Exploring Communities of Learning Practice

Value creation enabled by community participation and the interplay of social networks and peer feedback

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To my son Alexandros

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Zusammenfassung in Deutscher Sprache/ German summary

Diese Dissertation greift erneut beherrschende theoretische Perspektiven des Themas Lerngemeinschaften auf und untersucht empirisch zentrale Phänomene *in* Lerngemeinschaften in der Hochschulbildung und *in deren Umfeld*. Innerhalb integrierter theoretischer Rahmenbedingungen, die einem Zusammenspiel soziokultureller, situativer, netzwerkgebundener und systemischer Ansätze zugrunde liegen, würdigt die in dieser Dissertation berichtete Arbeit über die Komplexität des unverwüstlichen „Phänomens“ der Lerngemeinschaften. Lerngemeinschaften haben in den vergangenen Jahrzehnten eine erhebliche Beachtung in der Forschung gefunden, die systematische Anstrengungen unternahm, um die ihnen innewohnenden Phänomene zu ergründen (z.B. Prozesse des Wissensaufbaus und der Teilnahme). Lerngemeinschaften können sich auf vorgegebene/gestaltete, verhandelte oder informelle/spontan auftauchende soziale Formationen, Strukturen, Szenarien oder Systeme beziehen, innerhalb derer die Beteiligten handeln, interagieren, gegenseitige Abhängigkeiten eingehen, teilen und miteinander allgemeines und Fachwissen sowie Lernerfahrung aufbauen. Auch wenn Lerngemeinschaften das zugrundeliegende Merkmal des sozialen kollektiven Zusammenarbeitens miteinander teilen, so war die Herangehensweise, um unterschiedliche Zwecke ihres Daseins entweder zu bedienen oder sie zu rechtfertigen, dennoch unterschiedlich. Lerngemeinschaften wurden ursprünglich als bestehende Gemeinschaften in informellen Lernumgebungen, wie beispielsweise die Lehrlingsausbildung, untersucht, die über das Konzept der darin enthaltenen institutionalisierten Bildung und Lehre hinausgingen, um das Lernen in einer sozial konzipierten Realität „neu zu platzieren“. Dessen ungeachtet erschütterten neue Perspektiven des Lernens die institutionalisierte Bildung und hatten einen starken Einfluss auf die Forschung, die nach Bildungsreformen rief, die über das Konzept der eingleisig ausgerichteten passiven Vermittlung von Wissen hinausgingen und den Begriff der Lerngemeinschaften in Bildungsszenarien einbezogen, um Konzepte eines gegenseitigen, aktiven, sinnvollen und kollektiven Lernaufbaus des Miteinanders zwischen Studenten und anderen (z.B. Lehrern, Eltern) zu fördern.

Diese Dissertation zielt darauf ab, Gemeinschaftsbegriffe theoretisch in Lernszenarien (d.h. Lerngemeinschaften) hinein zu positionieren und die Phänomene empirisch *innerhalb* der Lerngemeinschaften in der Hochschulbildung und *in deren Umfeld* zu erforschen. Genauer

gesagt, sie zielt darauf ab, das Potenzial von Lerngemeinschaften zu erforschen, die in einem sozialpädagogischen Szenario (oder Szenarien) angesiedelt sind, in ihnen aber keine Lehransätze darstellen, um auf diese Weise sowohl Wertschöpfung für die Mitglieder der Gemeinschaft selbst als auch dynamische Rekonstruktionen von soziostrukturellen Merkmalen der Mitglieder der Gemeinschaft durch ein Wechselspiel zwischen Geschichte und der Entstehung in Netzwerken – d.h. starke und schwache Bindungen – zu schaffen. Lerngemeinschaften in dieser Dissertation wirken in von selbst entstehende/bestehende Lerngemeinschaften und gestaltete/vordefinierte Lerngemeinschaften hinein und über sie hinaus, um so ein Narrativ über und um rekombinante Lerngemeinschaften in der Hochschulbildung, sogenannte *Communities of Learning Practice* (Col.Ps), anzubieten.

Der erste theoretische Teil der Dissertation greift noch einmal eine Reihe von markanten, durch Perspektiven der soziologischen und Gemeinschaftspsychologie gefilterte Begriffe zum Thema Lerngemeinschaften auf, um so aufzuzeigen, wie das Gemeinschaftskonstrukt in diesen Begriffen vertreten ist. Zuerst wird ein Überblick über markante Perspektiven der soziologischen und Gemeinschaftspsychologie beim Gemeinschaftskonstrukt vorgestellt, er zeigt ein Gemisch von Repräsentationen der Gemeinschaft. Diese Repräsentationen wirken dann als Brenngläser für eine kritische Synthese des Gemeinschaftskonstrukts in Begriffen des Gemeinschaftslernens—wie ursprünglich von denen, die sie entwickelt haben, beschrieben. Diese Synthese zielt darauf ab, die Art und Weise zu enthüllen, auf die das Gemeinschaftskonstrukt behandelt wird, sowie dessen Repräsentationen im Lernzusammenhang. Die kritische Synthese legt nahe, dass die für Lerngemeinschaften ausgewählten Begriffe einige soziologische Repräsentationen gemein haben, dass sie in einigen Fällen aber voneinander abweichen, zumindest aber unterschiedlich repräsentiert werden. Das Verständnis der Repräsentationen der Gemeinschaft in Lerngemeinschaften aus soziologischer und gemeinschaftspsychologischer Sicht stellt eine nützliche Hilfe für Forscher und Praktiker im Bildungswesen im Hinblick auf Entscheidungen über die Gestaltung und Strategien der Moderation in Bezug auf jede Gemeinschaftsrepräsentation dar.

Der zweite theoretische Teil baut auf früheren Analysen von Lerngemeinschaften auf und führt einen Begriff für die Lerngemeinschaft ein, der Gesichtspunkte der Entstehung und Gestaltung zu einem Gleichgewicht zwischen beiden neu zusammensetzt und informelle, in einem formalen Bildungsszenario angesiedelte Lerngemeinschaften charakterisiert. Der Begriff

der rekombinanten Lerngemeinschaft, *Communities of Learning Practice* (praxisbezogene Lerngemeinschaften) (CoLP) genannt, ist mit dem Begriff der *Communities of Practice* (praxisbezogene Gemeinschaften) (CoP) oder der *Communities of Learners* (Gemeinschaft der Lernenden) (CoL) und deren implizierte Perspektiven auf Entstehung und Gestaltung nicht in vollem Umfange deckungsgleich. Wie auch immer, CoLPs beruhen auf einer Rekombination von Bestandselementen von CoPs und CoLs zu einem integrativen Rahmen und Vokabular, die dann zur Beschreibung informeller Lerngemeinschaften in einem formalen Bildungsszenario über ihre Vorläufer hinausgeht, ohne dabei aber die ursprünglichen Konzipierungen der Begriffe der CoPs und CoLs zu verfälschen. Dieser theoretische Beitrag liefert Forschenden und Praktikern einen Anreiz zur systematischen Betrachtung der Gesichtspunkte der Bildung und Gestaltung bei der „Orchestrierung“ und/oder Unterstützung von Lerngemeinschaften in Bildungsszenarien.

Die möglichen Teilnehmer an CoLPs sind Peers, *Just Plain Peers* (reine Peers) (JPP) genannt, sie sind Studenten in einem weiter gefassten Bildungsszenario und mögliche Freunde oder lediglich Bekannte im weiter gefassten sozialen Setting, und sie kommen zusammen, um gemeinsam ausgemachte Bedürfnisse (z.B. akademische Herausforderungen, soziale Herausforderungen) anzugehen, wie sie sich aus dem sozialpädagogischen Setting im weiteren Sinne ergeben. Ihre Beteiligung über die gesamte Lebensdauer der CoLPs hinweg ist freiwillig, und den Mitgliedern steht es frei, auszuscheiden, sobald der Wert ihrer Beteiligung nachlässt oder nicht mehr gegeben ist. CoLPs stehen allen Studenten offen, die als Peer unter Peers mitmachen wollen und dabei Lernerfahrungen durch den durch das Feedback der Peers generierten Mechanismus des Austausches teilen, aushandeln und gemeinschaftlich aufbauen möchten. CoLPs wirken als unterstützende Struktur für Studenten, die von den Studenten selbst geschaffen, jedoch von einem partizipativ agierenden Facilitator, der nicht Peer ist und auch kein Fachmann oder Mitglied der Peer-Gruppe, erst ermöglicht und gefördert wird. Der nicht als Peer auftretende partizipativ agierende Facilitator und die JPPs teilen Verantwortung für die Koordinierung und gemeinschaftliche Strukturierung des öffentlichen Raums (d.h. gesellschaftliche Veranstaltungen) und die Stärkung sozialer Interaktionen im privaten Raum (d.h. Beziehungsnetz für die Mitglieder der Gemeinschaft).

