

Exploring User Requirements for Online Cooperation through Social Capital Theory

Katja Neureiter^{1,2}, Ulrike Bruckenberger¹, Alina Krischkowsky¹,
Manfred Tscheligi^{1,2}

¹ Center for Human-Computer Interaction, University of Salzburg,
5020 Salzburg, Austria
{first name.lastname}@sbg.ac.at

² AIT – Austrian Institute of Technology GmbH, Giefinggasse 2,
1210 Vienna, Austria
{first name.lastname}@ait.ac.at

Abstract. The Internet and its media enables individuals to collaboratively work together across geographical and time barriers. Older adults could benefit from this advances by becoming active as a mentor or coach, passing on their professional knowledge, which often lies idle when they retire. To allow younger generations to benefit from older adults' professional experience and knowledge we aim at developing an online platform to foster a professional exchange. Therefore, we investigated users' requirements for successful online cooperation, and carried out workshops and expert interviews. Two important aspects were identified: (1) The quality of the relationship and (2) the way cooperative processes are established and maintained. We discuss the gathered results through the lens of social capital theory. This approach allows us to reflect upon requirements to facilitate social cooperation and the development of trustful relationships. Based on our findings, implications for the development of an online platform for intergenerational knowledge transfer are provided.

Keywords: Online Cooperation, Social Capital, Mentoring.

1 Introduction

Employment fills a large proportion of our lives. It creates meaning, provides financial security and has an impact on our social relationships at work and beyond. During the course of our working life we acquire a considerable amount of (professional) knowledge that often gets lost when we retire. Within an international research project¹ we aim at developing an online platform that connects experienced older adults with younger generations and enables intergenerational cooperation and knowledge exchange for the benefit of all parties involved. Hence, the platform provides, e.g., a valuable opportunity for older adults to stay active even when retired and it could also be beneficial for companies to encourage their older employees in using the platform to support younger employees and, thereby, avoid that knowledge and experience gets lost when older employees retire.

¹ For further information please visit the project website: www.pro-me.eu

We consider knowledge sharing not only as exchanging information, but as developmental interactions [14], characterized by trust, which can be considered as important precondition for successful cooperation [50]. We focus on two specific forms of a dyadic cooperative engagement, which procure change in terms of thinking, behavior, attitude, or performance and have the purpose to improve skills or to transfer knowledge [23], i.e., coaching and mentoring. Both forms are generally undertaken in a direct and personal way, however, advances in technology created opportunities for innovative work practices and allow to overcome boundaries of place to facilitate greater career mobility [19]. Nevertheless, the economics of online interaction and cooperation are different in contrast to meeting a person face-to-face (FtF) [32] and bring along a variety of challenges [4], e.g., a high likelihood of miscommunication or a slower development of relationships, caused by missing nonverbal cues [19]. For example, the lack of possibilities to provide immediate feedback based on direct observations might have an impact on the relationship. Our motivation is to provide older adults with an opportunity for sharing experiences and knowledge they have acquired throughout the course of their professional life and that often gets lost when they retire.

The main research question we aim to answer is: “What does an online platform need to provide to facilitate meaningful, individual, and collaborative relationships in the absence of face-to-face meetings?” Apart from features that allow users to easily communicate with each other (e.g., audio or video communication), we aim at developing specific tools that facilitate cooperative processes and that nurture trustful relationships. Target groups are older adults, who are willing to share their professional knowledge and younger generations, who are seeking for advice, e.g., when starting a career. We do not address professional mentors or coaches, however, we focus on mentoring and/or coaching relationships between individuals, who are matched via the platform (i.e., according to their area of expertise). Thereby, we are confident that users need to develop their role on the platform according to their skills and needs and our aim is to support this process the best we can.

To answer our central research question we followed a User-Centered Design (UCD) approach [39] that aimed at identifying our target groups’ requirements when exchanging knowledge online. We carried out workshops with potential end users (older and younger adults) and interviewed experts (professional mentors/coaches) to gain insights on best practices and pitfalls. We analyzed the data by means of a qualitative content analysis [36] and reflected upon the major results using Social Capital Theory (SCT) as an analytical lens. The theory summarizes various important facets of social cooperation [18] and can be considered as a useful approach to inform research in the context of online cooperation [28]. We apply SCT to better understand users’ requirements in order to support beneficial relationships and successful cooperative processes for the benefit of both target groups. Based on our findings, we will discuss major requirements to establish and maintain beneficial relationships and we will provide first implications for the development of an online platform, which aims at fostering the development of such cooperative relationships.

2 Background and Related Work

In the following, we will describe two forms of cooperative engagement that build the starting point in our research, i.e., coaching and mentoring. Both forms reflect a kind of partnership, and we consider them suitable to support cooperative intergenerational relationships, which is the major goal we aim to achieve with the platform. In this section we will furthermore provide a brief overview on the theory of Social Capital (SC), which is central for the analysis of our data.

2.1 Coaching and Mentoring

Throughout the last years the terms coaching and mentoring have subtly altered and have become interchangeable [23], however, they need to be considered as different forms of engagement. Whereas coaching aims at facilitating the achievement of a specific goal [26], mentoring relates to the idea of providing general life advice, personal development, and support [21].

According to Liu et al. [33], cooperation refers to “ways that individuals work interdependently and contribute efforts to achieve mutual benefits through active participation and communication among one another” (p. 505). Cooperative processes are complex and require communication, mutual respect, reciprocity, and the definition of responsibilities and goals. These processes become even more complex when cooperation partners are locally separated or working in different time zones [33]. Thus, developing a better understanding of how we can specifically support cooperative processes in terms of developmental online relationships is a big challenge. For the purpose of our research, we focus on two forms of cooperation that allow sharing professional knowledge and expertise, i.e., coaching and mentoring. Coaching can be defined as “solution-focused, result-orientated, and systematic process in which the coach facilitates the enhancement of life experience and goal attainment in the personal and/or professional life’ of a coachee” [26, p. 254].

