. These mixed roles make teachers experts when relying on their experiential wisdom in terms of the skills required in their job, but also customers of professional development initiatives, where they may enrich what is offered from the perspective of service users. This perspective was previously more explicitly developed and applied in the field of social work (Fox 2016). Instead of the amount of theoretical expertise somehow infused top-down by external providers, research in this field suggested that a key role in teacher education and training could be played by the bottom-up expertise, as the most experienced of them already share in the daily routines of the school community (Kraft & Blazar 2017; Kennedy 2016; Trust et al. 2016).

Given the "growing body of research supporting the strong impact that enhanced social and emotional behaviors can have on success in school and ultimately in life" (Zins et al. 2007, p. 208), the present study empirically investigates social and emotional aspects of teaching looking at teacher relational skills as directly experienced in education contexts. A revised version of the Delphi deliberative approach (Brown 1968) was conducted on a sample of experienced teachers in several rounds of data collection and analysis on what makes teachers competent in managing on-the-job relationships. Starting from the practical experience of the interested parties and connecting them to pre-existing literature and expert knowledge, the present work empirically investigates relational aspects of teaching. The aim is twofold: on the one hand, to provide secondary school teachers with a set of practical tips to enhance on-the-job relational skills, delivered in the form of a booklet, such as the one developed by Tymms and Merrell (2006) for ADHD students, a tool inspiring our entire work; on the other hand, to show the potentiality of the modified Delphi method in filling the gap between expert theoretical frameworks and practitioner experience, especially in the context of professional development.

2 The Delphi approach: reasons underlying a methodological choice

The Delphi method is largely employed in a multitude of research disciplines—such as medicine, nursing, public policy, business and social work—as a valuable support to investigate issues that are not easily examined using targeted analytical strategies and suffer from a clear lack of understanding or consensus (Dalkey and Helmer 1963; Adler and Ziglio 1996). Its use in the field of education is still less common. However, the number of studies adopting this technique to provide a better understanding of school related phenomena has grown steadily in the last decades (Maxey and Kezar 2016).

A Delphi study consists of an iterative investigation that involves two or more rounds of data collection in which members of a group of experts are required to express their opinions on a technical problem through qualitative or quantitative questionnaires (Brown 1968). After each round, participants receive an anonymous summary of the information and judgements collected in the previous round and are encouraged to revise their earlier answers in light of the replies of others. These cyclically informed reviews are intended to gradually increase both the shared knowledge and the level of agreement among participants, until they converge towards a common conclusion about the topic of discussion (Linstone and Turoff 1975). This approach relies then on the opportunity to gather information on a topic which is not easily accessible to individuals outside the specific context being studied by tapping into experts to share their

consideration and judgements on it on a collective basis, avoiding, at the same time, the potential biases due to direct interactions (Adler and Ziglio 1996).

The Delphi method has several advantages compared to other qualitative techniques when field experts are called to fill knowledge or consensus gaps on a topic of interest (Maxey and Kezar 2016; Hsu and Sandford 2007). First, it allows participants to preserve their anonymity, encouraging them to freely express their opinions regardless of others (Di Zio and Maretti 2014). Second, researchers can control the feedback flow across rounds to inform participants of the variety of views emerging from among the sample. Its recursive nature allows then participants to consider, reevaluate, and clarify or modify their opinions overtime, especially in the light of the increasing amount of information collected in previous rounds (Gemenis 2015; McGeoch et al. 2014). Finally, it allows researchers to combine statistical aggregation with a highly structured feedback flow, ensuring more accurate and traceable evidence compared to those of conventional expert surveys or unstructured behavioral aggregation of group discussions (Gemenis 2015).

To sum up, we identified four relevant motives which led to the application of the Delphi methodology in our defining study on teacher relational skills.

(1) *The lack of consensus on relational skills and the practices underlying the concept.* In the Italian context, teachers tend to show distancing and non-reliance on new educational aspects. The perception teachers have in terms of new educational tools and proposals is of being overwhelmed, not able to support further workload and not adequately trained to implement innovations that are frequently far from their daily problems (Zurlo et al. 2007). A bottom-up Delphi methodology can be a fruitful tool in this sense: indeed, teachers can get in touch with knowledge constructed and based directly on their experience and that of colleagues. Thanks to this, the distance between knowledge and the transformation of knowledge into a practice is reduced and teacher reflexivity is activated. In this way, possibilities for teachers to connect positively and actively with the proposal appear to be potentially higher.

(2) *The confidential dimension of the Delphi instrument.* To a similar extent, the Delphi methodology allows to explore what the issues are, the different aspects and the solutions already in place as enacted by a community of practice to respond to work-related matters. Structuring a debate on relational competence starting from the actual characteristics of education relations as experienced by teachers permits to shorten the gap between *what should be done* and *what is already there* in terms of educational practices; in addition teacher practices are not exposed to the risk of the social desirability bias (Nederhof 1985), both in terms of not being reported or being overrated. Thanks to the characteristics of the method itself, teachers are welcome to express genuine positions and practices regarding relational competences in school context which might not be expressed otherwise. Trough the Delphi methodology it is possible to "explore, coolly and objectively, issues that require judgment" (Gordon 1994, p. 10) in an anonymous way. This makes this methodology ideal for sensible matters, such as the "right" practices to be implemented in the domain of relations within schools.

(3) *The Delphi method has already been fruitfully applied to investigate similar work-related dimensions.* Given its characteristics, Delphi finds its ideal usage in investigating job-related matters. Recently, it was very frequently applied in the exploration of professional core competencies (i.e. Albarqouni et al. 2018; Ramstrand & Ramstrand 2018, Raghav 2016) or to detect core components of cultural competences (Jirwe

et al. 2009). In light of this, applying the Delphi technique to define teacher relational skills appears as a potentially significant execution of a solid application. From a methodological perspective and from the point of view of job-related issues, the same structure applied to this research can be also implemented for other communities of practice—such as nurses and social workers—experiencing similar *grey areas* when it comes to relational skills.