CoLPs werden bedarfsgerecht eingerichtet, dabei lädt der partizipativ eingebundene Facilitator, der nicht Peer ist, JPPs – sofern für sie relevant – ein, in einem CoLP-Setting

zusammen zu kommen und gemeinsam ihre Bedürfnisse zu behandeln. Der partizipativ agierende Facilitator, der nicht Peer ist, versorgt die Gemeinschaft auch mit ritualisierter Nachhaltigkeit (d.h. konsistenter Rhythmus von öffentlichen gesellschaftlichen Veranstaltungen), fördert den informellen Charakter der öffentlichen gesellschaftlichen Veranstaltungen, eröffnet Aspekte des „Lernens durch Üben“ und des „Übens zu lernen“ in der Gemeinschaft auf öffentlicher Ebene und baut private soziale Brücken zu den JPPs in dem Bestreben, Lebendigkeit und Bewusstsein der Gemeinschaft zu fördern. Neben der bedarfsgerechten Errichtung wird auch die Struktur der Gemeinschaft (d.h. die gegenseitige ritualistische und strukturelle Abhängigkeit der Mitglieder) zwischen den JPPs und dem partizipativ eingebundenen Facilitator, der nicht Peer ist, verhandelt.

Die Bestandsdauer von CoLPs ist angesichts des weiter gefassten sozialpädagogischen Zusammenhangs, in dem sie sich entwickeln, lehrgangsabhängig. Da die Relevanz zur Schaffung der CoLP sich aus dem weiter gefassten sozialpädagogischen Zusammenhang ableitet, stellt dieser Zusammenhang auch ein bestimmendes Element für die Bestandsdauer dar. Es ist aber auch möglich, dass die CoLP sich solange immer wieder erneuert oder wandelt, wie die JPPs einen möglichen Wert für ihre Teilnahme an ihrer CoLP sehen.

Was CoLPs anbelangt, so untersuchte die erste, in dieser Dissertation berichtete Studie die durch die Beteiligung von Peers an zwei von insgesamt drei CoLP’s, die Teil des im Rahmen der Dissertation durchgeführten CoLP-Projekts waren, möglich gewordene Wertschöpfung. Teilnehmer waren 27 internationale Master-Studenten, aufgeteilt in zwei Gruppen, an einen Studienprogramm der Lernwissenschaften in Deutschland, die freiwillig an zwei CoLP’s (N_{colp1} = 9; N_{colp3} = 18) teilnahmen. Die Daten wurden den von den Mitgliedern der CoLP nach beendigter Teilnahme abgegebenen schriftlichen Schilderungen, sogenannten Wertschöpfungsgeschichten, entnommen. Dazu wurde auf Analyseebene ein integrierter Ansatz gemischter Methoden *(mixed-methods approach)* verwendet. Zuerst wurde eine theoriegeleitete Inhaltsanalyse der Schilderungen durchgeführt, um die von den Mitgliedern vergebenen Werte auf der Grundlage einer vorgegebenen Wertetypologie einzuordnen. Die Ergebnisse zeigten, dass Mitglieder von CoLPs den CoLPs als soziale Lernräume häufig unmittelbare Werte zuerkennen. Dieses verblüffende Ergebnis rief geradezu nach einer weiteren Exploration dieser Werte mit einer datengeleiteten thematischen Analyse, um wertige kontextbezogene Aspekte aufzuzeigen, die mit dem theoriegeleiteten Ansatz nicht hätten erfasst werden können. Insgesamt haben die

Ergebnisse gezeigt, dass jeder Teilnehmer und jede CoLP eine einzigartige, durch die Einbeziehung der CoLP ermöglichte Konstellation von Werten „gewoben“ haben, sowie einige gemeinhin beobachtete Muster bei Teilnehmern und CoLPs. Ähnliche kontextbezogene Aspekte (z.B. Gelegenheit für Feedback von Peers und Praxis) wurden als von den Mitgliedern in beiden CoLPs werthaltig berichtet. Die Ergebnisse liefern einen erheblichen Einblick in das, was den Mitgliedern der Gemeinschaft als besonders wertig erscheint, wenn sie an CoLPs teilnehmen, und lösen ein umfassendes Überdenken des Begriffes „Erfolge“ der Teilnahme an Lerngemeinschaften aus und verschieben den Fokus von extern definierten Prozesserfolgsmaßnahmen hin zu teilnehmerdefinierten Prozess- und Erfolgswerten.

Fest verankert in dem Phänomen der Wertschöpfung, untersuchte die zweite Studie im Rahmen dieser Dissertation das Zusammenspiel von Peer-Feedback in zwei CoLPs in Bezug auf die Positionierung der Mitglieder der Gemeinschaft in sozialen Netzwerken (d.h. die Zentralität der Mitglieder in persönlichen Netzwerken), was in die sozialpädagogischen Zusammenhänge, in welche die CoLPs eingebunden waren, eingebettet war. Das Peer-Feedback geht über formale Bewertungspraktiken hinaus, um auf diese Weise zu authentischen Bewertungspraktiken für die gelebte Lernerfahrung der Mitglieder der Gemeinschaft zu gelangen. Teilnehmer waren 47 internationale Master-Studenten, aufgeteilt in zwei Gruppen, an einen Studienprogramm der Lernwissenschaften in Deutschland ($N_{colp1} = 23$; $N_{colp3} = 24$), die freiwillig an zwei CoLPs ($N_{colp1} = 13$; $N_{colp3} = 19$) teilnahmen. Dabei wurde auf Datenerhebungs-, Analyse- und Auslegungsebene ein Untersuchungsansatz gemischter Methoden verwendet. Die Daten wurden aus (a) eigenständig berichteten Fragebogen in sozialen Netzwerken (d.h. Gruppenebene) und (b) Videoaufzeichnungen von CoLP-Veranstaltungen (d.h. Gemeinschaftsebene) erhoben. Die Analyse der Daten umfasste eine (a) Analyse von Fragebogen und Videodaten im sozialen Netzwerk, um die Positionierung der Mitglieder im sozialen Netzwerk auf Gruppenebene und Netzwerke von Peer-Feedback-Interaktionen auf CoLP-Ebene zu ermitteln, und (b) eine inhaltliche Analyse von Videodaten, um Peer-Feedback-Episoden innerhalb der CoLP-Veranstaltungen zu ermitteln. Die Ergebnisse weisen darauf hin, dass die Bereitstellung von Peer-Feedback eine relationale Lernpraxis darstellt und dass die Zentralität der Feedback-Lieferanten in persönlichen Netzwerken sich relativ in ihrer Zentralität in den das Feedback liefernden Netzwerken wiederspiegelt, wobei Letzteres in Ersterem eingebettet ist. Durch die Verwendung einer Kombination von Feedbackarten (d.h. hauptsächlich Positiv-Verifizierung,

Argumentation und Vorschläge) konzentrierten sich die Lieferanten des Peer-Feedbacks zwar überwiegend auf Aspekte der Fähigkeit/Performance ihrer Peers, daneben aber auch auf persönliche, studien- und sozialbezogene Aspekte, was die Multiplexizität der Peer-Feedback-Interaktionen nur noch unterstreicht.

Die vorliegende Dissertation unterstützt das Argument, dass Lernen nicht das bloße Ergebnis formaler Unterrichtung ist, sondern eher ein integraler Aspekt einer beliebigen sozialen Situation, die es erst ermöglicht (d.h. formal unterrichtet oder informell geformt), und der sozialen Systeme, in welche diese Lernsituationen eingebettet sind. Auf der Grundlage dieser Sicht des Lernens untersucht die Dissertation das Phänomen der durch die Teilnahme an CoLPs ermöglichten Wertschöpfung, nicht aber Phänomene, die einen Bezug zu den Ergebnissen einer Performance herstellen, wie dies ganz überwiegend bei der formalen Unterrichtung der Fall ist.

