



Virtual Communities of Practice: Nurturing Teacher-coordinators' Well-being Amidst Stress and Crisis

Schrire, Odelia; Tsybulsky, Dina; Kirchner, Kathrin; Ipsen, Christine

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Virtual Communities of Practice: Nurturing Teacher-Coordinators' Well-being amidst Stress and Crisis

Abstract

Purpose – This longitudinal study investigated the ways in which Virtual Communities of Practice (VCoPs) can support the well-being of teachers in managerial roles during stressful changes and crises. Specifically, it examined the experiences of these educators to better understand how VCoPs contribute to sustaining well-being in the face of challenges.

Design/methodology/approach – A qualitative study methodology was utilized, consisting of three rounds of interviews with seven teacher-coordinators, coupled with content analysis to discern patterns and insights. A multidimensional model was then applied to pinpoint the associations between the virtual community's characteristics and the different approaches implemented by these teacher-coordinators to address stress and crises.

Findings –The analysis revealed a range of coping strategies within the VCoPs for handling stress and crises. Participation in virtual spaces was shown to foster in-depth, rich discussions. The multidimensional model captures how social, emotional, and cognitive factors can help teacher coordinators navigate challenges.

Originality/value – This study contributes to a broader understanding of the well-being of educational staff, especially teachers in managerial roles, by exploring the subtle dynamics of a VCoP. The findings highlight the impact of these communities on teacher-coordinators' well-being in routine, stressful, and crisis situations. These insights can provide valuable guidance for educational practitioners and policymakers to enhance the resilience of the educators to diverse challenges.

Keywords - VCoPs, Well-being, Teacher-coordinators, crisis.

Paper type - Research paper

Introduction

Teachers in managerial roles grapple with numerous professional challenges that impact their instructional responsibilities and leadership duties in their schools (Author 2 and Other, 2022). These challenges become more pronounced amid changes that induce pressure and crises that disrupt the equilibrium of their routines.

These changes can manifest locally within the school, or emanate externally from extreme situations such as war, epidemics, and rapidly-changing realities. Transformations in the education system reverberate across various stakeholders by altering communication dynamics and self-perceptions. For instance, the shift to digital-age pedagogy called for radical changes in teachers' perceptions and instructional methods (Author 2 and Other, 2019). The abrupt transition to online learning during the COVID-19 pandemic posed novel challenges to the educational system that heightened stress and constituted a significant threat to teachers' well-being (UNESCO, 2020; Chan *et al.*, 2021).

Teachers in managerial roles shoulder a dual, substantial responsibility as both educators and leaders of teacher teams tasked with navigating and adapting the educational system to these dynamic changes (Skinner *et al.*, 2021). Their continual responsibility to provide solutions in times of stress and crisis underscores why teacher-coordinators often seek professional support. Virtual Communities of Practice (VCoPs) are accessible sources of support that offer diverse technological resources in cyberspace (Bedford, 2019) and opportunities for learning and social interactions (Atkins *et al.*, 2017).

Especially in times of crisis, VCoPs play a pivotal role for teacher-coordinators holding key positions in schools (Mingaine, 2013). Despite their importance, there is scant literature on how the specific characteristics of these communities contribute to their participants' well-being. This study aimed to fill this gap by examining how the well-being of teachers in managerial roles can be sustained through their participation in a VCoP over a 3-year period characterized by persistent professional challenges and crisis management.

Literature Review

The present study is grounded in theoretical frameworks on Teacher Well-being (TWB) and learning communities. It examined the specific components that foster well-being and alleviate stress, particularly in protracted emergency situations such as the COVID-19 pandemic, within a professional community dedicated to teachers holding managerial roles.

The importance of teacher leadership in the school context

Teacher leadership plays a crucial role in improving school efficiency, enhancing teaching methods, and fostering student achievement (Harris and Jones, 2021). Teacher leadership often involves accepting additional responsibilities, since teachers with managerial roles take on duties beyond their classrooms that can influence the procedures and policies of the entire school (Harris & Muijs, 2005). Teachers in managerial roles often lead teams or are in charge of specific subjects, thus ensuring consistency in teaching strategies and curriculum goals. They are also on school committees, and are thus involved in school improvement programs and diversity initiatives. The involvement of teacher leadership in school activities highlights the benefits of distributed leadership in fostering a cohesive and effective educational environment (Spillane et al., 2001).

By combining their classroom experience with leadership responsibilities, teachers in managerial roles bridge the gap between teaching and management. This ensures that educational practices are effective and responsive to the needs of the students and the teaching staff as a whole. They facilitate effective communication between school officials and external stakeholders, which is essential for building strong school-community relations and handling conflicts (Poekert, 2012). However, this dual responsibility can be demanding, because it calls on teachers to juggle their classroom duties with their administrative roles. Effective support and clear role definitions are essential for their success. As Mangin and Stoelinga (2008) pointed out, role ambiguity can lead to stress and conflict, which thus points to the need for well-defined responsibilities and professional support.