(4) *The usability of Delphi results in terms of work-related applications.* By condensing experiences, points of view and approaches into a finite number of content specific categories, Delphi results are practical in terms of application when it comes to working environment. This is an advantage compared to other techniques. The *univocal character* of Delphi results, along with anonymity and an anti-hierarchical responses structure (de Meyrick 2003) is part of the reasons why it is a common qualitative research technique in medical fields and in work-related matters.For all these reasons, we decided to implement a Delphi study, but, at the same time, we opted for a modified version of the Delphi approach, for the reasons described in the following paragraph.

3 Research method

A modified version of the Delphi method was developed to identify using a bottom-up approach what makes a teacher more effective in managing on-the-job relationships. To reach this goal, a panel of experienced teachers participated in four rounds of data collection and analysis of content. Unlike a conventional Delphi study, which is generally coordinated by a single facilitator, such content was revised and administered from time to time under the supervision of a multidisciplinary group of experts in the field, henceforth referred to as the expert working group (EWG). As reported in Fig. 1, a first stage of data collection involved in-depth interviews with experienced teachers (panelists) and a literature review on the empirical evidence on the argument. The collected materials were then

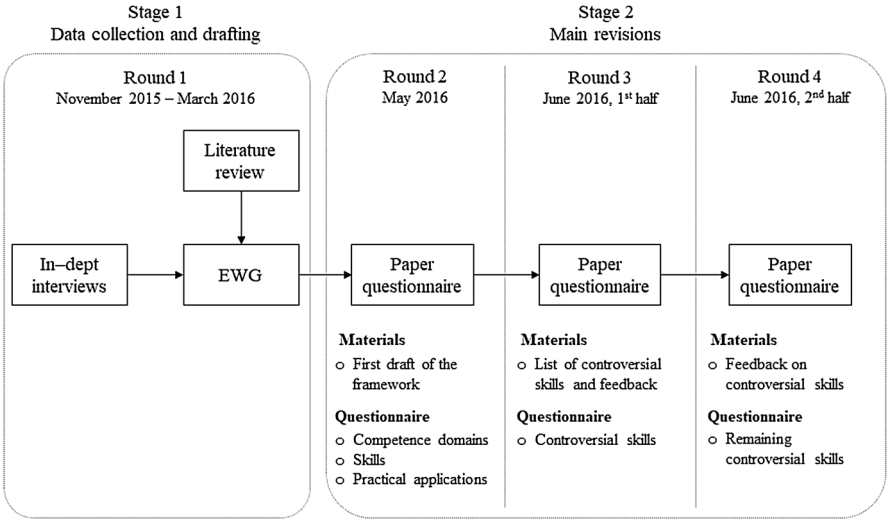

Fig. 1 The structure of the four rounds modified Delphi

iteratively skimmed and summarized under the supervision of the EWG and then offered to the panelists in second stage of revision organized in three rounds of surveys.

Only experienced compulsory-education schoolteachers were contacted to take part in the study, based on the idea that very often they already have the skills that are necessary and can share them in the right environment (Cassen 2015). That is, teachers have heterogeneous professional experiences, personalities, perspectives, and are both highly trained and directly touched by the specialized area of knowledge related to our target issue, thus becoming good candidates for being involved in a Delphi study (e.g. Hsu & Sandford 2007).

The crucial modification introduced in our Delphi process was keeping separate two sources of teacher skill definition: on the one hand, those coming from academic literature, more traditional and based on a top down logic; on the other hand, those consensually emerging from teachers through a bottom up process, more innovative and spontaneous, but in any case ending in the selection and validation provided by the EWG group. The use of this bottom up modified Delphi fitted our aim to integrate, in the definition of teacher skills, consolidated and innovative knowledge coming from academics in different disciplines, professionals in the field of teacher professional development and teachers themselves, as experts by experience, both as reflective practitioners and users of professional development initiatives (Fox 2016).

The study began in November 2015 and ended up in July 2016 (Table 1). A total of 35 teachers from seven Italian regions (Campania, Emilia Romagna, Friuli-Venezia Giulia, Lombardia, Liguria, Piemonte, and Trentino-Alto Adige) were enrolled among experts in the field of education and were involved in the study. The list of teachers invited to take part in the first round of the Delphi was designed to maximize the heterogeneity of personal, professional and residence characteristics which could differentiate individual strategies for the management of relationships in school, looking at their gender, teaching subject, school level and geographical area of residence. The overall sample size was identified following the principle of saturation (Bernard 2000), which suggests stopping interviews when the additional information provided by any further subject starts to be redundant in comparison to those previously collected, but also taking into account in advance the usual high drop out rate in longitudinal studies and, in particular, in the case of the Delphi method. Due to the huge amount of time required from the participants, dropout rates represent one of the primary challenges in Delphi-based research (Hsu and Sandford 2007; Salkind 2010).