Im Einklang mit dieser Sichtweise unterstützt die Dissertation auch das Argument, dass Peer-Feedback nicht eine bloße Bewertungspraxis ist, sondern eher als integraler Aspekt einer beliebigen sozialen Situation zu sehen ist, die sie erst ermöglicht, und der sozialen Systeme, in die Peer-Feedback eingebettet ist. Auf der Grundlage dieser Sichtweise auf das Peer-Feedback untersucht die Dissertation die soziale Einbettung des Peer-Feedbacks als durch die Teilnahme an CoLP-Settings ermöglichte kommunikative Netzwerke in den umgebenden persönlichen Netzwerken, als durch die gemeinsame Beteiligung an weiter gefassten sozialpädagogischen Kontexten ermöglichte affektive Netzwerke.

Für Ausbilder, Forscher und Akteure mag es bequemer und unkomplizierter sein, Lernerfolge im Allgemeinen und Peer-Feedback im Besonderen in den tradierten Bahnen zu denken und zu behandeln, aber eingedenk dessen, dass die Welt nicht als die Summe einer Ansammlung unabhängiger Elemente betrachtet werden kann, würde sie eine solche Denkweise nur vom Lernen im wirklichen Leben und vom Peer-Feedback im wirklichen Leben entfernen. Die vorliegende Dissertation gesellt sich damit zu einem wachsenden Kreis von Forschern, die zu theoretischen Neukonzipierungen von Lernerfolgen und Peer-Feedback beitragen und uns ermutigen, neue Wege der Herangehensweise und Behandlung dieser Phänomene zu beschreiten.

1. General introduction

Communities are everywhere and they have always been. Learning is everywhere and it has always been. Social networks are everywhere and they have always been. Learning communities in and across social networks are everywhere and they have always been. Nevertheless, only in the last decades, research on learning communities embedded in social networks attracted considerable attention and systematic efforts have been devoted to their study. Learning communities may refer to directed/designed, negotiated, or informal/spontaneously emerging social formations, structures, settings, or systems within which individuals act, interact, interdepend, share, and co-construct knowledge, expertise, and learning experiences. Although learning communities share the underlying characteristic of a social collective working together to facilitate a learning process (Hill, 2012), they have been approached from different perspectives with different community notions to serve or justify different purposes of their existence (e.g., Bielaczyc & Collins, 1999; Gabelnick, MacGregor, Matthews, & Smith, 1990; Wenger, 1998). Learning communities have been originally studied as existing communities in informal learning settings, such as apprenticeship settings, which move beyond the idea of institutionalized education (e.g., Lave, 1982). Along with a call for radical educational reform beyond unidirectional passive knowledge transmission, perspectives on learning (e.g., socio-cultural), learning communities (e.g., Communities of Practice) and its representing learning scenery (i.e., informal) emerged within this research field. The idea of learning communities was in turn incorporated in educational settings to promote ideas of reciprocal, active, meaningful and collective co-construction of knowledge among students, educators and/or others (e.g., Brown & Campione, 1996; Scardamalia & Bereiter, 1994).

This dissertation aims to explore the potentiality of learning communities, which are situated within a socio-educational setting, but do not constitute instructional approaches therein, to enable value creation for the community members themselves through the sharing mechanism of peer feedback and dynamic re-constructions of community members' network centrality through an interplay between history and emergence, represented by strong (e.g., friendships) and weak (e.g., peer feedback, academic network) ties (see Granovetter, 1973, 1983), respectively. Learning communities in this dissertation move *in-between and beyond* self-emergent/existing learning communities and designed/pre-defined learning communities to

afford a story-telling about and around recombinant learning communities—i.e. recombining emergent and designed elements. This introductory chapter aims to orient the reader to this dissertation through a brief synopsis of (a) the researcher's theoretical positioning, (b) the conceptual framework and research setting in which this positioning is incarnated, (c) the core phenomena examined within this conceptual framework and research setting, along with (d) the overall methodological orientation to their examination. Finally, an overview of the structure of this dissertation is provided.

1.1. Researcher's theoretical positioning: A social learning theoretical framework

This dissertation is theoretically founded in social learning theories which consider and acknowledge the role of the social context in human behavior and learning (Bronfenbrenner, 1979, 1994, 2005; Vygotsky, 1930-1934/1978, 1934/1986). In particular, the sociocultural approaches of situated learning (Lave & Wenger, 1991) and situated cognition (Brown, Collins, & Duguid, 1989), which were heavily influenced by Vygotsky's work and Bronfenbrenner's ecological systems theory predominantly influenced this dissertation. Besides the influences of social learning theories, complex systems theory (e.g., Åstrom & Murray, 2008) significantly contributed to the understanding and further conceptualization of central notions and processes that dominate in this dissertation. This combination of theoretical perspectives provided an integrative lens to examine notions and phenomena that accentuate the embeddedness of individuals' learning and behavior in relation to "the other" in nested and networked social context(s) within which individuals socially interact towards learning goals and value creation for themselves and/or for others.

Within this theoretical aggregation, this dissertation employs the notion of *situated learning practice* to concretely represent and situate the adopted learning approach into the context of interest. Situated learning practice does not represent a new learning theory or learning approach. On the contrary, its realization is based on existing learning theories and "situated" approaches to learning, i.e. situated learning (Lave & Wenger, 1991) and situated cognition (Brown et al., 1989), that are recombined to afford the account worth telling and reflect the plug-and-play principle of theoretical frameworks (see Wenger-Trayner, 2013). In this dissertation, learning integrates sociocultural, situated, and systemic aspects to refer to a multi-level process of potentiality that enables mutli-dimensional expansions of one's states, such as

identity, personality, skills, capabilities, and knowledgeability; or in other terms, one's states of potential expansion leading to value creation for the learners themselves and/or for others. Learning is enabled by practice which is in turn enabled by participation in a learning community. Practice in light of this dissertation moves beyond the notion of a particular profession, domain, or discipline (see Wenger, 1998), to refer to the process of exposing one's current states of learning to one's or others' sphere of awareness to enable one's development through feedback cycles resulting from social interaction and/or intra-action. In this dissertation, practice and feedback in the social learning context are perceived to be central mechanisms of enabling multi-level potentiality for expansion of one's states and value creation. This perspective on learning and practice is situated in the social learning context of *Communities of Learning Practice*, which except for a conceptual framework also constitutes the research setting for this dissertation.

1.2. A conceptual framework and research setting: Communities of Learning Practice

The community construct has been embraced by educational researchers to refer to directed/designed, negotiated, or informal/spontaneously emerging social formations, structures, settings, or systems within which individuals act, interact, interdepend, share, and co-construct knowledge, expertise, and learning experiences. These community notions are typically referred to as *learning communities* since they all focus on learning aspects, either formal or informal, and they all have been characterized as such by their pioneers. Although learning communities share the underlying characteristic of a social collective working together to facilitate a learning process (Hill, 2012), they have been approached from different perspectives that serve different purposes (e.g., Bielaczyc & Collins, 1999; Gabelnick et al., 1990; Wenger, 1998). Among the most dominant learning community notions are that of *Communities of Practice* (CoPs) (see Lave & Wenger, 1991; Wenger, 1998) and *Communities of Learners* (CoLs) (see Brown & Campione, 1996).

Communities of learning practice (CoLPs) constitute a recombinant notion of learning community that recombines aspects of emergence and design towards an equilibrium between the two to characterize non-formal learning communities situated within a formal educational setting. CoLPs derive from and operate in educational settings, and in parallel with—but not

integrated into—the curriculum by having no pre-defined pedagogical objectives. Therefore, CoLPs are extra-curricular entities that emerge from students' common needs and are not used as an instructional approach by educators, researchers or stakeholders to foster curricular learning objectives.