Coaching focuses on one specific goal and can be described as a dialogue between a coach and a coachee with the aim to unlock the potential of an individual. The cognitive, emotional, and behavioral sides of a person are considered [51]. Mentoring is a stable dyadic relationship between an experienced mentor and a mentee, characterized by mutual trust and goodwill [52], and often happens in context with career development [43, 46, 24]. The mentor has a great deal of background knowledge or informal organizational knowledge and can tactically help the mentee to develop his/her job skills/position [52]. In contrast to the coach, who supports the protégé with respect to one specific goal, the mentor gives general life advice and supports personal development.

In terms of definitions for e-mentoring and e-coaching, we could hardly identify any differences to traditional FtF relationships. Both forms of cooperation differ in the way that FtF meetings are replaced through digital communication. Single and Muller [47], for example, describe e-mentoring as a computer-mediated relationship between an experienced mentor and his/her protégé focusing on a developmental relationship. Accordingly, e-coaching is defined as a developmental relationship that is enabled

through different forms of computer-mediated communication, e.g., e-mail or online chat [48]. Philippart and Gluesing [41] emphasize one difference between e-mentoring and traditional mentoring: e-mentoring is less paternalistic but more egalitarian than traditional mentoring. In accordance with this idea, Bierema and Merriam [4] define e-mentoring as “computer mediated, mutually beneficial relationship between a mentor and a protégé which provides learning, advising, encouraging, promoting, and modeling, that is often boundaryless, egalitarian, and qualitatively different than traditional face-to-face mentoring” (p. 214).

The benefits of e-coaching and e-mentoring are widely acknowledged with respect to one’s academic success, career, or personal development [4]. However, both forms face the same challenges that go along with the absence of FtF meetings, i.e., cultivating a successful relationship. Barriers and challenges may arise through natural cultural differences or time zone differences [41], finding the “right” collaboration partner, or develop levels of trust and confidence [4]. There are a variety of areas in which e-mentoring or e-coaching systems are meanwhile applied, ranging from autonomous systems that improve people’s health behavior [31] to tools that support learning processes [48]. However, there is limited research on how to address the challenge of creating a beneficial and effective partnership in the absence of regular FtF meetings. Lojeski and Reilly [34], for example, investigated geographically dispersed work teams and found out that the lack of FtF interactions led to virtual distance, a “psychological distance that results when people interact mainly through electronic media” (p.10). The authors describe it as a multidimensional concept that is constituted by temporal, spatial, and relational facets [35]. Philippart and Gluesing [41] take up this conceptual model of virtual distance and examine intercultural cooperation in e-mentoring partnerships. They provide valuable insights and implications for the management of teams. However, they do not discuss how cooperation and/or beneficial relationships can be supported best.

2.2 Social Capital Theory

In order to answer our research question, i.e., how the online platform needs to be designed in order to facilitate meaningful, individual, and collaborative relationships in the absence of FtF meetings, we applied SCT as an analytical lens. In the following paragraph we will briefly describe the central idea of the theory and why it is useful to answer our main research question.

SCT has a long-standing tradition in Sociology and still raises the attention of researchers in many disciplines [22]. Pierre Bourdieu, James Coleman, and Robert Putnam can be considered as its three main theorists [20]. The theory encompasses the idea that relationships have got value, i.e., allow access to resources, which are embedded in social structures [11]. These resources are made up, for example, by information, knowledge, or favors, and allow achievements that won’t be possible without this kind of social capital [10]. Hence, it can be considered as a source for social action [10], which is one of the major reasons, why we consider this theory useful for the development of our platform.

Coleman [11] describes different forms of SC, i.e., characters of social relationships that provide useful resources for individuals. Some examples, we consider important for the purpose of this paper, are described in the following paragraphs. According to Coleman [11], obligations and expectations that arise from a relationship (e.g., a friendship) shape SC. For example, if we provide support to a friend, we expect that the friend will offer support in the future. An obligation is put on the friend and we - at the same time - gain a kind of credit slip [11]. This form of SC relies on trust, has a reciprocal character, and through the process of giving and taking, social relationships and capital are produced and reproduced [8]. At the same time, this reciprocal process supports the development of mutual trust and can also be considered as an important prerequisite for SC [18].

Moreover, social norms and corresponding sanctions create a powerful form of SC. Coleman [11] describes expectations, obligations, and information potential as forms that apply for personal relationships, e.g., friendships or acquaintances. Thereby, social norms need to be considered in a broader social context (e.g., an organization) and shape action in a certain way. Furthermore, Coleman [11] describes three main forces that create and maintain SC, i.e., closure, stability, and ideology. Closure refers to internal cohesion within a group and is characterized by common norms, sanctions, and reputation. Stability within a group has positive effects on SC, i.e., with respect to roles and expectations. Coming back to the initial example, the stability of the relationship between us and a friend clearly defines the expectations and obligations. Finally, ideology encompasses the idea to work for the interest of something or someone else. It creates an invisible connection between individuals within a group [see 11].

With respect to knowledge sharing, Nahapiet and Ghoshal [37] distinguish between structural, relational, and cognitive dimensions of SC, which are highly interrelated with each other. The structural dimension refers to presence or absence of network ties and can be described by the density or hierarchy. The relational dimension reflects more on the personal and emotional attachments between individuals developing over time. The key components are, for example, trust, obligations, and expectations. Finally, the cognitive dimension encompasses resources that provide shared interpretations (e.g., a common language) [see 37].

To date, computer science has contributed to the discourse about SC by providing a variety of computer applications that overcome spatial or temporal boundaries and facilitate users' mutual awareness of each other [29], providing the infrastructures to facilitate SC among groups of people [1]. Present research explores various aspects of SC, specifically the role of trust. Gaddis [22], for example, investigates characteristics that are important to foster mentoring relationships. The author examined 355 youths and their relationships with mentors and found out that the amount of time individuals spent together and the level of trust had positive effects for youths. However, SC does not automatically guarantee positive effects for individuals. In the course of a failed offshore project, where the relation between control and trust was investigated, Boden et al. [6] show that SC is not a guarantee for successful performance with respect to cooperative processes. In the organizational context, SC is mainly discussed in terms of knowledge management, allowing individuals to make use of resources within their social network [49]. Hereby, knowledge management systems can have a positive

effect on an organization's capability to build SC. This, in turn, positively influences knowledge exchange [44].

3 Research Context

Within our research project, we address the challenge of building up intergenerational relationships in the absence of regular FtF meetings and aim at discussing how cooperative e-coaching and e-mentoring processes can be supported best. To identify requirements for successful online cooperation we applied SCT as an analytical lens.