Harris and Jones (2019) emphasized that teacher leaders are often at the forefront of school reform efforts, where they advocate for changes to improve student learning outcomes and overall school performance. These processes of change sometimes generate resistance that constitute professional challenges for teachers in managerial positions (Fullan, 2007). Systemic changes that come from within the system or are imposed from the outside can lead to stress and crisis situations for the entire educational system (Day & Gurr, 2014). To help maintain

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3 the well-being and satisfaction of these teachers, it is crucial to provide adequate support
4 (Toropova et al., 2021).
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7 *The well-being of teachers with managerial roles navigating a dynamically changing reality* 8 *and crises* 9

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11 Educators are confronted with a myriad of intricate decisions in their daily roles whose
12 complexity has been heightened in today's digital landscape and is exacerbated during
13 emergencies (Hodges *et al.*, 2020; Schleicher, 2020). Such circumstances can give rise to
14 emotional imbalances that impact individuals' overall sense of well-being (Beltman and
15 Poulton, 2019). Well-being extends beyond self-perception, in that it influences individuals'
16 thoughts and feelings about others and serves as a catalyst for developing resilience and coping
17 with challenges (Manning and Fleming, 2019).
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21 The well-being of teachers in managerial positions such as teacher-coordinators is particularly
22 crucial since they confront the dual challenges associated with their teaching responsibilities
23 and their roles within management teams (Author 2 and Other, 2022). Navigating changes can
24 induce stress and crises within the system, which underscores the key role of leadership in
25 preserving well-being and fostering resilience (Mingaine, 2013). This makes it imperative to
26 nurture the leadership skills of teacher-coordinators, and in particular how to maintain their
27 well-being to bolster the resilience of the system as a whole (Meier and Carroll, 2020).
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31 Understanding social-emotional well-being is pivotal for teacher-leaders, since it influences
32 their communication with students and teachers, and contributes to the cultivation of social-
33 emotional skills (Denston *et al.*, 2022). There is a broad consensus that well-being should be
34 viewed as a multifaceted construct encompassing physical, emotional, psychological, social,
35 professional, and environmental dimensions (Hascher and Waber, 2021). The associations
36 between teachers' well-being and that of students point to the critical importance of prioritizing
37 Teacher Wellbeing (TWB) (Harding *et al.*, 2019). TWB, as defined by Aelterman *et al.* (2007),
38 is a positive emotional state resulting from finding an equilibrium between environmental
39 factors and personal needs and expectations. This encompasses emotional well-being, which is
40 characterized as diverse and fluid, and respects individual, familial, and communal beliefs,
41 values, experiences, cultural influences, opportunities, and contexts across time and changes
42 (McCallum *et al.*, 2017). Studies on TWB consistently report a positive relationship between
43 coping with stress and overall well-being (Rabenu *et al.*, 2017; Zewude and Hercz, 2021).
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3 The COVID-19 pandemic led to substantial changes in education systems worldwide. At the
4 onset of the crisis, teachers were compelled to upend their teaching methods overnight and turn
5 to digital technologies. Studies conducted during the first year of the pandemic revealed that
6 teachers experienced heightened stress, anxiety, anger, sadness, and loneliness (Bhat *et al.*,
7 2020; Fackler and Sexton, 2020; MacIntyre *et al.*, 2020). Stress and crisis situations are
8 experienced and managed differently by different people, who thus need different types of
9 support. The BASIC PH model identifies six primary coping styles: Belief, Affect, Social,
10 Imagination, Cognition, and Physical, which correspond to relying on faith, expressing
11 emotions, seeking social support, using creativity, applying problem-solving, and engaging in
12 physical activity to manage stress and adversity (Lahad, 2017). Platforms such as Virtual
13 Communities of Practice (VCoPs) (Rap *et al.*, 2020) can respond to the need for professional
14 support. Kwok *et al.* (2016) found that community gathering places, social support, knowledge
15 of risks and consequences, collective efficacy, and a sense of community all contribute to
16 community resilience. Therefore, this study investigated the experiences of biology teacher-
17 coordinators in a VCoP to better understand the benefits derived from their participation in this
18 community and the range of coping strategies they employed to deal with routine and crisis
19 situations.

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 ***Features of VCoP and their role in professional development***

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38 A professional community is defined as a collective of individuals with shared interests
39 collaborating to enhance their practices in an ongoing and supportive manner (Lave and
40 Wenger, 1991). According to Wenger (2011), in these communities, individuals engage in joint
41 activities that foster personal and professional development that contribute to the evolution of
42 their professional identity over time. Studies have shown that the impact of PLCs can vary
43 depending on factors such as the effectiveness of teaching, the level of participation, and the
44 organizational context (Webb *et al.*, 2009). There are challenges such as ensuring sufficient
45 cooperation, overcoming implementation barriers or maintaining momentum over time (Tayag,
46 2020). Research shows that effective PLCs often exhibit characteristics such as a shared vision
47 and goals, collaborative inquiry, collective responsibility, reflective practices, and supportive
48 leadership (Chen *et al.*, 2008). In addition, PLCs that favor trust, respect, open communication,
49 and a culture of continuous improvement tend to be more effective in promoting teacher well-
50 being and professional growth (Vangrieken *et al.*, 2017). Through interactions within the
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community characterized by receiving feedback and validation of their approaches and perspectives, the participants can cultivate confidence in their abilities and enhance their sense of self-efficacy as leaders and agents of change (Zheng and Luo, 2023).

Ford et al. (2008) introduced the term 'virtual professional learning community' (VPLC) to describe online communities of practice that utilize digital tools and media in their communication, collaboration, and learning endeavors. Interactions within this virtual space, complemented by technological resources, offer abundant opportunities for social learning (Atkins *et al.*, 2017). The role of physical and virtual professional communities in teachers' professional development has been extensively explored (Cohen-Nissan and Kohen, 2023; Scherz *et al.*, 2021; Shauly and Avargil, 2023). A recent study on the contribution of PLCs indicated that participant interactions significantly heightened teachers' knowledge, in particular by fostering the development of collective pedagogical content knowledge (Shauly *et al.*, 2023). As Tam noted (2015), VCoP participants can actively shape their online identities and personalities by engaging in discussions about pedagogical ideas, information sharing, and collaborative knowledge creation.