Table 1 Descriptive statistics of teacher's characteristics by round: frequency and percentages within brackets

	Round 1	Round 2	Round 3	Round 4
Males	11(31)	7(29)	7(30)	7(30)
Subject				
Italian language	12(34)	11(46)	10(44)	10(44)
Math	8(23)	4(17)	4(17)	4(17)
Others	15(43)	9(38)	9(39)	9(39)
School level				
Primary	7(20)	6(25)	6(26)	6(26)
Lower secondary	21(60)	14(58)	13(57)	13(57)
Upper secondary	7(20)	4(17)	4(17)	4(17)
Total	35(100)	24(100)	23(100)	23(100)

Table 1 shows that not all teachers participated in each round of data collection. Five of them were purposely excluded by the research team because they were educational researchers as well as being teachers. This choice was made to ensure the knowledge refinement process was entirely handled by teachers, without the influence of training experts and pedagogues. Instead, six teachers deliberately refused to participate in the second round of data collection, whilst another 1 decided to give up before shifting to the web-based surveys. However, thanks to our choice of overestimating the initial sample and condensing all the iterative surveying activities into only two months (from round 2 to round 4), the number of participants who completed our study remained in line with the number of 20–25 usually suggested to be involved in Delphi-based research (Osborne et al. 2003).

Round 1: data collection and drafting. The first round was mainly focused on the detection and categorization of relevant on-the-job relationship domains, skills and practical applications, integrating qualitative interviews of the selected experienced teachers with an exploratory literature review on teacher relational skills. The interview outline was designed to give teachers the opportunity to express their opinions without strict forms of control or reinforcement from the interviewer. Each interview lasted about one hour and tackled different themes, such as the general definition of teacher quality, important aspects of teaching, tips learned from colleagues and personal relational strategies. In the first two segments—those related to teacher quality and important aspects of teaching—respondents were left totally free to express their opinions on what makes teachers great in their job from a relational perspective. The collection of such general information on teacher quality allowed us to identify a set of recurring occurrences that have been used to frame the most relevant domains of teacher relational skills. For each of the emerged skill domains we invited respondents to list and describe all the strategies they learned from colleagues and/or through direct experiences in managing relationships at school. After that, we searched for empirical evidence of their relevance in previous literature by conducting an exploratory literature review focused on research related to teacher relational skills. Empirical sources were primarily searched for in repositories and web browsers dedicated to educational and social sciences (Eric, What Works Clearing House, Google Scholar) adopting a snowball research method. A total of 110 studies were collected.

Due to the highly exploratory nature of this first stage of data collection, we felt the need to give greater solidity to collected material by sharing and discussing it with an ad hoc EWG formed by 8 members including sociologists, educational psychologists, pedagogues and professionals in teacher training (Fig. 1). At the end of the first round of the Delphi, the EWG received all the information collected through the interviews and the literature review. Their members worked on the first draft of the relational skills framework for about two months (March 2016–April 2016), selecting the contents that were more consistent with the accumulated knowledge and empirical evidence in their fields of study.

Round 2 to 4: main revisions. The first draft of the relational skills framework was translated into a structured questionnaire in order to submit it—during the Delphi process—to the same panel of experienced teachers contacted for the qualitative interviews in three iterative rounds of informed paper-based and online survey (from round 2 to round 4). The draft of the framework was progressively skimmed and refined, always under the supervision of the EWG. Results from the revision stage were used to identify, modify or delete all elements considered as controversial or redundant. More precisely, in round 2 we sent back to participants a paper version of the draft and a detailed questionnaire for the collection of opinions and comments on its contents, including content domains, skills and practical application. After reading the draft, participants were required to rate the usefulness, innovativeness and feasibility of each list of relational skills on 0–4 Likert items in

which 0 stands for complete disagreement with the statement and 4 represents full agreement. The same procedure was used for every skill domain and for the overall draft, with the addition of other two items (pleasing and stimulating) and specific text fields to leave written comments and motivate personal judgements. Through the analysis of the collected data, the draft structure was refined and the more controversial lists of skills and practical applications were identified. Although previous literature on the Delphi method does not provide unambiguous cut-off criteria, several authors consider at least 66% of respondents giving positive judgments with a standard deviation below 1 (i.e., rating with 3 or 4 on the 0–4 likert item) as two basic conditions reflecting a sufficient degree of consensus toward the contents being tested (Osborne et al. 2003; Rossouw et al. 2011). In this study, we opted to identify the most controversial skills to be revised and submitted in the third and fourth round of the Delphi as those showing a rate of positive answers of below 66% in at least three elements. Standard deviations were also inspected for items around 66% positive response threshold. In other words, to be judged as "non-controversial", each skill had to receive positive judgments from at least 66% of respondents on one of the following combinations of items: feasible, useful and innovative (i.e., a valid and innovative content to be taken into consideration); feasible and useful (i.e., a valid content to be taken into consideration even if not innovative); useful/feasible and innovative (i.e., an innovative content showing good potential). The focus on innovation, alongside feasibility and usefulness, was linked to two considerations: on the one hand, we aimed at getting additional effort on the part of all the experts participating in the process towards avoiding consolidated and frequently stereotypical/generic definitions of teacher skill; on the other hand, it must be borne in mind that our teacher skill definition was intended to be translated into a professional development initiative, hence aimed at improving new skills, more than simply reiterating the consolidated ones.

In the third and the fourth rounds of the Delphi we sent experienced teachers an e-mail invitation to complete two web-based questionnaires focused only on the most controversial contents. The third questionnaire reported the percentage of positive judgments given to the lists of relational skills and practical applications in term of usefulness, innovativeness and feasibility, asking participants to reflect on the results of the former group's evaluation process and to identify at least one strong and one weak point for each of them. The fourth questionnaire synthetized the previous comments in an anonymized list of pros and cons presented to the participants before asking them to repeat the evaluation of the degree of usefulness, innovativeness and practicality they reached. Thanks to this iterative evaluation procedure, we had the opportunity of keeping track of variations in participant agreement toward excludable and non-excludable contents over time and, based on the cut-off thresholds given above, of using these descriptive evidence to refine our framework. Finally, a focus group was conducted with a ne group of lower secondary school teachers, not to debate around the contents, but to assess the design chosen fot the booklet displayng all the tips. This part of the process is not discussed here, being not relevant to this article's pourposes.