3.1 Methodological Approach

To understand what an online platform needs to provide to facilitate meaningful, individual, and collaborative relationships in the absence of FtF meetings, we applied a UCD approach [38]. We carried out workshops with potential users and expert interviews [7]. Experts were either active as professional coaches or had professional experiences in the field of mentoring. Whereas the workshops aimed at understanding potential users' practices to share knowledge (online), the expert interviews focused on the topic from a professional point of view and aimed at exploring differences between coaching and mentoring and identifying pitfalls and success factors in these kinds of relationships.

Workshops. The workshops aimed at capturing the perspective of our target groups to share professional knowledge via an online platform. We involved older adults, who could imagine to provide support for others (potential coaches/mentors), and younger adults, who could imagine acquiring knowledge from somebody else (potential coachees and mentees). Overall, five workshops were carried out in three different countries. Altogether 33 participants, aged between 24 years and 81 years ($M = 58.79$, $SD = 14.74$) took part. Participants' professional backgrounds were quite different covering a variety of professions such as psychotherapists, technicians, engineers, managers, and secretaries. None of them had professional expertise in terms of coaching and mentoring. Most of the participants indicated that they could imagine providing support for others ($n=21$), some could alternatively imagine taking support from others ($n=8$), and a few ($n=4$) indicated that they could imagine getting active by providing and acquiring support. All workshops took approximately two hours, with a short break of 15 minutes.

The workshops were structured as follows. In the first part, participants were introduced to the general idea of the project, which is building up an online platform that allows sharing professional knowledge across generations. Moreover, they were told that different forms of engagement should be enabled (e.g., taking over the role of a coach or mentor) according to the needs of the users. Afterwards, we triggered a discussion addressing three major topics, i.e., expectations, motives, and needs. Expectations refer to potential users' ideas for the development of the platform and encompass, for example, communication channels they would like to use, information

they would like to share, or benefits they would expect to gain when providing their knowledge (e.g., What kind of communication channels would you like to use to share your knowledge and why?). Needs refer to the relational aspects of the cooperative relationship, e.g., qualities such as honesty, or reciprocity (e.g., What kind of personal information would you be willing to share?). Motives encompass the motivation to become active on the platform or triggers to keep investing in a cooperative relationship (e.g., What would be your motivation to become active on the platform?).

In the second part of the workshop, participants were split into small working groups. Although the distribution of younger and older adults was not balanced, the workshop leader took care that both perspectives (potential provider and potential receiver) were represented within one group. Participants were asked to develop scenarios and to discuss and reflect upon the process of informal coaching/mentoring sessions. In order to motivate and effectively involve users in the scenario development, we applied the instant card technique [3]. It is a participatory design method that uses especially designed cards that provide contextual information (e.g., devices that could be used, moment of use) and, thus, support the development of first usage scenarios.

Participants were asked, for example, to write down what kind of communication modes they would prefer, e.g., if they would like to use their desktop computer or rather a mobile device. Moreover, we encouraged them to reflect upon their role when being a provider or receiver of support. Furthermore, they were asked to think about challenges they expect to face, problems that might occur, resources they could use, and benefits they expect when sharing/acquiring knowledge. This information was written down on the cards. Afterwards, the cards were placed on a flip chart. Based on that information, participants were asked to develop scenarios that describe how a mentor-mentee/coach-coachee relationship could look like. They could write down text but had also the possibility to draw first sketches, e.g., how communication and cooperation tools could look like. In the third and final part of the workshop, all participants met again in the plenum and they presented their scenarios and major points of their discussion. All workshops were video-recorded and the workshop leader took additional notes on a flip chart.

Expert Interviews. Within the semi-structured interviews [2] with experts, we investigated how, for example, coaching/mentoring sessions are structured and identified best practices and common pitfalls. We also explored differences between the two forms of cooperative engagement (coaching and mentoring) to better understand how or even if we could support and facilitate different forms of engagement on the platform. Overall, six experts with at least four years of work experience as mentor and/or coach were interviewed. They were aged between 42 and 57 years ($M = 54.16$, $SD = 8.28$). The interviews were structured as follows. In the beginning, experts were asked to describe their general field of activity (e.g., Please, briefly describe your working area). During the interview, we asked about their general experiences and encouraged them to think about success factors and pitfalls. At the end of the interview, they were introduced to the general idea of the project and were asked to indicate what the platform should provide to support their work. Each

interview lasted approximately one hour and was audio recorded. Additionally, the interviewer took notes.

3.2 Data Analysis

The interviews and the workshops were analyzed by means of a qualitative content analysis. We focused on content structuring that aims at organizing the data based on certain topics, content, or aspects [35]. First, we analyzed the workshops. The major topics that guided this initial structuring process were users' expectations, motives, and needs as described above. We first highlighted key words that appear to capture these three main topics. These key words were then grouped into subcategories, addressing similar thoughts. Second, we analyzed the interviews. The major topics that guided our first analysis were characteristics of mentor-mentee relationships, success factors, and pitfalls. Key words that were related to these topics were highlighted and afterwards grouped into meaningful categories. Within the content analysis of the data gathered within the workshops and the expert interviews, we finally identified categories that address two major topics. The first topic refers to the nature of cooperative relationships, i.e., qualities that characterize the relationship such as trust, reliability, or empathy. The second topic addresses cooperative processes, i.e., communication tools that might be used. In addition, success factors and pitfalls within cooperative relationships were identified. This process allowed us to gain a holistic perspective on the data, complementing data from the workshops with data from the expert interviews.

4 Results

We will now focus on the results of our workshops and expert interviews, which are structured according to the two identified topics, (1) characteristics of the relationship and (2) cooperative processes. As already mentioned in the beginning, the terms mentoring and coaching have become interchangeable [22]. Not surprisingly, our workshop participants used the terms mentor and coach (respectively mentee, coachee) rather synonymously. For the sake of simplicity, we use the terms "provider" and "receiver" of support. Provider encompass potential users, who could imagine offering support on the platform (i.e., including both, mentor and coach), whereby the term receiver (i.e., including mentee and coachee) is used for potential users, who could imagine taking the role of somebody who makes use of the service. In using that terminology, we do not claim that mentoring and coaching relationships are strictly unidirectional. To the contrary, we insist on the need for mutual benefits.