The potential participants of CoLPs are peers, referred to as Just Plain Peers (JPPs), who are classmates, potential friends or mere acquaintances in the broader socio-educational setting(s), and gather together to address identified common needs (e.g., academic challenges, social challenges) that derive from the broader socio-educational setting(s). Their participation throughout the CoLP lifespan is voluntary and members are free to withdraw whenever the value of their participation fades away. CoLPs are open to any student who wishes to be a peer among peers and share, negotiate and co-construct learning experiences through the sharing mechanism of peer feedback.

CoLPs act as a support structure for students, are generated by the students themselves but facilitated by a participatory facilitator, who is neither an expert nor a peer-member. The participatory facilitator and community members share responsibility for coordinating and co-structuring the public space and reinforcing social interactions in the private space. The public space refers to informal events, so-called community events, which are open to community members to exchange ideas, and find solutions to their problems, attributing a ritualistic and substantive dimension to the community by offering its members the experience of participation and collective engagement. The private space refers to a web of relationships among members who can be involved into one-to-one informal discussions that inform any design decision of the public space (Wenger, McDermott, & Snyder, 2002).

CoLPs are victually formed, since the participatory facilitator communicates the invitation for a CoLP to be initiated to the potential community members. The participatory facilitator also supplies the community with ritualistic sustainability (i.e., a consistent rhythm of community events), enhances the informality of the community events, facilitates the "learning how to practice" and "practicing how to learn" aspects of the community on a public level, and builds private social bridges with community members with the aim to reinforce community aliveness (Wenger et al., 2002). Along with the victual formation, the structure of the community is also negotiated among the community members and the participatory facilitator. Structure

refers to the ritualistic and structural dependence of the members on each other, which is negotiated throughout the lifespan of the CoLP.

The lifespan of CoLPs is course-based, given the broader socio-educational setting(s) within which they are nested. Since the relevance of forming the CoLP derives from the broader educational context, this context constitutes the defining element of its lifespan as well. However, the CoLP might regenerate or transform itself as long as the JPPs continue to identify potential values of participation in their CoLP.

1.3. Core phenomena of examination

1.3.1. Phenomenon 1: Value creation in Communities of Learning Practice

The concept of value in this dissertation is neither used in purely philosophical terms (e.g., moral philosophy, ethics, deontology) nor in socio-psychological terms (e.g., terminal/instrumental values). Though informed by philosophical and axiological principles, the concept of value in this dissertation moves beyond philosophical and socio-psychological approaches to refer to the process of a subject attributing value to an action, interaction, activity, process, object, person, or any experience based on self-defined criteria and standards. In particular, values in this dissertation refer to any experiences that are perceived by participant-agents to be of relevance to personal-, social-, skill-, study-, and context-related benefits that are associated and/or enabled by participation in the CoLPs. Within this framework, values are treated in relational, attributive, and agent-based terms, that is, values are not treated "objectively" or based on a set of "objective" standards of what is valuable or not by external agents. Any attribution of value is treated as relevant and/or meaningful to the participant-agent himself/herself. Tools, practices, social behavior, perceptions, processes, interactions are not perceived as "good" in themselves, but only in the cases in which the participant-agent attributes value or positive meaning to them based on relative criteria that are set by the participant-agent either consciously or unconsciously. No alignment with any external set of criteria or expectations is implied, which constitutes values significantly different from any outcome measures that are defined by external criteria and standards. Within this value framework, no absolute values are taken into consideration (i.e., values independent of the individual).

From a community and network perspective, Wenger, Trayner, and De Laat (2011) conceptualize value creation as "(…) the value of learning enabled by community involvement

and networking" (p. 7) with communities or networks to serve as social settings for social learning activities (e.g., sharing ideas, co-constructing knowledge, exchanging experiences). The value that community participation creates for members themselves is the driving force for community existence and sustainability. Whether the community additionally creates value for third parties can be considered when relevant (Wenger et al., 2011).

Wenger et al. (2011) outlined a spectrum of value creation that consists of five cycles of values: (a) *Immediate value*: activities and interactions (e.g., helping with a problem), (b) *Potential value*: knowledge capital (e.g., a useful skill), (c) *Applied value*: changes in practice (e.g., application of a skill), (d) *Realized value*: performance improvement (e.g., personal performance), and (e) *Reframing value*: redefining success (e.g., new frameworks). These value cycles imply complex and dynamic interrelations and by no means a hierarchical or linear sequential pattern. Within a community setting, members might be involved in the sharing of expertise, learning from each other's experiences, and helping each other with challenges. These activities might be related to the values individuals attribute to a community or derive from it (Wenger et al., 2011). The value of learning in a community derives from members' ability to develop a shared intention to enhance learning in a common domain. The shared domain of interest, shared practice (developed through a joint history of learning) and the shared repertoire (consisting of shared perspectives, strategies, and stories), all constitute learning resources for the community members (Wenger et al., 2011, p. 10).

Notwithstanding the conceptual advancement of the value creation framework as "a means to appreciate value created in communities and networks" (De Laat, Schreurs, & Nijland, 2015, p. 254), empirical examination of the phenomenon of value creation in learning communities did not concurrently emerge. This dissertation aims to empirically support the potential of value creation to serve as an assessment and measurement framework for value creation for learning community members themselves—more specifically for JPPs in CoLPs.

1.3.2. Phenomenon 2: Peer feedback in Communities of Learning Practice

Over the last decades, peer assessment and peer feedback—mostly examined within the framework of assessment feedback in higher education and writing instruction (Guardado & Shi, 2007; Nicol, 2013; Strijbos, Narciss, & Dünnebier, 2010)—have attracted considerable interest due to their perceived contribution to assessment practices and students' learning outcomes and

skills (see Evans, 2013). Despite the overall acknowledgement of the potential value of peer assessment and peer feedback for students' learning, controversial findings arise when they are tightly related to assessment feedback and students' scoring of work by peers is included in peers' grades (see Falchikov, 2001).

A vast amount of research has focused on comparisons of reliability of judgments between teachers and peers as assessors (see Falchikov & Goldfinch, 2000; Li et al., 2015—for a meta-analysis), raising criticisms for overemphasis on measurement-focused forms of peer assessment and peer feedback (Liu & Carless, 2006; Stefani, 1998). Boud (2000) argues that many forms of peer assessment and peer feedback reduce students to substitute teachers. Along the same lines, Nicol (2013), criticizes the incorporation of peer assessment and peer feedback in traditional assessment practices and underlines that to "gain maximum learning benefit it is better not to use peers as surrogate markers" (p. 119), but instead as active constructors of feedback in a knowledge building process whereby learners take responsibility for their and others' learning. In cases where peer assessment and peer feedback contributes to students' grade, peer-assessors end up working against each other instead of working with each other—explicitly or implicitly—as such inhibiting cooperation and peer learning principles (Boud, Cohen, & Sampson, 2001; Nicol, 2013; Topping, 2005). Nevertheless, peer assessment and peer feedback have been also treated more inclusively to refer to "an educational arrangement where students judge a peer's performance quantitatively and/or qualitatively and which stimulates students to reflect, discuss and collaborate" (Strijbos & Sluijsmans, 2010, p. 265). Such a holistic approach to peer assessment and peer feedback implies that they have the potential to be much more than just contributing to "grading" (see also Boud, 2000; Falchikov, 2005; Liu & Carless, 2006; Nicol, 2013).

In this dissertation, peer assessment and peer feedback are treated as an inherent aspect of social learning processes in social learning environments, abandoning the element of assessment design. Moving beyond assessment design, peer assessment and peer feedback closely resemble the "feedback reality" in professional settings or other non-educational settings that move beyond ideas of traditional assessment (e.g., measuring, grading, marking) (Nicol, 2013). The involvement of peers in feedback underscores the social dimension of peer feedback. Although the social dimension of peer feedback has been acknowledged (e.g., Carless, 2013; Nicol, 2010; Strijbos & Müller, 2014; Villamil & De Guerrero, 2006), peers' profiles as social actors peer-

feedback interactions that are embedded in surrounding social networks have been overlooked. In this dissertation, peer feedback is investigated as an interpersonal communication process that aims to contribute to students' learning in the broader sense, that is, learning that moves beyond curricular objectives to learning that derives from and is enabled by participation in learning communities and aims to address learners' own learning or other needs. By viewing learning as socially constructed and mediated within learning communities, the surrounding social relationships and social dynamics among peers who participate in any socially constructed and mediated learning practices, such as peer feedback, become important components to consider. Based on this perspective, peer feedback (if properly implemented) has its own place; not just in students' learning, but in students' social experiences of learning with peers as well.