The literature on the utilization of social media for professional learning has pointed to its advantages and its role in transforming learners into active information producers rather than passive consumers. It facilitates learning through shared experiences and nurtures a desire for collaborative learning among peers (Sullivan *et al.*, 2018). Studies indicate that teachers who engage in online interactions experience a heightened sense of community that encourages the development of robust collegial relationships and friendships within the group (McConnell *et al.*, 2013). A digital platform accessible to members of an online community, irrespective of location and time offers an opportunity for interactions that enhance their sense of community and belonging to the group (Waldman and Blonder, 2020). These interactions encompass the emotional, social, and cognitive dimensions inherent to teaching and learning, which are intricately intertwined and influence effective learning (Tettegah and McCreery, 2015; Tyng *et al.*, 2017). The essential characteristics of peer participation in professional communities that support teachers in managerial positions ultimately enhance their ability to positively influence educational systems (Campbell *et al.*, 2016). The accessibility of virtual online meetings enables school leaders from diverse backgrounds and with few opportunities to engage in a professional community to discuss challenges and explore potential solutions (Irby *et al.*, 2022).

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3 Nevertheless, there is scant literature on the characteristics of a VCoP that helps teacher-
4 coordinators navigate crises and professional challenges. To respond to this need, the current
5 study thus analyzed the cognitive, emotional, and social components characterizing learning
6 within this specific VCoP community.
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10 11 12 **Method**

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14 A qualitative case study methodology was chosen for its suitability to conducting an in-depth
15 exploration of complex phenomena within a specific context (Creswell & Poth, 2016). The
16 objective was to better understand the characteristics of a VCoP that help teacher-coordinators
17 navigate crises and professional challenges. Specifically, it examined in what ways virtual
18 communities of practice support the well-being of teacher-coordinators when dealing with
19 stressful changes and crisis situations.
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25 To gain deeper insights into how the participants coped with professional challenges during
26 crises, the BASIC PH integrative coping model was employed, as depicted in Table I (Lahad,
27 2017). Rooted in previous stress models such as Lazarus' and Folkman's work (1984), the
28 BASIC PH model covers variables linked to psychological health and well-being. Comprising
29 six coping mechanisms, this model assesses individuals' ability to mitigate the risk of
30 psychopathology and bolster resilience, i.e., "The ability of the individual to withstand and
31 recover from adversities and crisis by oneself or with the help of others" (Lahad, 2017, p. 29).
32 The model is premised on the notion that all individuals possess the potential to cope and may
33 employ different coping styles, thus allowing for the identification of specific patterns,
34 languages, and coping styles when confronting stress, crisis, uncertainty, disaster, or danger.
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43 In the current study, the implementation of the BASIC PH model served as an analytical tool
44 to provide an epistemological understanding of the ways in which the participants perceived
45 the characteristics of the VCoP were perceived as contributing to their well-being.
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Participants

Seven biology teacher-coordinators who belonged to the VCoP out of the 25 coordinators composing the group from different schools took part. Six of the 7 participants were women.

Table II presents the participants' demographics and the number of times they were interviewed.

[Insert Table II about here]

Table II shows that the participants had varying levels of experience as coordinators and in teaching overall. They taught at different schools in different cities across the country, so that the online community space was the only feasible way for them to meet. The seven research participants were representative of the broader community, which includes biology teacher-coordinators from public secular and religious schools, predominantly Hebrew-speaking, along with some Arabic-speaking schools.

Coordinators voluntarily register with this professional community each year, and earn teacher training credit hours for their participation. Since the composition of the community can change from year to year, this study focused on those who agreed to participate and remain in the VCoP for an extended period. Of the seven coordinators who participated in the study during the first two years, four remained in the VCoP during the third year as well. The community leaders are two biology teacher-coordinators themselves and are responsible for the general agenda of the meetings. The community focuses on two main issues: (1) the integration of technologically innovative pedagogy in the teaching of biology, and (2) ways to address the management challenges faced by the coordinators. During the period covered by this study, community meetings were held online once a month throughout the school year (2020-2023) and dealt with diverse topics based on topics raised by the coordinators. During the first year of this study, the schools where the biology teacher-coordinators worked needed at times to teach remotely during COVID-19 lockdowns. Regardless, the VCoP meetings were held online, in line with the characteristics of a virtual professional learning community. The topics discussed in these meetings reflected the coordinators' changing work environments and the professional experiences and the challenges they faced. The group's activities also include a Google Classroom and a WhatsApp group that allow members to share learning materials, ideas, thoughts and feelings whenever they want. The community also operated virtually in the period before and after the study. The participants were informed of the nature of the study and

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3 the procedure. They signed an informed consent form after receiving an explanation clarifying
4 that their participation would be voluntary, that their responses would remain anonymous
5 (pseudonyms), and would not interfere with community activities.
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10 11 *Research instruments and data collection* 12