4.1 Characteristics of Provider-Receiver Relationships

During the discussions within the workshops, participants discussed the qualities that

characterize the relationship between two cooperating parties. Thereby, trust, reliability, commitment, empathy, and clearly defined roles were identified as important qualities for the success of a relationship between a provider and a receiver to facilitate meaningful collaborative relationships in the absence of FtF meetings.

Trust, Reliability & Commitment. Not surprisingly, trust was identified as one core component for a successful cooperative relationship, i.e., as an important precondition that actually enables the exchange of knowledge. This can be illustrated by the following statement of a workshop participant (P2): “The relationship between a mentor and mentee needs to be based on honesty and trust.” Accordingly, distrust was identified as an obstacle for cooperation. Potential providers of support pointed out that they would not be willing to provide knowledge for others, if they are not trustworthy. The results also indicate that commitment and reliability are closely related to notions of trust. Participants from our workshops emphasized, for example, that a cooperative relationship requires commitment from both parties and the willingness to “invest whatever it takes to build a close and trustworthy relationship” (P11). They would hesitate if they have the feeling of being exploited or when they miss commitment from the receiver (e.g., missing willingness to cooperate). Another factor is reliability. Potential providers specifically pointed out that they consider, for example, keeping appointments as important precondition to invest in a cooperative relationship. Moreover, they stated that both parties need to be honest, which can be illustrated by the following quote of a workshop participant (P8): “A mentee should not feel embarrassed to tell his/her mentor what actually bothers him/her, e.g., talking about one’s weaknesses. Hence, if a mentor recognizes that s/he cannot support the mentee any further, it is important to redirect the mentee to another mentor.”

From the experts’ perspective, trust has been identified as success factor for coaching and seems to be even more important within a mentoring relationship, as the mentor often gives life advice and supports the mentee with respect to his/her personal development. Hence, distrust might be a hindrance for successful cooperative relationships. During the workshops, trust was also discussed with respect to security and privacy issues. However, the topics that were discussed refer more to system trust than to interpersonal trust, whereby they are connected to each other. For example, if a person does not trust that the system protects his/her privacy sphere s/he won’t engage with other users on that platform.

A lot of our workshop participants had concerns regarding the management of intellectual property rights (IPR) and data abuse, but also indicated that these concerns are not different to the concerns they have when being active on a social media site, such as Facebook. Moreover, they won’t be willing to reveal certain kinds of personal information on the platform. A photo, the home address, or one’s date of birth were considered as sensitive information. To ensure and enhance perceived security (i.e., trust in the system), participants suggested that the system should enable users to delete old entries on the platform. Moreover, they would prefer to provide personal information (e.g., about former employers) FtF than via the platform. Overall, we identified a tension between providing/acquiring personal information and the fear of data abuse. On one hand, participants expect their cooperation partner to reveal a variety of information, while on the other hand, they fear that their privacy could be violated.

Empathy. Apart from trust, empathy has been identified as requirement for a successful cooperative relationship. From our experts' point of view, it encompasses the ability to respond to somebody else (e.g., being aware that their coachees and mentees are sometimes under pressure because of professional reasons). Moreover, a coach needs to be able to refrain from his/her own ideas and needs to avoid providing already the solution for a problem the coachee is struggling with. Experts pointed out that coaching and mentoring requires a positive, valuing tenor, which needs to be considered specifically at the beginning of the relationship. A coach, for example, who supports the coachee to reach a certain goal, needs to convey the feeling that s/he (the coachee) has a variety of resources to solve his/her problems. The issue of appreciation and mutual recognition was also raised by our workshop participants. Of course, it can become visible in a variety of ways but we would like to point out one example, given by a potential provider of support. S/he said that mutual recognition can become visible in a "material way", for example, that the mentee invites his/her mentor for dinner. Regardless of the way appreciation and mutual recognition become visible, it has been identified as important need in cooperative relationships.

Clearly Defined Roles. In addition to the characteristics that facilitate cooperative relationships, we identified participants' needs for clearly defined roles. Participants indicated that they would need to know what it actually means taking over the role of a mentor or a coach before becoming active on the platform. One participant, for example, said (P3): "We need a code of behavior that all users know the rules of the game, i.e., know how to interact with each other properly." Specifically, with regard to the role of the coach, experts pointed out that it is important to create awareness for the coachee that the coach will not provide the solution for the given problem, but will simply trigger different perspectives. Obligations that are bound to a specific role need to be clear for the coachee, i.e., a coach needs to inform his/her protégé about what s/he can expect.

Additionally, participants pointed out that that potential cooperating parties should talk about their expectations before starting a professional relationship. For example, one workshop participant raised the potential problem of having too high expectations. This could lead to disappointments on both sides. In this context, the need for a kind of pre-defined contract was discussed, i.e., a set of rules or mutual obligations that are defined for both parties, which could encompass, for example, the frequency of regular meetings or the goals that need to be achieved. In terms of the pre-defined contract, participants discussed the importance of an IPR management. It reflects the need for protecting IPR: knowledge that is shared or documents that are provided (e.g., guidelines how to build up a business plan) should not be forwarded to third parties. Participants pointed out that these issues need to be clearly defined in the beginning of the relationship.

4.2 Processes in Collaborative Relationships

The second major topic refers to requirements that need to be met to support cooperative processes, e.g., the process of getting started with a collaboration partner.

Start the Process. The process of starting a relationship (i.e., when provider and receiver get in contact for the first time) was a prominent point of discussion within the workshops. Potential receivers stated that at least one FtF meeting with a prospective provider would be required, especially at the beginning. Otherwise, they could not imagine working together successfully. The major concerns that participants raised refer to the lack of personal contact and the absence of regular FtF meetings, which could negatively influence the communication. Moreover, participants discussed that the platform can not compensate for the lack of FtF meetings. This is illustrated in the following statement (P1): “A personal FtF conversation can not be replaced through any kind of technology.”