4 Results

The results of the first stage of data collection gave us insights into how literature and experienced teachers articulate the multifaceted concept of relational skills and how they apply them in their everyday working life. First of all, we noted the emergence of a widespread

tendency among the participants to recognize the importance of such skills in various ways. Despite at the beginning of the interview, when we let them talk freely about what makes teachers good in their job, the majority of participants emphasized content knowledge as a key element to increase student academic performance, several teachers already introduced at this stage the idea that content knowledge is not sufficient and underlined that teachers need to know how to effectively interact with students and all those gravitating around them. Each respondent was then invited to provide a detailed description of these skills and some examples of how to put them into practice according to their personal professional experience. To create order in the collected material, preserving its overall heterogeneity as much as possible, teachers' practical suggestions were grouped based on how to behave at school in a baseline typology of the most cited content domains.

The analysis of the first 35 interviews revealed the presence of seven predominant themes that were cyclically reiterated by respondents. The first two lines of Table 2 (stage 1: data collection) show the frequency of occurrences and the total number of citations related to them.

The first two domains deal with teacher relationships with colleagues and parents. These domains are the lesser mentioned, with only 6 and 5 citations respectively, but each of them faces relational and cooperation problems which are particularly evident and pervasive in the daily experience of the interviewed. The first domain summarizes the desire of respondents to increase the level of collaboration with colleagues, which is a fundamental resource of building a comprehensive educational project and bringing it to a successful conclusion. The second domain emphasizes the need to build a constructive relationship with parents and to involve them more closely in school life.

The other five domains deal with specific aspects of teacher daily relationships with students within and outside the classroom. Domains 3 and 7 are mainly focused on student attitudes toward school and learning, offering practical examples on how to motivate them, stimulate their enthusiasm and increase levels of personal commitment and attention in class. Respondents suggested that teachers must know how to interact with students to stimulate their attention, engagement and motivation to study. Domain 4 describes skills and practical examples on how to prevent and manage student misconduct in the case of particularly challenging subjects, and, finally, domains 5 and 6 deal with all interactions among classmates. Experienced teachers, indeed, very often claimed that positive interactions in class represent one of the most important factors sustaining student respect for the teacher and sense of belonging (18 times only for domain 6), contributing to the development of a peaceful and participatory classroom climate. This result is in line with previous literature on classroom management as pivotal for teachers' relational skills. The cultivation of empathy towards students, in-keeping with the role of educator, and the encouraging of students to respect the rules, to cooperate and to support classmates in need are then considered as key ingredients in enhancing the well-being and productivity of the entire class.

The overall list of relational skills and practical applications organized in wider domains was sent to the EWG together with a summary of the empirical evidence which emerged from the literature review (Table 1). Afterwards, the EWG worked to produce the first draft of the bottom-up framework of teacher relational skills, through four main steps. First of all, the experts detected and deleted all the examples resulting in direct conflict with available empirical evidence. The two domains which focused on student motivation (3) and difficult students (4) were the most affected by this specific downsizing procedure. Domain 3, for example, contained practical examples on how to improve student motivation through instrumental rewards that have been found to be in direct conflict with the assumptions

Table 2 Number of citations, skills and practical applications extracted in each stage of the Delphi by competence domain

	Colleagues (1)	Parents (2)	Students				
			Motivation & engagement (3)	Difficult students (4)	Conflict management (5)	Classroom climate (6)	Attention & understanding (7)
Stage 1: data collection							
Citations	6	5	13	11	7	18	13
Practical app. interviews	21	9	32	34	10	45	57
Practical app. literature rev	2	11	33	18	5	30	11
Stage 1: EWG drafting							
Skills	10	7	8	8	5	6	9
Practical app	34	22	36	25	16	23	44
Stage 2: main revision							
Skills	8	5	6	–	7	7	10
Practical app	29	21	36	–	28	32	42

of the self-determination theory (Deci and Ryan 2000). Following this theory, the extrinsic motivation generated by the introduction of instrumental rewards to stimulate student engagement could give rise to an over-justification effect (Lepper 1973), negatively affecting their intrinsic motivation to study. Some of the examples reported in domain 4, instead, described strategies to correct student misconduct through public warnings or temporary exclusions that could lead to dangerous forms of negative labeling. In fact, students labeled as "disruptive" through an excessive use of written/verbal warnings or physical exclusion from the class, albeit temporary, will work to reach the limited expectations that teachers and classmates have of them, thereby performing at lower levels in both academic and social settings (e.g. Rosenthal and Jacobson 1968; Elbaum and Vaughn 2003). In a second step, the EWG brought all the similar practical applications under a single comprehensive relational skill. This has especially been the case of the richest domain focused on students, where many examples of the practical application of the same strategy have been provided. In unit 7, for instance, respondents focused on the importance of micro-behavior to help students maintain high levels of attention during the lesson, such as moving through the classroom, using eye-contact and facial expressions, varying the tone of the voice and so on. As clearly shown in the previous empirical literature, these micro-behaviors are different in their form but very similar in their objectives and the way in which they operate (Chesebro and McCroskey 2001; Richmond 2002), legitimizing their choice to summarize them under a single set of skills including multiple alternative applications. In the third step of their work, the EWG broke down the recommendations based on particularly complex behavioral strategies, defining a series of practical applications simpler and less burdensome to put into practice (see, for example, the increase in the total number of examples contained in domain 1). In the fourth and final step, the EWG worked on the wording of each skill and related example, to ensure clarity and to avoid possible misunderstanding of their content.

Once the EWG completed the first draft of the framework, we sent it back to the experienced teachers involved in the first round of the Delphi, along with a detailed paper questionnaire to express their personal opinion and comments.