1.3.3. Phenomenon 3: Social networks—Connections between peer-feedback, personal, and academic networks

Social network structures appear to be fundamental in comprehending how learners engage with each other in learning interactions inherent in an ongoing process of community building (Haythornthwaite, 2008). Therefore, the analysis of social networks within and around learning communities might enhance our understanding of learning practices inherent to learning communities.

Social networks consist of a set of actors/agents (i.e., nodes or vertices) and their relations (i.e., ties or edges) (Wasserman & Faust, 1994) typically visualized as a sociogram (see Moreno, 1934), graph, or matrix. Networks may be asymmetric (i.e., A to B does not by definition equal B to A) represented with a directed graph (i.e., A→B, A←B) or symmetric (i.e., A to B equals B to A) represented with a undirected graph (i.e., A–B) (Carrington, 2014). The nodes in a social network may be individuals, groups, organizations, societies, or other. The ties may fall within one level of analysis (e.g., individual-to-individual ties) or may cross levels of analysis (e.g., individual-to-group ties). Ties have been classified in several ways by networks researchers including communication ties (e.g., who talks to whom), formal ties (e.g., who reports to whom), affective ties (e.g., who likes whom), material or work flows (e.g., who gives resources to whom), proximity ties (e.g., who is spatially closer to whom), and cognitive ties (e.g., who knows who knows whom) (Katz, Lazer, Arrow, & Contractor, 2004). Yet, networks are multiplex, implying that actors can be connected to each other with various tie-constellations which may vary in direction (e.g., unidirectional, reciprocal), content, frequency, medium, and

sign (i.e., positive or negative) (Katz et al., 2004). For example, students might be classmates (i.e., role-based ties), friends (i.e., affective ties) and neighbors (i.e., proximity ties). Ties have been also classified as strong or weak (see Granovetter, 1973, 1983). Strong ties may refer to family and friendship networks, whereas weak ties may refer to acquaintance networks. The issue of tie strength has attracted considerable interest and in particular by scholars investigating weighted networks, namely networks that involve ties that apart from being present or absent, represent some sort of weight (e.g., intensity, duration, frequency of exchanges) (Opsahl, Agneessens, & Skvoretz, 2010).

According to Nardi, Whittaker, and Schwarz (2002), social networks "exhibit aspects of both *emergence*, being called into existence to accomplish some particular work, and *history*, drawing on known relationships and shared experience" (p. 207). This perspective is in line with Granovetter's (1973, 1983) notions of strong and weak ties. From this perspective, peers in peer-feedback interactions are not mere feedback providers for the sake of providing peer feedback (i.e., emergence), but also peers who are socially situated in surrounding social networks built on and/or built along interpersonal peer relationships and/or other relationships within which they socially construct their network centrality defined in and by the surrounding social networks (i.e., history).

This dissertation aims to capture personal, academic and peer feedback social networks. More specifically, this dissertation examines directed networks (i.e., I am connected to actor X) and how strong affective ties (i.e., friendship network) and weak communication ties (i.e., academic network) relate to another type of weak communication ties (i.e., peer-feedback network) highlighting the multiplexity of the network being examined. The nodes in this dissertation refer only to students. Consequently, networks are one-mode or monopartite as opposed to two-mode or bipartite (e.g., linking students to groups) (Grunspan, Wiggins, & Goodreau, 2014). The network boundaries in this dissertation were pre-defined/limited to (a) the cohort students, both community and non-community members (i.e., naturally occurring boundary), and (b) the subgroup of community members (i.e., research interest-defined boundary). Taking into consideration the pre-defined boundaries, the results of the social network analysis apply only to the included population for each analysis (i.e., cohort or community-level).

1.4. Methodological orientation

The recognition and articulation of methodological orientations represented in a study has been highly recommended by social research methodologists (Creswell, 2014; Mason, 2006a, 2006b). In so doing, an insight is provided in the methodological stance underlying this dissertation and the implemented research design.

1.4.1. Research context

The research context within which the aforementioned phenomena (i.e., value creation, peer feedback, social networks) are explored is that of Communities of Learning Practice (CoLPs) and their surrounding socio-educational setting(s). The CoLP project lasted three consecutive academic years examining three CoLPs (CoLP1: 2011, CoLP2: 2012, CoLP3: 2013). The CoLPs operated in parallel with a two-year international master's program in the Learning Sciences at a university in Germany. The CoLPs differed in their overall duration (i.e., total community life cycle) ranging from one semester to three semesters (CoLP1: 3 semesters, CoLP2: 2 semesters, CoLP3: 1 semester). However, CoLP2 was excluded in this dissertation due to its structural difference from CoLP1 and CoLP3. More precisely, in CoLP2 senior peers also facilitated and coordinated the community—along with the non-peer participatory facilitator, which could likely have affected the community dynamics and the phenomena under study.

For consistency purposes, only the first community cycle (i.e., first semester) of CoLP 1 and CoLP 3 will be considered in this dissertation. Each community cycle (i.e., study semester) involved several face-to-face meetings with community members and the participatory facilitator lasting approximately 2.5 hours each. These meetings are referred to as Community Events (CEs). All community events were located in a classroom on the university campus to facilitate video-recording of the events and students' mobility (i.e., easy and convenient access in alignment with students' course schedule). To foster an informal, friendly and comfortable atmosphere in the community setting, snacks and refreshments were freely available to the community members. The classroom layout was adapted in a various versions of a round-table layout to enhance community members' visibility, possibility for interaction and overall comfort.

Prior to the formation of each CoLP, a needs analysis survey (see Appendix A/ Appendix B) was conducted to identify possible student needs that could be addressed in the CoLP, perceptions of peer feedback, and scheduling preferences to inform structural and practical

decisions made by the non-peer participatory facilitator, such as theme and scheduling suggestions for the CEs. In addition, prior to each CoLP formation students were briefly introduced to the idea of learning communities and peer feedback processes to orient them towards the potential nature of the CoLP and were invited to voluntarily initiate a learning community with the support of a non-peer participatory facilitator (see Appendix C/ Appendix D). All participating students consented to the data collection on the CoLP and/or cohort level after receiving an informed consent (see Appendix E/ Appendix F). The students who voluntarily participated in each CoLP were free to withdraw their participation at any time over the course of each CoLP. No ECTS credits were awarded to students for their participation in the CoLP. Table 1.1 provides an overview of the CE themes in each CoLP.

Table 1.1

Overview of themes addressed in the CoLPs

CoLP	CEs	Thematic focus
CoLP1	CE1.1	Introductory session: Peer feedback training
	CE1.2	The power of language
	CE1.3	Design of power point presentations
	CE1.4	Poster design and presentation: Part 1
	CE1.5	Poster design and presentation: Part 2
	CE1.6	Closing feedback session
CoLP3	CE3.1	Introductory session: Peer feedback training
	CE3.2	The power of language: Words, voice and body in academic presentations
	CE3.3	Reviewing literature: Reading theoretical and empirical papers
	CE3.4	Aspects of an article to consider in your presentations: What and how?
	CE3.5	Preparing your cover letters
	CE3.6	Actual performance only
	CE3.7	Closing feedback session

Note. CoLP = community of learning practice. CE1 = community event of CoLP1. CE3 = community event of CoLP3.

Both CoLPs shared similar thematic foci in their CEs, which were relevant to the participants' curricular studies and the surrounding socio-educational context. Despite the

emphasis on selection on the basis of community members' preferences, two themes were pre-selected by the non-peer participatory facilitator in negotiation with the community members. These refer to the (a) the first event for each CoLP, that functioned as an introductory session in which members were presented with the underlying community principles of the community events and the sharing mechanism of peer feedback, and the (b) last event for each CoLP, that functioned as a closing session in which members were encouraged to provide feedback to each other and to the community as a whole.