This topic was also addressed by our experts. They pointed out that the initial phase, when both cooperation partners meet each other for the first time, is crucial in order to find out if they can actually work together. This applies to the role of the mentor as well as to the role of the coach. However, it might even be more important within a mentoring relationship, where the focus is more on the personal development and, therefore, more personal details might be disclosed within the relationship. One expert (E5) said: “You need to figure out if the chemistry is right” meaning that an important precondition for successful cooperation is that both parties feel sympathy for each other. Another expert, who is active as a coach, pointed out that s/he could hardly imagine meeting a coachee solely “over distance”. S/he emphasized the importance of non-verbal cues within a conversation, which s/he believed can only be interpreted right if “you know your communication partner”. S/he said that s/he supported a coachee once, who moved abroad, and did coaching sessions via phone calls and pointed out that the arrangement worked because they knew each other for many years. In general, all experts agreed upon that they could not imagine that cooperative processes could happen solely via an online platform. They would appreciate at least one FtF meeting to kick off the relationship. However, some of them could imagine that different kinds of video conferencing systems such as Skype or FaceTime could be helpful in the beginning of the cooperative process.

Keep the Process Going. Besides establishing a first contact, keeping the cooperative process going was considered challenging. In this context, a variety of different aspects was discussed, specifically within the workshops, whereof we will highlight the most prominent ones. Participants pointed out that communication is the driving force for a successful cooperative relationship and that the platform needs to support a way of communication that allows both parties to see and hear each other. In this context, expectations about different communication channels were discussed. Participants could imagine many different tools, e.g., e-mail, chat, or Skype. However, e-mail was considered as problematic because “text could be easily misunderstood” (P19). Therefore, tools that enable both parties to talk to each other were clearly preferred. Any kind of video-chat was considered as an adequate option when there is no possibility to meet each other in real life. Participants agreed on the need to meet the cooperation partner at least once in order to get to know each other. Apart from offering adequate tools for communication, the importance of addressing upcoming problems right away, instead of breaking up the relationship, was discussed.

From the experts' point of view, a major success factor (specifically within coaching relationships) is creating awareness for the coachee's progress. As the focus is on one specific goal, the coachee might lose his/her motivation if s/he does not see any progress. This stresses the importance of clearly defined goals. For this purpose, framing conditions need to be set, for example, the frequency of appointments are one of the success factors with respect to cooperative processes. Without defining the framing conditions, it is hardly possible for the coachee to reach his/her goals.

We could also identify triggers that keep a cooperative process going. Most of our potential providers of support pointed out that their motivation for becoming and staying active in such a process is to experience that their profession and expertise is still useful, even after retirement. This can be illustrated by the following statement of a workshop participant: "I believe it's a waste that my specialist knowledge and experience that I have created in 46 years is not used." (P12) The feeling of being needed and contributing something to society were identified as major motivation for potential providers to stay active.

Moreover, some participants pointed out that the success that arises out of a relationship, i.e., seeing the progress when the protégé achieves his/her goals, would motivate them to stay active. The motivation from receivers of support differed from the motivation we identified among the providers. For receivers, the prospect of acquiring new knowledge, gaining new skills, increasing one's own value, and learning new methods were identified as prominent. Overall, communication, clearly defined goals, framing conditions, and motivation, were identified as important factors in order to keep a cooperative process going.

4.3 Pitfalls that Hinder Cooperative Processes

Apart from the two major topics as discussed above, we could also identify pitfalls that might hinder successful cooperation. These factors mainly address security and privacy issues and ethical concerns, which we have already discussed partially. Results from our workshops illustrate that participants are not willing to share information when they feel that their knowledge is abused or that somebody makes use of them. It needs to be clearly defined in advance how to deal with, for example, IPR and how a respectful and esteeming communication and cooperation can be achieved and supported on the platform. This is also closely related with the idea of quality assurance, i.e., maintaining and establishing a high quality of information exchange. Specifically, potential receivers raised concerns that information may not be up to date. In this context, trust plays an important role. Receivers need to rely on the best efforts of the providers and the accuracy of information. Finally, little or missing communication was identified as a hindering factor to take part in a cooperative process and tools that make the progress visible and, thus, motivate users to engage with each other were considered important.

4.4 Additional Insights

In addition to the characteristics of a cooperative relationship, the process and pitfalls, we came to understand that older adults, who we consider as the providers on the platform, could also imagine taking the role of the receiver. Older adults in the workshop pointed out that they could imagine taking advantage, for example, from the knowledge younger adults can provide (e.g., in terms of technology literacy).

5 Discussion

We will now discuss our results, using SCT as an analytical lens. This approach allows us to reflect upon various requirements for social cooperative relationships. We do not provide any concrete design ideas, but discuss important considerations for establishing and facilitating relationships online. Following the conceptualization from Coleman [11], we specifically focus on different forms of SC (e.g., expectations, obligations, social norms) that can be considered as source for social action. We start our discussion by reflecting upon the characteristics of successful cooperative relationships.

5.1 Trust

The workshops and the expert interviews revealed that trust is an important precondition for the development of successful cooperative relationships. From a theoretical point of view, trust plays a central role within our discussion as it can be considered as one of the major sources of SC [42]. It refers to the relational dimension of SC [36] and reflects the personal and emotional attachments between individuals, developing over time. Trust does not only facilitate communication and supports access to parties for exchanging knowledge but also has a motivational character. Relationships that are characterized by a high level of trust imply that people are more willing to engage in cooperative actions [37]. We consider trust not only as important precondition for collaboration, but acknowledge that collaboration can positively contribute to trust [12]. Trust is also an important element with respect to obligations and expectations within cooperative relationships, which arise from relationships that are based on trust and that shape SC [11]. As already discussed in the beginning of this paper, obligations and expectations facilitate reciprocal actions (i.e., the process of giving and receiving) and positively contribute to SC.

Implication: Rich Communication. In order to address the need for trustful and reliable relationships, we propose to facilitate “rich communication”. With this terminology, we refer to media that allow, for example, to convey gestures or eye contact and enhance the quality of communication [16, 38]. Apart from the media richness perspective [15], we also refer to features and tools that make the progress within a relationship visible and consequently enrich the communication within collaborating parties.