In the last columns of Table 3, reporting panelist opinion toward the overall framework, the standard deviations were all below 1 and the 66% of positive answers cut-off criteria was easily met: most of the individual ratings are concentrated around the values 3 and 4, with large shares of respondents who found it fairly/very useful, feasible, pleasing, stimulating and consensual. This convergent evidence reinforces the idea that there is valuable implicit knowledge among teachers regarding their relational skills. The only exception to this general agreement is represented by the item measuring teacher perception toward the innovativeness of the material, which is characterized by a lower average score and less convergence between the respondents ($M = 2.48$; $SD = 1.16$). Although, at first, this result may appear quite daunting, we must not forget that all the content is the result of a bottom-up editing process which has included the same teachers called to judge them. That is, we first invited teachers to reveal to us the "tricks of the trade" they have learned during their entire professional experience and, a few weeks later, we asked them to evaluate the level of innovativeness of their suggestions. This explains why, compared to other judgements, lower innovativeness mean scores should be considered as anything but unexpected and not problematic regarding the quality of the draft itself.

Proceeding with the analysis of the single domains, we noted that six of them registered a substantially negligible spread between the measured values of consensus around the quality of their contents and the selected cut-off thresholds. In most cases the standard deviation of the estimates did not differ significantly from 1 and, except for the level of

Table 3 Descriptive statistics of the second-fourth rounds of the Delphi study (Means, standard deviations and percentages of positive ratings)

		Colleagues (1)				Parents (2)				Motivation & engagement (3)				Difficult students (4)			
		Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)
Overall skill domain	Useful	3.35	0.93	91.30	–	3.17	1.05	83.33	–	3.61	0.58	95.65	–	3.21	0.93	75.00	–
	Innovative	2.32	1.09	50.00	–	2.00	1.13	39.13	–	2.35	1.07	43.48	–	2.14	1.17	40.91	–
	Feasible	2.92	0.88	66.67	–	3.32	0.57	95.45	–	3.09	0.81	72.73	–	3.00	0.85	73.91	–
	Pleasing	3.22	0.90	91.30	–	2.96	0.86	62.50	–	3.17	0.94	65.22	–	2.64	1.05	45.45	–
	Stimulating	3.09	0.95	82.61	–	2.91	0.79	65.22	–	3.27	0.77	81.82	–	2.64	0.85	50.00	–
Skill 1	Useful	3.17	1.15	81.82	–	3.91	0.29	100.00	–	3.96	0.21	100.00	–	3.43	0.98	76.19	–
	Innovative	1.36	1.26	18.18	–	0.87	0.92	4.35	–	1.67	1.35	38.10	–	1.23	1.31	19.05	–
	Feasible	3.30	0.82	78.26	–	3.36	0.85	86.36	–	3.61	0.72	95.65	–	3.50	0.80	81.82	–
Skill 2	Useful	3.17	1.11	77.27	–	3.26	1.05	77.27	86.36	3.87	0.46	100.00	–	3.00	1.05	66.67	52.38
	Innovative	1.41	1.26	18.18	–	2.00	1.24	34.78	21.74	2.00	1.57	47.83	–	2.10	1.30	38.10	14.29
	Feasible	3.55	0.60	95.45	–	2.82	1.14	63.64	63.64	3.82	0.50	95.45	–	3.00	1.09	59.09	59.09
Skill 3	Useful	3.21	1.02	78.26	–	3.57	0.66	90.91	68.18	3.78	0.52	100.00	–	3.70	0.56	95.45	–
	Innovative	1.57	1.29	23.81	–	2.32	1.17	45.45	45.45	2.17	1.50	47.83	–	1.81	1.08	19.05	–
	Feasible	2.91	1.11	77.27	–	2.52	1.34	47.83	65.22	3.77	0.53	95.45	–	3.22	0.85	73.91	–
Skill 4	Useful	3.64	0.58	95.45	86.36	3.77	0.69	95.45	–	3.27	1.28	72.73	63.64	3.54	0.98	86.96	–
	Innovative	1.96	1.40	31.82	36.36	1.58	1.35	30.43	–	3.13	0.85	78.26	65.22	1.29	1.38	19.05	–
	Feasible	3.00	1.04	56.52	52.17	3.73	0.55	95.45	–	2.73	1.28	54.55	31.82	3.32	0.99	81.82	–

Table 3 (continued)