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14 Data collection spanned three years, from 2020 to 2023, and predominantly employed semi-
15 structured interviews (McIntosh and Morse, 2015) and observations of community encounters
16 as a supplementary source of information to elucidate meanings and context. The coordinators'
17 interviews took place in three rounds (May 2020, May 2021, and June 2023), totaling 18
18 interviews, each lasting approximately one hour. Seven participants were interviewed during
19 the first two rounds, resulting in a total of 14 interviews. In the third round, four other
20 interviews were conducted with the four participants who remained in the group in the third
21 year. Two separate interviews were conducted with the community leaders to provide
22 contextual support. The first author conducted all interviews on Zoom, which were recorded
23 and then transcribed. Meticulous attention was paid to preserving meanings and contextual
24 nuances.
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34 During the interviews, the teacher-coordinators were asked to delineate their roles within the
35 context of professional interactions experienced in their routine work that often entailed
36 challenging, stressful and crisis situations. Guiding questions were formulated to establish a
37 consistent foundation for the first two rounds of the interviews (see Appendix 1). These
38 questions aimed to prompt the teacher-coordinators to articulate their roles and emphasize their
39 experiences related to difficulties, strengths, and sources of assistance. One of the key aims of
40 the interviews was to pinpoint sources of assistance and gather the participants' views on the
41 types of support they received. In the third round, the four remaining participants were
42 specifically questioned about the effects of their engagement in the VCoP, with the inquiry
43 framed as follows: "Has participating in the community helped you in any way?". The
44 interview also delved into other issues that will be addressed in other studies and are not
45 reported here.
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55 Concurrently, online observations, totaling 10 hours, were conducted during five community
56 meetings in the first year, which provided deeper insights into the meeting environment and
57 made it possible to identify comments that supported the findings from the content analysis of
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3 the interviews. In addition, throughout the three-year research period, the group's WhatsApp
4 chats were accessed to enhance comprehension of context while generating findings. The use
5 of diverse methods facilitated the content analysis by contributing to the identification and
6 comprehension of key ideas emerging from the interviews.
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10 11 **Data analysis**

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15 Content analysis (Krippendorff, 2018) was applied, where the teacher-coordinators' statements
16 in the interviews were defined as the units of analysis. Based on theories in the field of
17 Communities of Practice (Lave and Wenger, 1991), in the first stage, a first-order categorical
18 analysis was carried out deductively after the units had been classified into 3 main categories:
19 the emotional aspect, the social aspect and the cognitive aspect. In the second step, the teacher-
20 coordinators' statements were classified inductively into categories according to the common
21 themes that emerged from the statements. They were then grouped into separate subcategories
22 as shown in Table III. This step aimed to structure the information and provide an in-depth as
23 well as more broadly-based response to the research questions. The third step involved
24 tabulating the frequency of the codes. In the fourth step, the themes were reviewed to find and
25 ensure internal cohesion within each category and external cohesion with the other categories.
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35 In the final stage, a comparative analysis was conducted where the cognitive, emotional, and
36 social characteristics of the community, as identified in the study, were juxtaposed with the
37 components outlined in the BASIC PH model. This analytical step facilitated the construction
38 of a multidimensional model affording a comprehensive comprehension of the findings. It also
39 furnished a theoretical framework that elucidated the community's role in enhancing the well-
40 being of its participants during professional challenges and crises.
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51 **Trustworthiness**

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53 Several measures were implemented to enhance the trustworthiness of the findings. The
54 requests for interviews emphasized the voluntary nature of participation and the absence of
55 repercussions if participants refused. At the start of each interview, the researcher introduced
56 herself and provided comprehensive information about the nature of the study and overarching
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3 purpose. The first author joined the virtual community meetings as an observer without further
4 intervention. The ERB committee of the university approved this study.
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8 The credibility of the study was also enhanced by meticulous scrutiny of the data at various
9 analytic stages. At each step, the researchers systematically re-evaluated the findings to ensure
10 they were firmly grounded in the data. Data analysis was conducted by the first author,
11 followed by collective discussions with the other authors. A consensus was reached on how to
12 categorize the findings. Subsequently, during the data analysis phase, the entire process was
13 subjected to feedback through dialogues and explanations. In instances of disagreement, further
14 discussions were undertaken until a consensus was achieved as to the allocation of texts to
15 specific categories.
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21 Findings

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23 The analysis of the interviews and observations showed that the community was seen as a
24 source of support in dealing with crises. This finding is important since the first two rounds of
25 interviews were not directly aimed at assessing whether the professional community was a
26 source of assistance. Rather, this was brought up by the interviewees themselves; hence, the
27 frequency of these references was counted. Most of the statements were taken from the second
28 round of interviews (May 2021). In the first round of interviews (May 2020), the community
29 was not mentioned much, and there was more of a description of the new reality imposed on
30 the education system due to the global pandemic. In the second round of interviews, the
31 teacher-coordinators spontaneously referred to the community's contribution much more often
32 (72 statements in round 2 vs. 2 statements in round 1). These may thus be indicative of the
33 community's growing involvement in the coordinators' long-term handling of the crisis. In the
34 third round, there was no tabulation since the teacher-coordinators were asked directly about
35 the community's contribution to maintaining their well-being and defining their role as
36 coordinators.
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49 Analysis of the teacher-coordinators' statements during the second round revealed several key
50 emotional, social, and cognitive themes. Since this study was designed to explore the
51 functioning of the group rather than differences across participants, the statements provided by
52 all the participants are summarized below to illustrate the contribution of the VCoP to the group
53 as a whole. Overall, there were references to freedom to share emotions and receive a
54 supportive embrace (11 statements). Socially, the emphasis was on social interactions and
55 diverse human capital (25 statements). The cognitive themes related to collaborative thinking
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3 and knowledge engagement (36 statements). These three aspects of their experiences are
4 presented in detail below.
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7 *1. Emotional aspect: The community as a place that allows for freedom to share and a*
8 *supportive embrace*
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12 The teacher-coordinators referred to freedom to share and an emotional embrace in their
13 descriptions of the community's contribution. The quotes below illustrate these different
14 emotional facets of the community's role:
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18 What I give to my community they give back to me, they give me an emotional
19 response [Sarah].
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22 The community, the virtual community is something that also helps me stay sane,
23 above all when I am teaching alone [Gili].
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25 **Here the shared sense of camaraderie is much stronger in a remote format. People**
26 **feel more willing to share (Gili).**
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31 These quotes draw attention to the escalating demand for emotional attunement. Within the
32 online sphere, participants found ways to share and engage in supportive interactions, despite
33 the constraints imposed by pandemic-related lockdowns. The wide variety of school affiliations
34 may have played a pivotal role in fostering an environment conducive to open emotional
35 expression and the sharing of vulnerabilities without apprehension of competitive critique. The
36 participants' shared professional role as biology teacher-coordinators also emerged as a
37 unifying factor, and may have contributed to the teachers' heightened sense of freedom to
38 express their emotions in a context where mutual understanding prevailed.
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46 Another instance of emotional sharing within the group surfaced during the observation of the
47 inaugural meeting of the school year in September 2020. The facilitators, academic leaders,
48 and participants alike conveyed a shared sense of pressure and instability, encapsulated in
49 statements such as "We are all in a frenzy... trying to hold on to an anchor, something
50 permanent" [Gili]. These emotional expressions were articulated with a notable absence of
51 embarrassment or threats to individual egos. The abnormality of the situation appeared to
52 engender a more liberated atmosphere for sharing, predicated on the collective assumption that
53 all the participants were grappling with similar challenges.
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2. *Social aspect: The community as a place for social interactions and connections with diverse human capital*