1.4.2. Methodological overview

This section provides an overview of the data sources and the accompanying data analysis included in this dissertation (see Figure 1.1). Data were collected with video recordings of community events (CEs), which was a pre-defined fixed data collection method. Video recordings of CEs was considered to be an appropriate data source to capture the interactive processes, facilitate explanation of CEs, and contribute to the complete picture of CEs. Video-recorded data were subsequently segmented to identify peer-feedback provision episodes. The segmented peer-feedback provision episodes were analyzed using content analysis (CA) to identify types of peer-feedback provision and social network analysis (SNA) to identify weighted social peer-feedback provision networks. The underpinning methodological orientation was mixed-methods (i.e., sequential qualitative-quantitative) with an emphasis on structural data (i.e., network data).

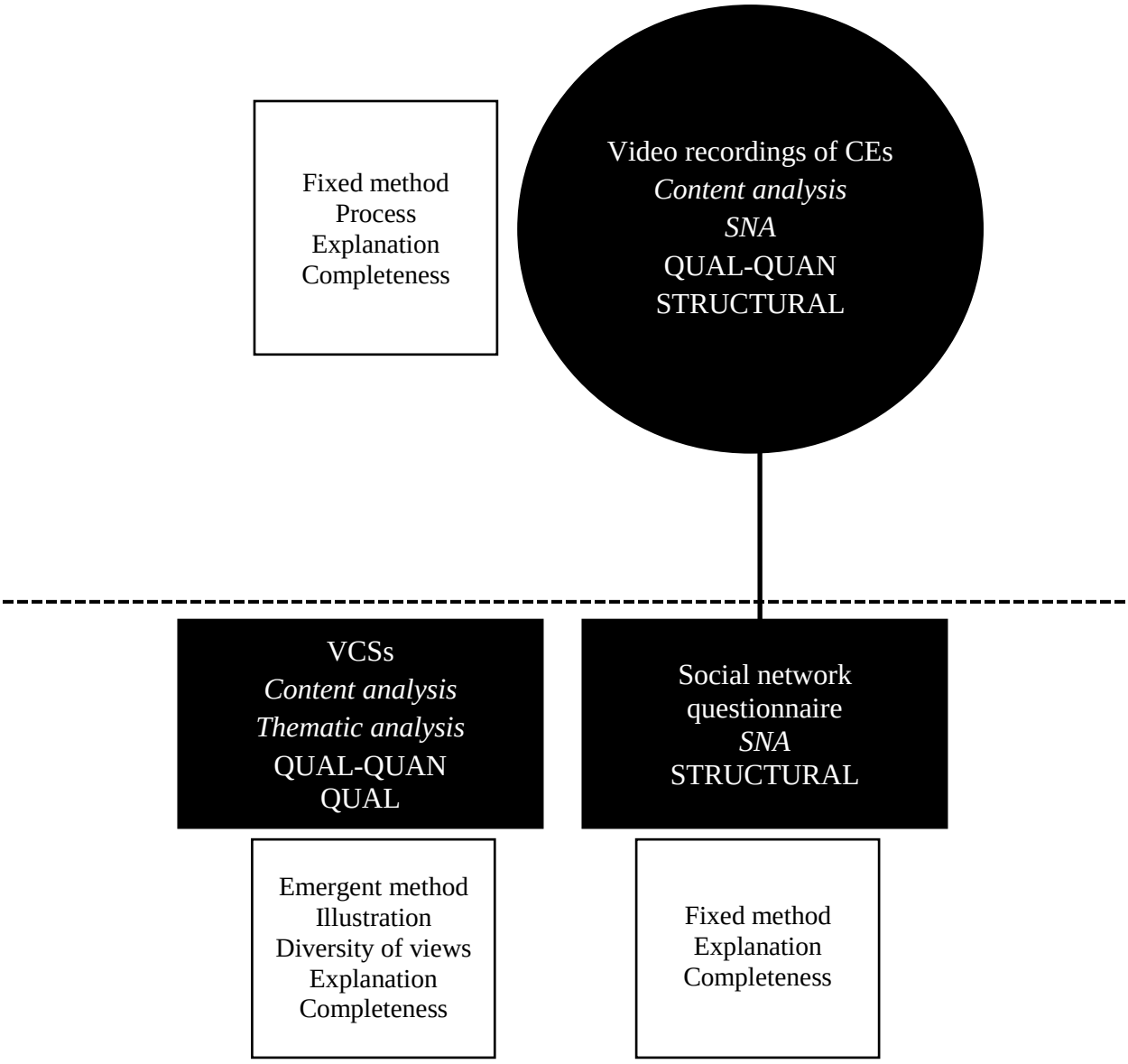
Additional data were collected with written narratives of CoLP members, referred to as Value Creation Stories (VCSs) (Wenger et al., 2011), which was an emergent data collection method. VCSs were considered an appropriate method to illustrate aspects of value creation in CEs, allow for non-observation-based diversity of views by giving voice to participants themselves, and to potentially contribute to any event explanations and completeness of the picture of CoLP valued participation. VCSs were analyzed using content analysis (on the complete data set) and thematic analysis (on a purposive subset of data). The methodological orientation was mixed-methods with an emphasis on qualitative data (i.e., sequential qualitative-quantitative design and supplementary qualitative analysis).

Data on the cohort level were collected with social network questionnaires, which was a pre-defined fixed data collection method. Social network questionnaires were considered to be a

rich data source that aimed to contribute to explanations of social interactions in CEs and contribute to the completeness of participants socio-structural profiles (i.e., positioning in social networks). Social network questionnaires were analyzed using social network analysis (SNA). The methodological orientation was structural (i.e., network data).

Figure 1.1

Overview of data sources, data analysis and methodological orientation



Note. SNA = Social Network Analysis. QUAL = Qualitative. QUAN = Quantitative.

1.5. Structure of the dissertation and research questions

The remainder of this dissertation consists of five chapters, namely two theoretical and two empirical contributions and a closing general discussion. A detailed overview for each chapter follows.

Chapter 2 is a theoretical chapter that revisits a set of prominent learning community notions filtered through sociological and community psychology perspectives to unravel how the community construct is represented in these notions. An overview of prominent sociological and community psychology perspectives on the community construct is initially presented and reveals an amalgam of community representations. These representations subsequently act as lenses for a critical synthesis of the community construct in learning community notions—as originally described by their pioneers. This synthesis aims to unwrap the ways in which the community construct is treated and its representations within learning contexts. Such understanding of community representations in learning communities from sociological and community psychology perspectives can be a useful aid for educational researchers and practitioners in terms of design decisions and facilitation strategies in relation to each community representation.

Chapter 3 is a theoretical chapter that builds on the previous analysis of learning communities and introduces a learning community notion that recombines aspects of emergence and design towards an equilibrium between the two to characterize non-formal learning communities situated within a formal educational setting. The recombinant learning community notion, termed Communities of Learning Practice (CoLP), is not fully congruent with either the notion of Communities of Practice (CoP) or the notion of Communities of Learners (CoL) and their implied perspectives on emergence and design. Nevertheless, CoLPs are based on a recombination of constituent elements of CoPs and CoLs—moving beyond its precursors without distorting the original notions of CoPs and CoLs. This chapter can provide a stimulus to researchers and practitioners for systematically considering the aspects of emergence and design when “orchestrating” and/or supporting learning communities in educational settings.

Chapter 4 reports a study that examines value creation enabled by peers’ participation in communities of learning practice (CoLPs) in higher education. To our knowledge, to date no systematic investigation of this phenomenon has been traced in relevant literature. Values attributed to aspects of community participation and to the CoLPs as social learning spaces were

explored. Participants (N_{colp1} = 9; N_{colp3} = 18) were international master students, who voluntarily participated in CoLPs. Data were collected from CoLP members' post-participation written narratives, so-called Value Creation Stories. The study employs an integrated mixed-methods approach at the analysis level. A theory-driven content analysis of narratives investigates members' attributed values based on a pre-defined typology of values. This study aims to provide an insight into what matters most to community members when participating in CoLPs.