The platform will allow collaborating parties to regularly be in touch via video-communication. Thereby, we aim at overcoming the virtual distance individuals might experience when communicating through electronic media. Reducing this distance facilitates trust and has a positive effect on mutual commitment and motivation [34]. Moreover, we aim to enhance social presence through video-mediated communication, i.e., the “sense of being with another in a mediated environment ... the moment-to-moment awareness of co-presence of a mediated body and the sense of accessibility of the other beings’s psychological, emotional, and intention states” [5, p. 10]. This facilitates the feeling of closeness, which can be considered as the foundation for the development of long-term and trust-based relationships [24]. Furthermore, it positively influences the willingness to engage in a cooperative action [36]. By reducing virtual distance and facilitating social presence through video-communication, we aim at supporting the development of trustful relationships in the absence of regular FtF meetings, which can be considered as one of the biggest obstacles [36].

Besides video-communication, we aim to support and facilitate the relationships mediated through the platform by providing an opportunity to make the progress within the cooperative relationship visible. The progress could be a goal or a milestone that has been achieved. In order to support this, we suggest, for example, a kind of blog that is visible for the two collaborating parties and that allows to document the most important steps within the relationship. If the collaborating parties are living near each other, it will be also beneficial if users could meet each other FtF. This can additionally facilitate the cooperation [39].

5.2 Expectations and Obligations

Participants of the workshop and our experts indicated that according to the role a user takes on the platform, rules need to be defined, e.g., the frequency of meetings, goals, or the tools users aim at utilizing when communicating with each other. This addresses the need to clarify obligations and expectations. Within a coaching relationship, these rules might be more concrete than within a mentoring relationship. However, both forms of cooperation require these negotiation processes. Negotiated rules can be considered as a form of SC, if they are based on a trustful relationship. A provider, for example, agrees to invest two hours a week in supporting a receiver. By providing the support, an obligation is put on the receiver. S/he will try to stick to his/her bargain by actually working towards a goal that has been defined beforehand. According to Coleman [11], this reciprocal process only works if relationships are based on trust. Mutual benefits can only be obtained if both parties hold on to their obligations. This, in turn, has a positive effect on trust [17] and potential users will more likely engage in cooperative relationships if the rules are clearly defined.

Implication: Mutual Agreements. To address the need for mutual agreements, users need to be supported via the platform to talk about their expectations and obligations. We aim at developing a tool that encourages users to reflect upon their expectations and needs regarding the collaborative relationship and to define mutual agreements,

i.e., binding rules that define the framing conditions of the relationship. We aim at encouraging users to reflect upon, for example, the trigger for searching for/providing support on the platform, expected outcomes and professional impact, or needs and expectations for the collaboration (e.g., How much time are the collaborating parties willing to invest or at what time are they available?). Finally, mutual commitments and agreements should be defined together. Therefore, the platform will provide an online template that allows both parties to fill in their personal needs, and thereby fosters the creation of their mutual agreement.

5.3 Social Roles, Norms & Sanctions

We also identified the requirement for clearly defined roles. In particular, participants within our workshops raised the need for a kind of role description in order to become active. They pointed out that they would need to understand the role of a coach or a mentor. It was considered as a precondition in order to act appropriately as illustrated in the following statement of one workshop participant (P3): “We need a code of behavior that all users know the rules of the game, i.e., know how to interact with each other properly.” From a role-theoretical perspective, taking a specific social role (e.g., the role of a mentor) defines the room for action, as social groups have their own set of norms for their members [29]. In contrast to the rules that arise from trustful relationships and that imply certain expectations and obligations, norms need to be understood in a larger social context [44]. Hence, there are rules that guide a social action and that do not only apply between two cooperating parties but for a social group, i.e., for users on the platform. This leads us to another important and quite powerful form of SC: social norms and sanctions that apply for a certain social organization (see [11]).

However, not only the rules guide behavior but they also require identification, i.e., that users recognize themselves complementary to others [9]. If users identify themselves with their role and follow the norms that apply for a certain group, this will facilitate cohesion and will positively contribute to the stability of the social group. This, in turn, positively influences closure and stability, which are two other forms of SC [11].

Implication: Define the Room for Social action. We would like to discuss now how we can support the development process of social norms, which are defining the room for social action. First, as already mentioned above, the platform needs to support users to define mutual agreements for their relationship. For example, the goals they aim to achieve or the frequency of online meetings need to be defined. Although social norms develop rather informally, the process of developing norms can also be guided by explicit statements [26]. We aim at facilitating the development of norms of behavior through rules that trigger social actions in a certain way. For example, the registering process on the platform aims at encouraging users to indicate their expertise, their interests, and the languages they speak. If only little or no information is given, users should not be able to take full advantage of the service (e.g., searching in the database for a provider of support). We consider this important, because the

system cannot support the process of acquiring an appropriate communication partner if insufficient information is given. Hence, following the rule of completing a profile defines the room for action, i.e., allows a user to become active as a coach or mentor. Therefore, we consider the matching of appropriate cooperation partners important for the platform development.

Another social norm that is central for the platform is that providers are working voluntarily for the benefit of their collaboration partner(s) and vice versa. The SC that could arise from this norm of working free of charge is, for example, that providers receive reputation. In order to support this, we aim at developing a reputation reporting system. It can be considered as a valuable instrument to regulate the adherence of norms and allows to predict future behavior. This in turn can encourage trustworthiness [16].

We also identified two additional factors that seem to be important, which we would define as structural conditions (e.g., adequate communication channels) and motivational issues that trigger users' social actions. We consider both factors as driving forces that facilitate knowledge exchange and, thus, support successful cooperative relationships.

5.4 Structural Dimensions of Social Capital

Our workshops and interviews revealed a variety of factors that keep the cooperative process going and support working towards a common goal by sharing professional knowledge (e.g., creating awareness for the progress, clearly defining goals). We argue that the structural condition provides a framework for the cooperative process, by, e.g., defining the frequency of appointments or the determination of milestones. Participants emphasized the importance of "a good way of communication", referring to adequate tools, i.e., opportunities to exchange knowledge [36]. We argue that these opportunities encompass devices (e.g., tablet, smart phone) or tools (e.g., e-mail, video-call) for communication, which enable a quality of communication that provides a variety of (non-verbal) cues. This, in turn, can reduce the virtual distance and has a positive effect on cooperative processes as already discussed above.