References to social interactions and diverse human capital were tightly linked to the teacher-coordinators' portrayal of the community's contribution within the inter-organizational and intercultural framework involving coordinators from various schools nationwide who shared a common professional denominator. Their significance is illustrated by the following quotes, each of which exemplifies the social role played by the community:

You get to know other coordinators. It's really good, really. I am very pleased [Ravit].

There is a lot, a lot of cooperation and a lot of mutual help between all the teachers, which is very, very pleasant, because you are not alone [Sarit].

I am very happy to be here, because in the end I feel that the community is a place I can go to for help... because I'm sure there are other coordinators who are facing the same problems (Mali).

These quotations reflect the robust social response experienced by the **teacher-coordinators** within the community space. The imperative for social interactions within the professional realm was also clear in remarks by the community facilitators, as one of the community leaders put it clearly: "The coordinator is all alone professionally. He or she is actually in charge of a team of teachers, and usually... all decisions are solely his or her responsibility, so the community is very, very essential for them" [Mona, facilitator]. In addressing their sense of professional isolation within their respective organizations, the community fostered a collective sense of unity within the intercultural and interorganizational milieu.

Throughout their dialogues, the **teacher-coordinators** engaged in a process of evaluating the commonalities and differences within their personal experiences and perspectives. For instance, one **teacher-coordinator** noted 'for us, it's different', to point to her specific organizational culture. Similarly, another **teacher-coordinator** responded to a peer with the statement 'we would be happy to hear more about it', to indicate eagerness to glean insights from others' experiences.

Over the course of these exchanges, the **teacher-coordinators** articulated and elucidated their individual perceptions and stances in statements such as 'I believe my ... that's why I do it this

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3 way' showing that professional decisions rest squarely in the hands of the teacher-coordinators
4 and are indicative of their professional identity. This exchange not only allowed for the
5 expression of diverse viewpoints but also provided a platform for the teacher-coordinators to
6 clarify their own positions, thus reinforcing the agency they wield in shaping their professional
7 practices and identities.
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12 3. *Cognitive aspect: The community as a place for collaborative thinking and knowledge*
13 *engagement*
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17 The participants cited cooperative thinking and knowledge involvement when highlighting the
18 community's role in fostering joint cognitive processes and the construction of new knowledge.
19 The following quotations provide illustrative instances of this cognitive aspect:
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24 The group was very helpful. With Mona and Lisa as guides we always get the right
25 information. It helps a lot [Sarah].
26

27 If I have issues related to procedures, now, I can ask [Mali].
28

29 **The community to me is the most! because they're innovative and because they're**
30 **bringing in technologies, because they're creating a discourse [Ravit].**
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34 These quotes help capture the teacher-coordinators' responses that reflected their collaborative
35 thought processes, the exchange of personal knowledge, and the collective creation of
36 knowledge through discussions on procedures and requirements within the community. These
37 cognitive engagements proved pivotal for teacher-coordinators, particularly when dealing with
38 the challenges posed by distance learning and teaching within environments characterized by
39 evolving technologies and continually changing procedures.
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43 The primary focus of the community agenda was the exchange of knowledge among teacher-
44 coordinators. Participants actively raised several topics during the annual community session
45 that mostly delved into cognitive facets aimed at augmenting professional knowledge (see
46 Appendix 2). During the interviews, other emotional and social aspects emerged when listing
47 the community's contributions. It is plausible that the teacher-coordinators implicitly
48 anticipated the inclusion of these elements, thus leading to a lack of explicit specification in
49 their expectations. Alternatively, it may signify that they perceived the knowledge component
50 as more impactful on their work.
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3 During the interviews conducted in the third round after the pandemic, parallel findings
4 emerged regarding the ongoing contribution of the community to routine scenarios. When the
5 **four teacher-coordinators who continued to this round of interviews** were explicitly queried
6 about the community's impact, their responses encompassed all three emotional, social, and
7 cognitive dimensions. Table IV delineates these pivotal issues identified by the teacher-
8 coordinators as the primary contributions of the community.
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14 [Insert Table IV about here]
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17 Table IV sheds light on the manifold contributions of the community to its participants. The
18 findings suggest a seamless interweaving of emotional, social, and cognitive responses. The
19 coordinators' narratives vividly portray the intricate interplay between these three dimensions
20 within the community and emphasize the fluid boundaries between them. For example, Ravit
21 stated "It gave me a perspective on where I am. The fact that you see that you are not alone is
22 super encouraging". This sentiment, rooted in emotional support, exemplifies the intertwining
23 of the social and emotional aspects.
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29 Similarly, the **teacher-coordinators** reflected on the cognitive dimension and highlighted the
30 knowledge-sharing dynamics during community meetings. Ravit stated: "After every meeting
31 like this I always leave with enlightenment, always always always". The cognitive contribution,
32 intertwined with social support, also became clear when Ravit described her exchanges with
33 community participants as a source of comfort and advice: "I appreciate them, and also get
34 ideas from them. If I get stuck on something, there is also a listening ear sometimes."
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41 The convergence of the social and cognitive aspects unfolded in discussions about diversity
42 and shared challenges within the community. Sarit noted the diverse nature of the community,
43 stating: "This is a very diverse professional community. They have been teacher-coordinators
44 like me for many, many years. There are new coordinators and also people of different ages.
45 But we all have the same problems, and we all have the same difficulties". Emphasizing mutual
46 support, Sarit said: "I really feel the mutual fertilization, and I think this is a place that
47 contributes a lot to the coordinators. We were very lonely, each in his own field". Networking
48 and shared experiences were also highlighted by Yasmin, who mentioned "getting to know
49 more people who are our counterparts in the profession. It is also important from a multicultural
50 point of view, the closeness between the sectors". The coordinators' statements seamlessly
51 integrated cognitive, social, and emotional dimensions, thus encapsulating the community's
52 multifaceted contributions.
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Discussion and Conclusion