Chapter 5 reports a study that examines the relationship between peer feedback provision in Communities of Learning Practice (CoLPs) and peer-feedback providers' social network positioning (i.e., providers' centrality in personal networks and academic networks) in the socio-educational contexts within which CoLPs are nested. Additionally, the content of the peer-feedback networks (i.e., types and foci) is examined. Peer feedback in this study moves beyond formal assessment practices to represent authentic assessment practices in the lived-in learning experiences of community members. Participants were 47 international master students of two different cohorts, including the subsets of community members of two CoLPs (N_{colp1} = 13; N_{colp3} = 19). The study employs a mixed-methods research approach to Social Network Analysis (SNA) with a pragmatic stance on the data collection, analysis, and interpretation level. Data were collected from (a) video recordings of community events (community level) and (b) self-reported social network questionnaires (cohort level). Data analysis involved (a) content analysis of video data to identify peer-feedback provision episodes in the CoLP events and (b) social network analysis of video and questionnaire data to identify the peer-feedback provision networks on the CoLP level and members' social network centrality on the cohort level (i.e., personal and academic networks).

Chapter 6 provides an integrated discussion across chapters. This chapter brings together concepts and findings of both the theoretical chapters and the empirical chapters and aims to draw the broader picture of CoLPs as a conceptual framework and research setting within which value creation and peer-feedback interactions were explored along with the social networks within which CoLPs were nested.

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2. Community representations in learning communities

The notion of community is a conceptually appealing one because it suggests a comfortable, socially supportive context. Yet community can do much more than create a friendly environment. It can support learning (…) Educational trends come and go, however, one that continues to be discussed, questioned, supported, and examined is the notion of learning communities (Samaras, Freese, Kosnik, & Beck, 2008, p. xvi).

Abstract: This chapter revisits a set of prominent learning community notions filtered through sociological and community psychology perspectives to unravel how the community construct is represented in these notions. An overview of sociological and community psychology perspectives towards the community construct is initially presented and reveals an amalgam of community representations. These representations subsequently act as lenses for a critical synthesis of the community construct in learning community notions—as originally described by their pioneers. This synthesis aims to unwrap the ways in which the community construct is represented within learning contexts. The critical synthesis suggests that the selected learning community notions share some common sociological representations, but in some cases they are differently represented or at least presented. The understanding of community representations in learning communities from sociological and community psychology perspectives is a useful aid for educational researchers and practitioners in terms of design decisions and facilitation strategies in relation to each community representation in learning contexts.

2.1. Introduction

In the last decades, great effort has been devoted to the study of learning communities as learning spaces, social structures, frameworks, instructional approaches, or as myriads of other conceptualizations. However, within the learning communities' literature the "community" construct itself has been scarcely analyzed through the theoretical lenses of sociology and community psychology from which the community construct originates. Nevertheless, elements of sociological and community psychology perspectives seem to be prevalent in central learning community notions. This chapter discusses various perspectives on the community construct—as originally approached in sociology and community psychology—and subsequently traces how these perspectives are embraced by educational researchers and incarnated in their theorizing of learning community notions. The analysis of the selected learning community notions, as they are discussed and presented by their pioneers, aims to add on the understanding of the community representation(s) within learning contexts. Such an understanding is a useful aid for educational researchers and practitioners in terms of design decisions (i.e., different community representations may involve different design principles—when design is applicable) and facilitation strategies (i.e., different community representations may involve different facilitation strategies—when facilitation is applicable).

The remainder of this chapter is organized as follows. Section 2.2 discusses the contested nature of the community construct across and within disciplines. Section 2.3 presents a selection of early and prominent sociological perspectives on the community construct to depict how the construct has been approached within sociology. Section 2.4 presents a dominant community psychology perspective on the community construct to depict how the construct has been mainly approached in community psychology. Section 2.5 outlines a set of learning communities that are central in the learning community literature. Finally, Section 2.6 brings together in a critical synthesis the sociological and community psychology representations of the community construct and elements of these representations in each included learning community notion as described by their pioneers. The selection of the sociological and community psychology perspectives is based on their relevance to learning communities. The selection of the presented learning community notions is based on the public availability of sufficient theoretical specification of the community notions by their pioneers to an extent that their main constituent elements can be identified.

2.2. Community: A contested construct

Community has been a ubiquitous concept in everyday life to refer to—at least—a collective of people or other living organisms. In terms of human communities, the constituent elements of a collective of people for it to be a community are still disputed and admittedly vague, showing that "communities, like all individuals, are unique" (Peck, 1987, p. 74). Communitarians associate communities with positive feelings of belonging, sharing, and companionship, liberalists with sense of service, sacrifice, restriction, exclusion, and lack of freedom, and neo-liberalists with a pursuit of social order based on principles defined by the business world (Blackshaw, 2010). Irrespective of what communities connote based on different perspectives, the popularity of the concept implies a potentially distinctive, defining, natural or just desirable effect on people's lives (for themselves and/or by others) (Bauman, 2001; Blackshaw, 2010; Brint, 2001). Its popularity subsequently justifies its place in people's doxa, that is, people's expected common beliefs (Bourdieu, 1972/1977).

Moving beyond its omnipresence in everyday life, community has been extensively used as a scientific construct in a variety of disciplines, including ecology, geography, anthropology, business and knowledge management, education, political sciences, sociology and psychology. Despite its extensive use across disciplines, there is no general theory that underlies community as a scientific construct. Each discipline masks and/or shapes communities differently by emphasizing divergent aspects, structures, functions and goals. In turn, this leads to profound conceptual controversies and scientific debates within and across disciplines, constituting community a highly contested scientific construct (Blackshaw, 2010; Brint, 2001; Cohen, 1985; Komito, 1998; Mannarini & Fedi, 2009; Popple & Quinney, 2002).

Hillery (1955) identified 94 definitions of community already back in the 1950s. In a later work, *A research odyssey: Developing and testing a community theory* (1982), Hillery highlighted that "I do not believe that an essential part of community can be defined in scientific terms (…) one could at least define the correlates of community, whether or not he could define the phenomenon itself" (Hillery, 1982, p. 13). In this attempt to classify the identified definitions, Hillery concluded that "beyond the concept that people are involved in community, there is no complete agreement as to the nature of community" (Hillery, 1982, p. 24). Pahl (2005), espousing a similar stance, claims that "any attempt to write an article on community is

surely asking for trouble (…) community appears as elusive a notion today as it was forty years ago" (p. 621).

Prior to addressing "what makes a community" in learning contexts, a reference to ways in which community is approached in sociology and community psychology is considered to be a prerequisite for its conceptualization in any other context. Both disciplines adopt a multilevel approach to human behavior, considering the individual, the individual in relation to the other, and the collectives within which they act and interact. Nevertheless, there is considerable variation in the ways is which this is executed within and across these two disciplines (i.e., sociology and community psychology). Community aspects and perspectives outlined in sociology and community psychology constitute supra-frameworks that inform the community conceptualization in learning contexts. Moreover, associating learning communities with sociological and community psychology conceptions of "community" can enhance the theoretical concreteness by which the community construct is approached in learning contexts and minimize the likelihood for theoretical ambiguities and misuses of learning community notions and community-related terms.

2.3. The community construct in sociology

2.3.1. Early sociological community perspectives

Sociology focuses on the study of human social life and the social world by situating social phenomena in their surrounding contexts (Giddens, 2006). Community, as a contested construct in sociology—as in other disciplines, has been used to refer to a wide variety of social phenomena. Early sociological community perspectives by Tönnies (1887/1963), Durkheim (1893/1997), and Weber (1921-1922/1978) constitute milestones in community research. As revolutionary responses to political and societal shifts in Europe, these contributions reflect influential community perspectives on a societal level (e.g., village, town, city) that increased interest in community studies by sociologists.

Ferdinand Tönnies (1887/1963), reflecting on the social changes occurring in an era of urbanization, classified two ideal types of social formations based on different types of human relationships and surrounding economies: *Gemeinschaft* (community) and *Gesellschaft* (society). Gemeinschaft is based on sentimental relationships (i.e., habits, traditions, beliefs, and affective bonds) and local economy, whereas Gesellschaft is based on associational relationships (i.e.,

instrumental rationality, self-interest) and industrial economy. Representations of the former type of social formation could be family, village, town, whereas representations of the latter could be an industrial city and nation (Tönnies, 1887/1963).