Implication: Different Needs - Different Tools. Considering knowledge exchange as cognitive dimension of SC, the given 'infrastructure' influences the development of intellectual capital, "the knowledge and knowing capability of a social collectivity, or as an organization, intellectual community, or professional practice" [36, p. 245]. This means that the provided communication channels have an influence on the exchange of knowledge. Intellectual capital (as a form of SC) is created through interaction. The tacit knowledge experienced (older) adults provide, becomes a form of SC and creates value as soon as it is exchanged between individuals. This emphasizes the importance of reciprocity within the relationship. Our target groups (older and younger adults) might differ regarding their technology affinity. According to the users' needs, the required infrastructure might differ. Thus, the features on the platform should be accessible via a variety of different devices (e.g., smartphone, tablet, laptop). In particular, older adults might be restricted regarding their

visual/physical abilities and often prefer a big screen whereas, younger adults might prefer portable devices. We are aware that it is not only the tool or device itself but how individuals use it [28] and their motivation to do so. This issue will be discussed in the following paragraph.

5.5 Ideology

Our results illustrate that the motivation of all involved parties (both provider and receiver) is a driving force that facilitates cooperative activities, i.e., knowledge exchange. For providers, it was the feeling of being needed or contributing something to society. For receivers, it was more the prospect of acquiring new knowledge that motivates them to become active. In any case, the motivation arises from the expectation that knowledge exchange creates value, either for oneself or for the benefit of the society. Older adults expect that their engagement produces value for society, whereas younger people expect to enhance their skills, resulting in professional success. It requires the capability to anticipate that the exchange of capital is worthwhile [36]. According to Coleman [11], the idea of acting for the interest of someone else (other than oneself) can be defined as ideology and can positively contribute to SC. Although Coleman mainly refers to religiously affiliated ideologies, we consider ideology more in the sense of guiding principles that create a sense of unity and, thus, create SC by imposing on the users, who hold on to the demand, working towards the benefit of others.

Implication: Room for Network Activities. Thus, another challenge we aim to address within the platform development is to motivate users (providers and receivers) to become and stay active. Thereby, we consider the network as an important component and aim to encourage discussions within the platform network additional to the one-to-one relationships. This could be facilitated through, for example, a kind of forum where users could exchange their experiences. Moreover, we aim to encourage all users of the platform to report about successful relationships and, thus, make the benefit within the overall network more visible.

6 Conclusion and Future Work

Within the workshops and expert interviews we investigated requirements for the success of cooperative relationships and processes in terms of knowledge exchange. Through workshops, we captured potential users' expectations, motives, and needs for a platform that allows knowledge exchange. To integrate the perspective of professionals, we carried out interviews with experts in coaching and mentoring. We reflected upon our results, using SCT as an analytical lens. This approach supported us in better understanding and reflecting on participants' requirements to exchange knowledge and to build up mutual beneficial relationships. SCT allowed us to identify facets of social cooperation we need to consider for the platform development. We identified rich communication, mutual agreements, defining the room for social

action, addressing users' needs in terms of their technology affinity, and providing the room for network activities as important implications with regard to the platform development. Discussing our results through SCT proved valuable and allowed us to understand the results in a broader context. Hence, it helped us to understand to what extent the identified user requirements can be considered as facilitator of successful collaboration, contributing to the development of social capital. We consider our work as a first and important step towards the platform development. Additionally, this work contributes to the discourse on how to support cooperative developmental relationships (i.e., coaching and mentoring) and discusses requirements for the platform development.

As a next step and future work, we will transfer the findings into concrete designs. By actively involving our target groups in the design process, we aim at developing, for example, tools that facilitate the negotiation of mutual expectations and obligations to support a form of social contracting between a provider and a receiver of support. Following a UCD approach, first design sketches and mock-ups will be further evaluated and finally implemented on the platform.

References

1. Ackerman M., Huysman M., Carroll, J.M., Wellman B., DeMichelis G., Wulf V.: Communities and Technologies: An Approach to Foster Social Capital? In Proc. of CSCW'04, CSCW '04, pages 406–408. ACM, (2004).
2. Bailey, K.: *Methods of Social Research*. Simon and Schuster (2008).
3. Beck E., Obrist M., Bernhaupt R., Tscheligi M.: Instant Card Technique: How and Why to Apply in User-centered Design. In Proc. of PDC'08, PDC '08, p. 162–165, (2008)
4. Bierema L., Merriam S.B.: E-mentoring: Using computer mediated communication to enhance the mentoring process. *Innovative Higher Education*, 26(3):211–227, (2002)
5. Biocca F., Harms, C.: Defining and measuring social presence: Contribution to the networked minds theory and measure. Proc. PRESENCE '02, pages 1–36, (2002)
6. Boden A., Nett B., Wulf V.: Trust and social capital: Revisiting an offshoring failure story of a small German software company. In Proc. ECSCW'09, pages 123–142, (2009)
7. Bogner A., Littig B., Menz W.: *Interviewing experts*. Palgrave Macmillan Basingstoke, (2009)
8. Bourdieu P.: The forms of capital. In Richardson J.G., editor, *Handbook of Theory and Research for the Sociology of Education*. Greenwood Publishing Group, (1986)
9. Burke P.J., Stets J.E.: *Identity Theory*. Oxford University Press, (2009)
10. Coleman J.S.: Social capital in the creation of human capital. *American Journal of Sociology*, pages 95–120, (1988)
11. [Coleman J.S.: *Foundations of social theory*. Belknap Press of Harvard Univ. Press, (1990)
12. Cook, K. S., Hardin, R., & Levi, M. *Cooperation without trust?*. Russell Sage Foundation. (2005)
13. Cyert M.R.: A conceptual model for knowledge networks. In *Enhancing Performance in Virtual Knowledge Networks: A community Engineering Approach*. Schrott, Gregor, (2004)
14. D'Abate D.P., Eddy E.R., Tannenbaum S.I.: What's in a name? A literature-based approach to understanding mentoring, coaching, and other constructs that describe