Teacher-coordinators in managerial positions shoulder considerable responsibility, which has been accentuated by the complexity of today's digital landscape and crises (Hodges *et al.*, 2020). This aligns with the findings pointing to the contribution of VCoP to coping with stress and crises. Managerial roles, especially during the COVID-19 pandemic, necessitated a rapid overhaul of teaching methods that fueled heightened stress, anxiety, and emotional imbalance in teachers globally (Bhat *et al.*, 2020; Fackler and Sexton, 2020; MacIntyre *et al.*, 2020). The study's focus on biology teacher-coordinators in VCoP s sheds light on the unique benefits derived from such engagements and emphasizes the importance of professional support for their well-being, particularly in times of crisis.

Contributions of VCoP s to coping with stress and crisis

The findings confirmed that VCoPs served as a social space conducive to collective coping with professional challenges, thus fostering the development of professional capital in policy and practice, as suggested elsewhere in the literature (Campbell *et al.*, 2016; Sullivan *et al.*, 2018). This is particularly relevant for teacher-leaders who, in managerial positions, bear the weight of intricate decisions and heightened complexity in their daily roles and in developing their leadership (Meier and Carroll, 2020). The findings emphasize the crucial role of reflective discourse and addressing common issues in fostering a sense of professional self-confidence when dealing with crises. This aligns with a recent study demonstrating that interactions and reflective processes within communities in the same field contribute to the self-efficacy of teachers' leadership (Zheng and Luo, 2023). The results accentuate the unique contribution of VCoPs to the well-being of teacher-leaders by indicating that the benefits persist not only during crises but also in routine periods. This points to another facet of Teacher Wellbeing (TWB) and emphasizes the enduring impact of VCoPs in fostering resilience among those in managerial roles.

Consistent contribution of VCoPs: routine and crisis

This study, which covered the COVID-19 era as well as a more routine period, points to the consistent contribution of the VCoP to teacher-leaders' well-being. This is important for educators in managerial positions, since these findings challenge the claim that such communities are only impactful during emergencies. The literature on teacher well-being emphasizes the interconnection between educators' well-being and their ability to cope with professional challenges (Rabenu *et al.*, 2017; Zewude and Hercz, 2021). This study's contribution lies in highlighting the enduring significance of VCoPs, not only in crisis situations but also in routine periods. It is plausible that the combination of regular online meetings and the continuous engagement in a WhatsApp group led to a sense of belonging and created a supportive environment for the well-being of the participants. This is consistent with findings reported by Waldman and Blonder (2020) highlighting the significant role of WhatsApp groups in engendering a sense of community that included membership, influence, the fulfillment of needs, and an emotional connection.

Multidimensional model: emotional, social, and cognitive aspects

The multidimensional model (Figure 1) presents the experiences of the VCoP participants in terms of the cognitive, emotional, and social dimensions inherent to teaching and learning (Tettegah and McCreery, 2015; Tyng *et al.*, 2017). This is particularly relevant for teacher-leaders when navigating the social-emotional complexities of their roles, since it influences their communication with students and their cultivation of social-emotional skills (Denston *et al.*, 2022). The emotional and social dimensions emerged as essential for providing hope during crises and contributed to the social-emotional well-being noted in TWB literature (McCallum *et al.*, 2017). The cognitive aspect reflects the community's role in providing space for knowledge-sharing, brainstorming, and gaining a clearer perception of reality, which thus addresses the challenges associated with managerial roles (Sullivan *et al.*, 2018; Tettegah and McCreery, 2015).

[Insert Figure 1 about here]

Professional development in virtual communities

The findings suggest that a professional community can serve as a space for professional development during crises and routine periods (Lave and Wenger 1991). This aligns with the literature on the positive impact of professional learning communities on teachers' professional growth (Tam, 2015). The results hint that virtual communities may have an advantage over face-to-face encounters in terms of fostering cultural and geographical diversity, which are particularly crucial for individuals in managerial roles dealing with the complexities of today's educational landscape (Hodges *et al.*, 2020). The group discourse frequently centered on comparisons, and the range of differences created more discussion opportunities, as suggested by Wenger (2011) who argued that diverse interactions enhance professional development. The virtual meetings not only facilitated diverse cross-cultural and inter-organizational interactions but also provided convenience and accessible support. This is consistent with a recent study on school leaders in VCoPs that emphasized the flexibility and availability of online space in providing accessible collaborations, which thus contributed to the enhancement of their instructional leadership practice (Irby *et al.*, 2022).