		Colleagues (1)				Parents (2)				Motivation & engagement (3)				Difficult students (4)			
		Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)
Skill 5	Useful	3.75	0.53	95.65	–	3.86	0.35	100.00	–	3.87	0.34	100.00	90.91	3.32	1.21	81.82	–
	Innovative	3.18	1.05	77.27	–	1.68	1.46	31.82	–	2.39	1.41	56.52	56.52	1.83	1.53	36.36	–
	Feasible	2.18	1.05	27.27	–	3.83	0.38	100.00	–	3.05	1.05	68.18	72.73	3.41	0.91	81.82	–
Skill 6	Useful	3.67	0.64	95.65	–	3.79	0.59	91.30	–	3.83	0.39	100.00	–	3.48	1.04	90.91	–
	Innovative	1.59	1.44	31.82	–	1.82	1.18	31.82	–	1.87	1.46	34.78	–	2.65	1.43	60.87	–
	Feasible	3.18	0.85	72.73	–	3.91	0.29	100.00	–	3.68	0.57	95.45	–	3.09	0.97	77.27	–
Skill 7	Useful	3.71	0.62	91.30	–	3.42	0.88	86.96	–	3.92	0.28	100.00	–	3.52	0.79	81.82	–
	Innovative	1.52	1.25	23.81	–	1.91	1.31	36.36	–	2.05	1.33	36.36	–	2.40	1.39	50.00	–
	Feasible	3.57	0.68	90.48	–	3.45	0.80	90.91	–	3.64	0.66	90.91	–	3.38	0.86	76.19	–
Skill 8	Useful	3.91	0.29	100.00	–	–	–	–	–	3.65	0.78	91.30	–	2.87	1.36	68.18	54.55
	Innovative	2.36	1.14	50.00	–	–	–	–	–	2.81	1.17	61.90	–	1.70	1.18	21.74	17.39
	Feasible	3.13	1.01	73.91	–	–	–	–	–	3.00	1.17	72.73	–	3.09	1.06	68.18	59.09
Skill 9	Useful	3.57	0.99	86.36	–	–	–	–	–	–	–	–	–	–	–	–	–
	Innovative	3.38	0.80	90.48	–	–	–	–	–	–	–	–	–	–	–	–	–
	Feasible	2.04	1.33	39.13	–	–	–	–	–	–	–	–	–	–	–	–	–
Skill 10	Useful	3.18	1.01	68.18	72.73	–	–	–	–	–	–	–	–	–	–	–	–
	Innovative	2.77	0.87	59.09	50.00	–	–	–	–	–	–	–	–	–	–	–	–
	Feasible	2.43	0.66	34.78	39.13	–	–	–	–	–	–	–	–	–	–	–	–

Table 3 (continued)

		Conflicts management (5)				Classroom climate (6)				Attention & understanding (7)				Overall framework			
		Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)
Overall skill domain	Useful	3.52	0.67	91.30	–	3.43	0.59	95.65	–	3.41	0.80	90.91	–	3.74	0.54	95.65	–
	Innovative	1.81	1.17	33.33	–	2.36	1.18	50.00	–	2.24	0.94	47.62	–	2.48	1.16	60.87	–
	Feasible	3.18	1.22	81.82	–	3.45	0.74	86.36	–	3.38	0.50	100.00	–	3.35	0.71	86.96	–
	Pleasing	3.18	0.91	68.18	–	3.10	0.72	80.00	–	2.76	0.83	61.90	–	3.35	0.71	86.96	–
	Stimulating	3.00	0.89	71.43	–	3.10	0.62	85.71	–	2.80	0.89	60.00	–	3.30	0.70	86.96	–
Skill 1	useful	3.71	0.62	91.30	–	3.70	0.76	90.91	–	3.63	0.77	82.61	–	–	–	–	–
	Innovative	2.00	1.57	40.91	–	1.91	1.44	47.62	–	2.45	1.37	59.09	–	–	–	–	–
	Feasible	3.55	0.80	81.82	–	3.62	0.86	85.71	–	3.23	0.92	68.18	–	–	–	–	–
Skill 2	useful	3.70	0.56	95.45	–	3.32	1.36	76.19	–	3.86	0.47	95.45	–	–	–	–	–
	Innovative	2.05	1.33	36.36	–	3.14	0.85	70.00	–	2.21	1.35	52.17	–	–	–	–	–
	Feasible	3.52	0.79	91.30	–	2.80	1.20	65.00	–	3.29	0.90	80.95	–	–	–	–	–
Skill 3	useful	3.95	0.21	100.00	–	3.83	0.38	100.00	–	3.55	0.96	90.91	–	–	–	–	–
	Innovative	1.32	1.21	13.64	–	2.04	1.26	31.82	–	2.57	1.24	50.00	–	–	–	–	–
	Feasible	3.75	0.61	95.65	–	3.36	0.79	90.91	–	3.09	0.95	78.26	–	–	–	–	–

Table 3 (continued)

		Conflicts management (5)				Classroom climate (6)				Attention & understanding (7)				Overall framework			
		Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)
Skill 4	Useful	3.83	0.48	95.65	–	3.61	0.84	86.36	–	3.68	0.65	90.48	–	–	–	–	–
	Innovative	2.10	1.45	38.10	–	2.64	1.14	54.55	–	2.19	1.66	42.86	–	–	–	–	–
	Feasible	3.64	0.73	86.36	–	3.52	0.95	86.96	–	3.43	0.93	80.95	–	–	–	–	–
Skill 5	Useful	3.92	0.28	100.00	–	3.91	0.29	100.00	–	3.95	0.21	100.00	–	–	–	–	–
	Innovative	1.86	1.35	33.33	–	1.71	1.52	38.10	–	1.77	1.54	36.36	–	–	–	–	–
	Feasible	3.50	0.86	86.36	–	3.86	0.48	95.24	–	3.57	0.66	91.30	–	–	–	–	–
Skill 6	Useful	–	–	–	–	3.83	0.38	100.00	–	3.78	0.52	95.65	–	–	–	–	–
	Innovative	–	–	–	–	2.22	1.59	50.00	–	1.86	1.42	40.91	–	–	–	–	–
	Feasible	–	–	–	–	3.68	0.78	90.91	–	3.67	0.66	90.48	–	–	–	–	–
Skill 7	Useful	–	–	–	–	–	–	–	–	3.65	0.83	86.96	–	–	–	–	–
	Innovative	–	–	–	–	–	–	–	–	1.95	1.13	31.82	–	–	–	–	–
	Feasible	–	–	–	–	–	–	–	–	3.38	0.92	80.95	–	–	–	–	–
Skill 8	Useful	–	–	–	–	–	–	–	–	3.70	0.76	90.91	–	–	–	–	–
	Innovative	–	–	–	–	–	–	–	–	1.86	1.42	42.86	–	–	–	–	–
	Feasible	–	–	–	–	–	–	–	–	3.71	0.56	95.24	–	–	–	–	–

Table 3 (continued)