- developmental interactions. *Human Resource Development Review*, 2(4):360–384, (2003)
15. Daft R.L., Lengel, R.H.: Organizational information requirements, media richness and structural design. *Management Science*, 32(5):554–571, (1986).
 16. Dalziel-Job S., Oberlander J., Smith T.J.: Contested staring: issues and the use of mutual gaze as an on-line measure of social presence. In *International Society for Presence Research*, (2011)
 17. Dellarocas, C.: Immunizing online reputation reporting systems against unfair ratings and discriminatory behavior. In *Proceedings of the 2nd ACM conference on Electronic commerce*, pages 150–157, (2000)
 18. Diekmann A.: Dimensionen des Sozialkapitals. In Markus Franzen, Axel; Freitag, editor, *Sozialkapital. Grundlagen und Anwendungen*, pages 47–65. VS Verlag für Sozialwissenschaften, (2007)
 19. Ensher E.A., Heun C., Blanchard, A.: Online mentoring and computer-mediated communication: New directions in research. *Journal of Vocational Behavior*, 63(2):264–288, (2003)
 20. Field J.: *Social Capital*. Routledge, (2008)
 21. Freeman R.: Towards effective mentoring in general practice. *British Journal of General Practice*, 47(420):457–460, 1997.
 22. Gaddis S.M.: What’s in a Relationship? An Examination of Social Capital, Race and Class in Mentoring Relationships. *Social Forces*, 90(4):1237–1269, (2012)
 23. Garvey B., Stokes P., Megginson D.: *Coaching and mentoring: Theory and practice*. Sage, (2014)
 24. Godshalk V.M., Sosik J.J.: Aiming for career success: The role of learning goal orientation in mentoring relationships. *Journal of Vocational Behavior*, 63(3):417–437, (2003)
 25. Gooch D., Watts L.: Up close and personal: social presence in mediated personal relationships. In *Proc. BCS-HCI’11*, pages 227–236. British Computer Society, (2011)
 26. Grant A.M.: The impact of life coaching on goal attainment, metacognition and mental health. *Social Behavior and Personality: an international journal*, 31(3):253–263, (2003)
 27. [26] J.R. Hackman. Group influences on individuals. In *Handbook of Industrial and Organizational Psychology*, pages 1455–1525. M.Dunnette, 1976.
 28. Hezlett S.A., Gibson S.K.: Linking mentoring and social capital: Implications for career and organization development. *Advances in Developing Human Resources*, 9(3):384–411, (2007)
 29. Huysman M., Wulf V.: The role of information technology in building and sustaining the relational base of communities. *The Information Society*, 21(2):81–89, (2005)
 30. Jonassen D.H., Rohrer-Murphy L.: Activity theory as a framework for designing constructivist learning environments. *Educational Technology Research and Development*, (1999)
 31. Kamphorst B.A., Klein M.C.A., Van Wissen A.: Autonomous e-coaching in the wild: Empirical validation of a model-based reasoning system. In *Proc. AAMAS’14*, pages 725–732, Richland, SC, (2014)
 32. Kollock P., Smith M.: *Communities in cyberspace*. Routledge, (2002)
 33. Liu P-J., Laffey J.M., Cox K.R.: Operationalization of technology use and cooperation in csw. In *Proc. CSCW’08*, pages 505–514, New York, NY, USA, (2008)
 34. Lojeski K.S., Reilly R.: *Uniting the virtual workforce: Transforming leadership and innovation in the globally integrated enterprise, Volume 2*. John Wiley & Sons, (2008)
 35. Lojeski K.S., Reilly R., Dominick P.: The role of virtual distance in innovation and success. In *Proc. HICSS’06*, volume 1, pages 25c–25c. IEEE, (2006)
 36. Mayring P.: *Qualitative Inhaltsanalyse: Grundlagen und Techniken*. Beltz Verlag, (2011)

37. Nahapiet J., Ghoshal S.: Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2):242–266, (1998)
38. Neureiter K., Murer M., Fuchsberger V., Tscheligi, M.: Hand and eyes: how eye contact is linked to gestures in video conferencing. In CHI'13 EA, pages 127–132. ACM, (2013)
39. Norman S.W., Draper D.A.: *User Centered Design; New Perspectives on Human-Computer Interaction*, volume 3161. L. Erlbaum Associates, (1986)
40. Olson G.M., Olson J.S.: Distance matters. *Human Computer Interaction*, 15(2): 139–178, (2000)
41. Philippart N., Gluesing J.: Global e-mentoring: Overcoming virtual distance for an effective partnership. In Proc. ICIC'12, pages 1–10, New York, NY, USA, (2012)
42. Putnam R.D.: *Bowling alone: The collapse and revival of American democracy*. Simon and Schuster Nova York, 2000.
43. Ragins B.R.: Diversified mentoring relationships in organizations: A power perspective. *Academy of Management Review*, 22(2):482–521, (1997)
44. Sherif K., Hoffman, J., Thomas B.: Can Technology Build Organizational Social Capital?: The Case of a Global IT Consulting Firm. In Proc. AMCIS'06, volume 43, pages 795–804. Elsevier Science Publishers B. V., October (2006)
45. Simon B.: Identity in modern society: an integrative approach. *Identity in Modern Society: A social Psychological Perspective*, (2004)
46. Singh V., Bains D., Vinnicombe S.: Informal mentoring as an organizational resource. *Long Range Planning*, 35(4):389–405, (2002)
47. Single P.B., Muller C.B.: When email and mentoring unite: The implementation of a nationwide electronic mentoring program. In Kyle Stromei, Linda, editor, *Creating Mentoring & Coaching Programs*, pages 107–122. ASTD Press, (2001)
48. Stein D.S., Wanstreet C.E., Slagle P., Trinko L.A., Lutz M.: From 'hello' to higher-order thinking: The effect of coaching and feedback on online chats. *The Internet and Higher Education*, 16:78–84, (2013)
49. Steinfield C., DiMicco J.M., Ellison N.B., Lampe C.: Bowling online: Social networking and social capital within the organization. In Proc. of C&T'09, pages 245–254. ACM, (2009)
50. Sztompka P.: *Trust: A sociological theory*. Cambridge University Press, (1999)
51. Whitmore J.: *Coaching for performance*. N. Brealey Pub., (1996)
52. Ziegler A.: Mentoring: Konzeptuelle Grundlagen und Wirksamkeitsanalyse. In: Schimke A., Stöger, D., Ziegler H., editor, *Mentoring: Theoretische Hintergründe, empirische Befunde und praktische Anwendungen*, pages 7–31. (2009)