Conclusion and practical implications

This study contributes to the literature by providing a more in-depth understanding of the emotional, social, and cognitive dimensions within VCoPs that are particularly pertinent to teacher-leaders facing the intricacies of managerial roles. The findings are indicative of the contribution of VCoP to coping with stress and crises, as suggested in other studies emphasizing these communities' role in joint coping with professional challenges (Sullivan *et al.*, 2018). The findings strongly suggest that these communities support resilience over time (Kwok *et al.*, 2016) and that specific aspects of VCoP can enhance well-being, even during routine periods.

The multidimensional model, informed by the BASIC PH psychological model (Lahad, 2017), elucidates the intricate connections between the emotional, social, and cognitive dimensions in dealing with crises. The participants' diverse coping methods within the community highlight the importance of spaces that accommodate various needs by providing opportunities for support in diverse crisis situations.

Although the cognitive aspect related to knowledge-sharing dominates the discourse in professional communities, the findings here suggest that the social and emotional components

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3 contributed significantly to the participants' human capital. Emotional sharing emerged as
4 essential in reducing stress and fostering creativity amid crises. The social dimension that
5 reinforced self-confidence was shown to enhance professional identity and resilience, and
6 hence proved pivotal in navigating pressures and uncertainties.
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10 The findings also position professional communities, even in virtual settings, as spaces for
11 ongoing professional development by facilitating interactions across diverse organizational and
12 cultural contexts. The discourse in virtual communities, enriched by comparisons and diverse
13 perspectives, reflects the value of cultural and geographic diversity, a notable advantage over
14 face-to-face encounters.
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19 In conclusion, this study advances theoretical understanding by unpacking the
20 multidimensional contributions of VCoPs to the well-being of teachers in managerial roles.
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22 The proposed model can offer valuable insights for improving both existing and new
23 communities. By emphasizing the emotional, social, and cognitive dimensions, it provides a
24 comprehensive approach to designing and managing professional communities, particularly in
25 times of crisis.
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30 To illustrate, fostering emotional support can involve regular check-ins and discussion forums
31 where teachers can share their feelings and experiences, thus promoting a sense of empathy
32 and belonging. Social dimensions can be enhanced by creating collaborative projects and peer
33 mentoring programs encouraging interaction and mutual support among teachers. Cognitive
34 aspects can be addressed through professional development workshops, sharing best practices,
35 and continuous learning opportunities. To promote the existence of virtual professional
36 learning communities, decision-makers in the education system should invest in reliable digital
37 platforms, provide training for effective online communication, and incentivize participation
38 through professional development credits or recognition programs. These recommendations
39 should aim to create a supportive environment that nurtures teacher growth and resilience.
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48 The findings overall emphasize the value of community, particularly in building the resilience
49 of teacher-coordinators who face daily challenges. Recognizing them as agents of change and
50 the key leaders of teaching teams increases this value. The results provide insights into the
51 essential characteristics of the community in providing professional support to teachers in
52 managerial positions that can enhance their ability to positively influence the educational
53 systems of which they are a part.
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Limitations and future research

The present study focused on biology teacher-coordinators' perceptions of the contributions of their virtual community. Further research could focus on other groups of teachers in managerial roles from other fields of study and compare the findings. The other limitations of this study relate to the possibility of selection bias among the seven participants, potentially resulting from their voluntary participation or their influence on the course of the interviews. The absence of negative or neutral findings suggests that participants may not have felt the need to provide a critical evaluation. An interview guide specifically encouraging discussion of the deficiencies in VCoP participation could have provided more balanced insights by probing the positive and negative aspects of their experiences. A larger sample of participants and incorporating a quantitative approach could enhance the study by providing a more comprehensive picture, which would make it possible to draw implications for larger groups and comparative studies. The findings showed how the social, emotional, and cognitive dimensions of a virtual professional community for teacher-coordinators contribute to dealing with everyday stressful situations and in times of crisis. Future research could also explore the activities that encourage the expression of each of these dimensions in a way that would allow for the planning and design of professional communities as an ideal space for dealing with situations of stress and crisis.

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Table I. The six coping mechanisms in the BASIC PH model (Lahad, 2017)

<u>B</u>elief	Beliefs and values, life philosophy, world view, finding meaning
<u>A</u>ffect	Emotion
<u>S</u>ocial	Company, role, belonging, social organization
<u>I</u>magination	Imagination, creativity
<u>C</u>ognition	Recognition, reality, thought
<u>P</u>hysiology	Physical activity related to the activation of the body

Table II. Demographics

Pseudonyms	Gender	Language	Type of school	Teaching Experience (Years)	Coordinator Role (Years)	Number of interviews
Ravit	Female	Hebrew	Public Secular School	10	3	3
Sarit	Female	Hebrew	Public Secular School	31	28	3
Sarah	Female	Hebrew	Public Religious School (Girls)	31	6	3
Yasmin	Female	Arabic	Arabic speaking School	18	10	3
Mirit	Female	Hebrew	Public Secular School	28	8	2
Gili	Male	Hebrew	Public Religious School (Boys)	~10	2	2
Mali	Female	Hebrew	Public Secular School	10	9	2

Table III. VPLC Coding

Main Categories	Sub-categories	Coding Components	Examples of statements
Emotional aspects (11 statements)	Freedom to share	Exchanges of sharing experiences and feelings.	- This is the first time I have let everything out.
	Supportive embrace	Listening to the emotional sharing	-What I give to my community, they give me back, the emotional response.
Social aspect (25 statements)	Social interactions	Experiences and social interactions.	-You know other coordinators. It's really good.
	Diverse human capital	Encounter between people from different cultures and different schools.	I feel that each school is so different, and the dynamics of the people are different.
Cognitive aspect (36 statements)	Collaborative thinking	Common thought processes in the discourse.	It's also advice on how to teach, what others think about a topic, how we approach everyday matters now.
	Knowledge engagement	Creation of personal and group knowledge.	If there is anything I don't understand about procedures, I can ask the community. I know I'm going to gain new knowledge.