		Conflicts management (5)				Classroom climate (6)				Attention & understanding (7)				Overall framework			
		Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)	Mean (round 2)	SD (round 2)	% Positive ratings (round 2)	% Positive ratings (round 4)
Skill 9	Useful	–	–	–	–	–	–	–	–	3.83	0.39	100.00	–	–	–	–	–
	Innovative	–	–	–	–	–	–	–	–	2.00	1.11	36.36	–	–	–	–	–
	Feasible	–	–	–	–	–	–	–	–	3.77	0.43	100.00	–	–	–	–	–
Skill 10	Useful	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Innovative	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Feasible	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

innovativeness, the percentage of respondents giving positive judgments tended to remain above or at least near to the 66% threshold. Domain 4, concerning difficult students, is the only one well below the minimum level of requested consensus in three of the five assessment items we considered, with less than half of the respondents considering it innovative, pleasing or stimulating. One of the potential causes of this lack of positive feedback has been identified through an additional analysis of the comments left by teachers in the last part of the questionnaire. Some of them stressed the fact that Domain 4 may be considered superfluous, especially because most of the practical applications that focused on how to handle difficult students actually deal with issues that are strictly related to other domains. For example, the suggestion to define and put into practice an efficient system of classroom rules, rewards and sanctions represents a desirable strategy to avoid any kind of conflict or difficulty in the class (Domain 5) regardless of the presence of disruptive students. Moreover, the use of non-verbal communication as an alternative tool to correct the misbehavior of disruptive students can be considered part of the broader domain of skills aimed at maintaining high levels of attention during the lesson. In line with these considerations, Domain 4 was dropped from the final version of the framework, and we reallocated its most valuable relational skills between the remaining 6 (see Table 2, stage 2: main revisions).

The relational skills listed within the content domains obtained average scores that roughly reflect teacher opinion on the overall framework: only a few of them received a sufficient percentage of positive ratings in terms of innovativeness (skills 5 and 9 for domain 1; skill 4 for domain 3; skill 2 for domain 6), while the scores distribution on the usefulness item indicated that teachers considered them powerful tools for managing relationships in school. Good results also emerged from the analysis of their degree of practicality, except for eight of the skills located in five domains (skills 4, 9 and 10 for domain 1; skills 2 and 3 for domain 2; skills 4 for domain 3; skill 2 for domain 4; skill 2 for domain 6). More generally, it seems that in most cases our framework defines relational skills and practical applications that are well established among experienced teachers, easy to put into practice and very useful in managing interactions with students, parents and colleagues. On the other hand, Table 3 statistics show that not all the skills met at least two of these three quality standards as required. These are six skills respectively focused on how to productively cooperate with colleagues (4 and 10), to establish positive relationships with parents (2 and 3) and to manage difficult students (2 and 8). Furthermore, we opted for the inclusion of two additional skills extracted from the motivation & engagement domain (4 and 5). Each of them moderately exceeded the cut-off point of 66% of positive responses for two of the three assessment items, but at the same time, the standard deviations of their scores showed to be greater than 1. That means that the tales of the distribution of teacher judgement ranged from very negative to moderately positive ratings, outlining the extremes of an unfavorable overall opinion. All these skills were resubmitted to teachers in the following Delphi round, asking them to express ratings and to motivate them through written texts.

The results of the fourth round of the Delphi study gave us clear clues about which of the eight controversial relational skills should be eliminated. In the fourth round some of them received lower percentages of positive ratings for all the assessment items, becoming the leading candidates to be excluded from the training material. It was also the case of the motivation & engagement skill 4 and the managing difficult students skills 2 and 8. Other relational skills made positive changes from round two to round four, but still not enough to preserve them because they were combined with a reduction in the percentages of positive rating on the other assessment items (the controversial skills of colleagues and parent domain). The only skill that exceeded our minimum retention threshold is number 5 of the motivation & engagement domain. Despite dropping from 100% of positive ratings on the

usefulness item in the second round to 91% in the fourth round, its moderate improvement in terms of feasibility (5%) was sufficient to consolidate teacher consensus on two of the three dimensions of judgement.

At the end of the main revision process, which led to the collapse of domain 4 and the deletion of seven relational skills, all domains were harmonized in their structure and allocated in a single document which constituted our final draft of the framework, made available as supplementary material. In total, it was based on the following 6 domains, containing 44 different relational skills and 188 practical applications: (1) collaboration with colleagues; (2) creation of a positive classroom climate; (3) stimulation of student motivation and engagement; (4) stimulation of student attention and understanding; (5) management of difficult students and conflict in the classroom; (6) establishment of positive relationships with parents.

5 Discussion

The issue of emotional and relational aspects of teaching, their effective management in educational contexts and how to prepare teachers to deal with them remains unsolved, despite the demonstrable relevance of social interactions in education settings. Thus, attention to relational skills intrinsic to teaching is left to the initiative of interested groups of teachers or inspired school principals willing to work on a more profound level of education. Frequently these actors are moved by the need to include in the classes disruptive students and of managing difficult relational settings; less frequently, attention to the relational skills derive from the need to promote dialogue, collaboration, and mutual support among teachers and/or with parents. Far from the pervasiveness of relational skills, regarding student–teacher relations, teacher-teacher relations and teacher-parent relations, professional development initiatives end up in more narrowly focused discourse and struggle with the need to identify relational practices that can be easily implemented by teachers in their daily routine. This is a relevant limitation since the whole education community can benefit from a renewed attention to relational skills and their impact on educational. Starting from these premises, our contribution tried to overcome the lack of consensus in the definition of relational skills and in the practices underlying the concept itself, in order to promote a relational culture in education settings.

More precisely, we explored relational skills in the Italian school context, as a first step in order to empirically set the debate in this field. We hope that our contribution will stimulate the debate around the importance of empirically based knowledge in the structure of skill-based working approaches, especially in the areas of socialization, relations and emotions. Given the growing interest around these themes, providing professionals with the right tools is fundamental in order to pursue organizational goals. If social, relational and emotional aspects of learning have a profound impact on school success, preparing teachers with specific relational skills has become essential. Our study showed how, through a modified bottom-up Delphi approach, it is possible to start from the knowledge embedded in the specific community of practice and to structure and expand from that knowledge in order to foster educational bonding.

From a methodological perspective, our study seemed successful in finding consensus regarding what relational skills are and how they may be put into practice in school contexts. The modified Delphi method we adopted has shown to be appropriate for the investigation of the meanings and practices of the selected social group. The administration of

three rounds of online iterative surveys allowed us to reduce the well-known risks of attrition in the long run (Hsu and Sandford 2007; Salkind 2010). Online questionnaires that only need devices connected to the internet to be completed (smartphone, tablet or PC) systematically reduced the necessary effort of participants in terms of both temporal and physical availability and allowed us to obtain a final response rate of around 96%. Certainly the confidential dimension of the Delphi instrument left teachers free to express unusual and, in some cases, also trivial positions. However, in line with previous research (e.g., Di Zio and Maretti 2014), the opportunity for skilled and experienced teachers to propose their ideas and modes of managing relational issues, in addition to a mediated interaction with experts, brought out a wide set of innovative proposals. More precisely, we introduced in the Delphi process four elements, all pointing in the direction of finding innovative aspects of teacher skill, going beyond the literature in the field, which is consolidated but also narrow in its focus. Firstly, we stressed the bottom-up dimension of our process, which was mainly focused on teachers as experts by experience, whose contributions were afterwards validated by academics; secondly, an explicit invitation to innovate the definition of teacher skill, both when proposing elements and when rating them; thirdly, the involvement of teachers in the definition process not only as reflective practitioners, but also as experts by experience regarding their usual fruition of professional development initiative; finally, the integration, in a circular process, of elements methodologically typical of the Delphi and others belonging to scientific committees, allowing us, at the same time, to preserve the heterogeneity of experts in our sample and to maintain separate tow sources of validation, namely consensus among practitioners and reflections on innovative elements and their coherence with previous consolidated scientific knowledge. In our opinion, all these elements contributed successfully to our aim, namely integrating, in the definition of teacher skill, consolidated and innovative elements and making it possible to develop further professional development initiatives.

Moreover, the *aggregation of points of view* effectively facilitated the creation of consensus among participant teachers about relational skills and their most important features (Gemenis 2015). The consensus on the six domains regarding relational skills and, more specifically, the agreement on the 44 related skills are proof of how teachers are already working on relational skills in their daily educational practices.

However, some general limitations of the study need to be acknowledged. The main issue concerns the convenience nature of the sampling procedure we adopted and its consequences for the external validity of the results. The decision to compose our panel by including only experts in the field and experienced teachers may have omitted the opportunity to grasp motivational specificities as well as specific problems faced by pre-service teachers in managing on-the-job relations (e.g. Abbiati et al 2022). Indeed, the Italian school system is characterized by a lack of pre-service training and specific academic courses aimed at developing specific skills among future teachers. This situation partially changed only in the last decade but did not affect the vast majority of the Italian teaching force (Argentin 2018). Moreover, the adoption of the principle of saturation did not guarantee a real coverage of the teaching population, which is not statistically represented by our sample. This further limitation, however, cannot be directly addressed within our qualitative research framework. Besides this, our study presents an opportunity to reflect on both the usage of Delphi in education and in work-related studies. As for the educational aspects, recent studies (e.g. Manias-Muñoz 2019, Krijtenburg-Lewerissa 2019) confirm it to be effective in condensing highly complex educational meanings. At the same time, from the perspective of work-related studies, the Delphi technique shows itself to be a fundamental tool in order to probe intangible aspects of the *on-the-job* procedures,

attitudes and skills. Even if soft-skills are proved to be essential in order to enhance efficiency in job-related environments (Klaus 2010; Mitchell et al. 2010), their identification and evaluation can be problematic, often due to misunderstandings and conceptual distances between researchers and practitioners. As previously shown by job-related literature (Boyer et al. 2019; Lalloo et al. 2016), the Delphi technique is a useful tool when it comes to the aggregation of meanings and practices which are already part of the daily experience of a specific community of practice.

What also makes the Delphi a fruitful means by which to investigate job-related soft skills is the practical form which its findings can assume. Differing from other techniques, this method has allowed the production of results moving in the double direction of domains definition and practical applications. In line with previous research in other community of practices (e.g., Boyer et al. 2019; Chan et al. 2020), the Delphi method can facilitate the accumulation of both tangible and intangible knowledge belonging to a specific working group. As demonstrated, this appears to be valid especially in the domain of relational skills.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11135-023-01638-3.

Author contributions GA Concevied and designed conceptualised the study. Material preparation, data collection and analysis were performed by GA and TG. The first draft of the manuscript was written by GA, TG, and AS. GA and TG commented on previous versions of the manuscript and read and revised the final version. All authors approved the final version. Authors thank all the teachers who participated to the Delphi process and the EWG members: Giulia Assirelli, Anna Carletti, Simoe Giusti, Anna Ostinelli, Valentina Tobia and Andrea Varani.

Funding This work was financed by the Italian Ministry of Education (MIUR), through the SIR programme (Grant Number RBSI14G0W4). It was implemented jointly by the Catholic University of Milan and the University of Milano-Bicocca. Open access funding provided by SUPSI - University of Applied Sciences and Arts of Southern Switzerland.

Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

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