Table IV. Teacher-Coordinators' descriptions of the VCoP contributions

Contributions of the community to well-being across emotional, social, and cognitive aspects			
Ravit	Sarit	Sarah	Yasmin
<ul style="list-style-type: none"> • Relative view (social) • Discovering personal uniqueness (social) • Free sharing (social) • Social relationships (social) • Well-being and resilience (emotional) • Confidence (emotional) • Professional support (cognitive) 	<ul style="list-style-type: none"> • Diversity (social) • Commonalities and differences (social) • Support (emotional) • Professional growth (cognitive) • A different perspective (cognitive, social) • Knowledge sharing (cognitive, social) 	<ul style="list-style-type: none"> • Diversity (social) • comparative experiences (social) • A role model (social, emotional) • Inspiration (cognitive) • A sense of security (emotional) • Reflective thinking (cognitive) • Participation as an investment (cognitive) • Specialization (cognitive) 	<ul style="list-style-type: none"> • Group of equals (social) • Intercultural diversity (social) • Proximity between sectors (social) • Professional and emotional support (cognitive, emotional) • A variety of ideas (cognitive)

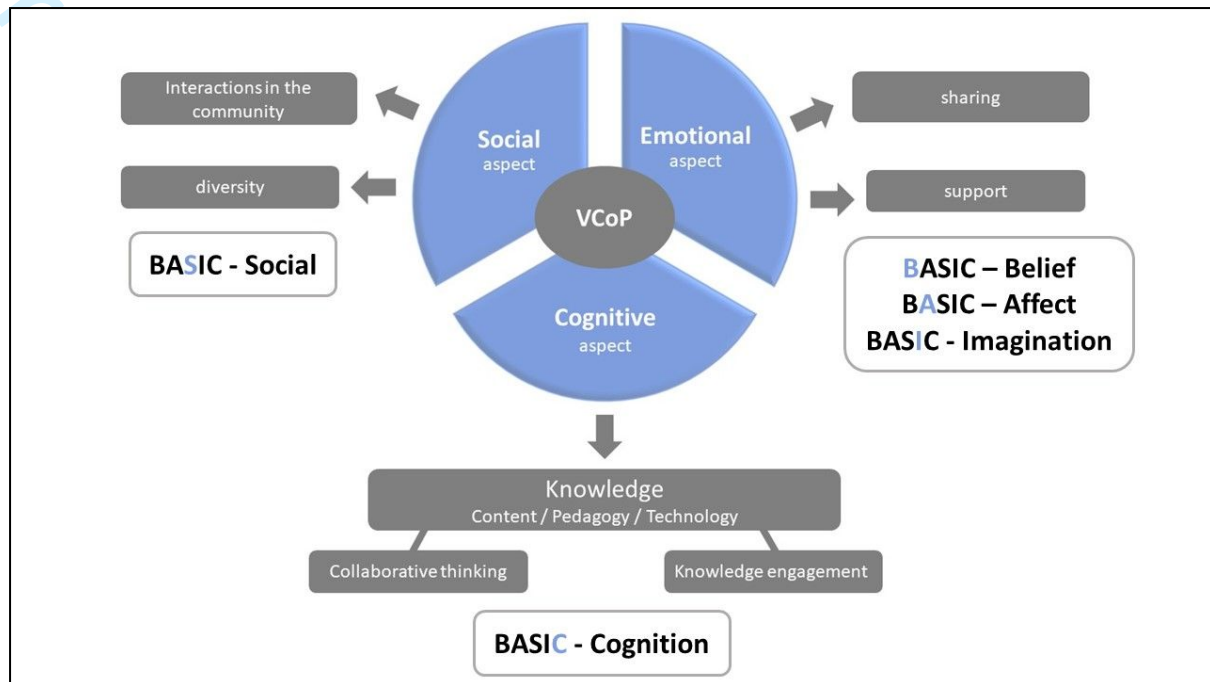


Figure 1. The multidimensional model of VCoP characteristics that contributed to dealing with crises

Appendix 1

Guiding questions for the interview

1. How did you feel throughout the beginning of the quarantine, during it and when returning to routine?
2. What significant experience do you remember from that period?
3. What difficulties did you experience and how did you deal with them?
4. What helped you cope on a personal and professional level?
5. What successes did you experience during that period?
6. How much has this experience affected you? Give an example.

Appendix 2

The main topics that the participants mentioned in their expectations for the annual activity in the community:

1. Tools for remote team management

2. Ideas for hybrid teaching

3. Creating active learning from home

4. Integration of a laboratory in the learning sequence

5. Sharing lesson plans and tests

6. How to keep the team united, not to be dispersed

7. Time management tools

8. How to deal with and test a mass of asynchronous tasks

9. Support for knowledge and known procedures from the Ministry of Education in the context of the role of the coordinator of biology and especially during this period.