Émile Durkheim (1893/1997), in the same era of urbanization, was interested in the development of societies, from primitive to advanced, and the maintenance of social order therein based on mechanical and organic solidarity. Mechanical solidarity refers to homogeneous individuals in terms of education, work, and lifestyle, characterizing primitive societies, whereas organic solidarity refers to interdependent individuals who complement each other based on their heterogeneous specializations, characterizing advanced societies (Durkheim, 1893/1997).

Max Weber (1921-1922/1978), affected by social problems caused by economic and political changes in a post-industrialization era, viewed economic, political, or social interests as sources of competition that lead to community formation and social relationships. Communities and social relationships in turn enable these interests to be monopolized. In Weber's terms solidarity is based on mutual orientation to social action as a response to pressures external to the community (Weber, 1921-1922/1978).

These seminal sociological contributions to the conceptualization(s) of the community construct imply that communities are responses to phenomena and are formed to deal with those phenomena in a specific socio-historical era. Nevertheless, these three conceptualizations differ in terms of what brings people together to form a community, what keeps them together, how they are organized and function, and the principles by which the members relate to each other. These early sociological community perspectives constitute pioneering contributions to community studies and underscore the dynamic and complex constitution of communities. The next section presents an overview of prominent sociological perspectives on the community construct—that moves beyond these early precursors—to exemplify the plurality of community conceptualizations and representations in sociology and to build the framework for the critical synthesis of learning communities later-on.

2.3.2. Prominent sociological community perspectives

Over the past century a wide range of hermeneutic community notions have been developed representing different sociological community perspectives[1], including (1) *classical human ecology*, (2) *relational*, (3) *functionalist*, (4) *social complexity*, and (5) *network* perspectives.

The classical human ecology perspective conceives communities as human ecologies. This early ecological perspective is attributed mainly to Park and Burgess (1921) and solidified by McKenzie (1924). Human ecologies constitute natural phenomena of social structures based on human characteristics and needs, that develop from simple, general and centralized structures to complex, specialized and decentralized structures through cycles of adjustments (i.e., succession), whenever the equilibrium state of community is disturbed, to achieve a state of *climax* (i.e., maximum development; McKenzie, 1924, p. 292). The formation of human ecologies resembles that of organisms since "the structural growth of community takes place in successional sequence" (McKenzie, 1924, p. 297).

The relational community perspective, attributed to Gusfield[2] (1975), conceives communities as

> a characteristic of human relationships rather than existing in a bounded or defined group (…) Here, studies are oriented toward the ways in which group members cooperate and conflict—to the existence or absence of bonds of similarity or sympathy, to what unites or differentiates a collectivity of people (Gusfield, 1975, xvi).

[1]Readers might argue for other equally important sociological community perspectives that have been developed over the years, such as political communities (see Dagger, 1999), personal communities (see Pahl & Spencer, 2004), imagined communities (see Anderson, 1983; Calhoun, 1991; Phillips, 2002), virtual communities (see Poster, 1995) or others. Although these contributions are acknowledged, they are not included in this selection due to limited theoretical relevance to the present conceptual analysis.

[2] Gusfield's (1975) community perspectives – or dimensions as Gusfield approached them – include: territorial and relational. These perspectives are not mutually exclusive. Nevertheless, the territorial community perspective prioritizes an emphasis on communities as physical spaces or geographical territories within which individual reside and/or work (Gusfield, 1975). Based on the territorial perspective, proximity constitutes a prerequisite for community existence that can lead to local interactions. The territorial perspective is not addressed because it moves beyond the scope of the present conceptual analysis.

Yet, Pickvance (1977) points out that Gusfield "denies that pre-existing conditions cause people to make communal designations and stresses together that the interaction process itself is the source of such designations" (p. 1367). This perspective emphasizes the elements of human relationships and interactions as prerequisites for community formation. Relational communities constitute dynamic and evolving entities created out of a quest for community toward goal achievement, and do not represent objectively identified states (Gusfield, 1975).

Functionalist community perspectives are represented in contemporary human ecology, mainly influenced by Hawley (1950, 1968), and in action systems, mainly introduced by Parsons (1951). Contemporary human ecology, as a descendant of classical human ecology, conceives communities as local social structures. Social structures refer to social contexts that "do not consist just of random assortments of events and actions; they are structured, or patterned in distinct ways" (Giddens, 2006, p. 8). Contemporary human ecologies are based on symbiotic relationships among heterogeneous social units implying interdependence and on commensalistic relationships among homogeneous social units implying competition (Hawley, 1950). The resulting pattern of both symbiotic and commensalistic relationships is that of community, whose needs are addressed through functional interdependencies among its constituent social units. In later work, Hawley (1968) further developed this perspective by referring to social systems, instead of communities, thereby extending the notion of human ecology. The action systems perspective also conceives communities as social systems, positioned in a broader action system along with personality systems and cultural systems (Parsons, 1951). A social system is defined by Parsons (1951) as "a mode of organization of action elements relative to the persistence or ordered processes of change of the interactive patterns of a plurality of individual actors" (p. 15). The structure of a social system is based on relations among individual actors involved in interactive processes, constituting participation therein the central unit of a social system (Parsons, 1951). Participation is expressed through an actor's status (i.e., position in the system) and role (i.e., what an actor does in relation to others—i.e., their functional significance) in the social system (Parsons, 1951). Both functionalist perspectives emphasize that functions enable the path from problems to solutions in communities.

As a further advancement of the functionalist perspectives, the social complexity perspective conceives community as a complex system (Connell, 2006). Complex systems are composed of many interacting agents whose behavior is emergent, resulting into emergent

patterns of behavior on a system level. In other words, the behavior of the system cannot be predicted from the behavior of its individual agents (Bar-Yam, 1997; Mitchell & Newman, 2002). Central features of complex systems are those of emergence (i.e., patterns are generated from multiple interactions of individual agents), self-organization (i.e., spontaneous formation of structures or functions in systems composed of individual elements or agents), decentralization (i.e., dispersed decision-making or control by agents with no central authorities), and feedback (i.e., when the interactions between parts of a system at a later point depend on their prior interactions) (Bar-Yam, 1997; Ladyman, Lambert, & Wiesner, 2013).

The network perspective on community conceives communities as social structures of networks, or community networks (Wellman, 2001; Wellman & Leighton, 1979). Wellman (2001) defines community as "networks of interpersonal ties that provide sociability, support, information, a sense of belonging and social identity" (p. 228). Wellman (2001) explains that in networks

> boundaries are permeable, interactions are with diverse others, connections switch between multiple networks, and hierarchies can be flatter and recursive (…) most people operate in multiple, thinly connected, partial communities as they deal with networks of kin, neighbors, friends, workmates and organizational ties. (p. 227)

Hence, communities as networks are based on social ties that allow flows of resources, while neglecting locality and solidarity as prerequisites for community existence (Wellman, 1979; Wellman & Leighton, 1979). This perspective represents a network analytic perspective, typically referred to as social network analysis, which focuses on "delineating structures of relationships and flows of activities" (Wellman, 1979, p. 1203).

Table 2.1 presents an overview of the prominent sociological community perspectives along with their community representations and three key elements of each perspective. The representations and key elements are based on the original descriptions of the sociological community perspectives.

Table 2.1

Overview of sociological community perspectives and their representations and key elements

Perspective	**Representation**	**Key elements**
Classical human ecology	Human ecology	a. Natural phenomenon b. Succession c. Simple to complex
Relational	Human relationships	a. Relationships b. Interactions c. Goal achievement quest
Functionalist	Social structure/system	a. Structure/pattern b. Functions c. Interdependence
Social complexity	Social complex system	a. Emergence b. Self-organization c. Decentralization
Network	Social network	a. Social ties b. Flows of resources c. Flows of activities

Note. The presented key elements are based on the original descriptions of the community notions.

Despite their divergence, these perspectives share (a) the situatedness of the individual in a social setting(s) that is in constant *structuration* (i.e., continuous construction and reconstruction) and (b) the involvement of interactions among individuals and the surrounding setting(s) (Giddens, 2006, p. 8). Nevertheless, their divergence in key elements and representations implies that the nature of (re)constructions, the elements that are (re)constructed, the ways in which they are (re)constructed, and the agents involved in the (re)construction(s)—along with the nature and degree of interactions—vary across perspectives. Moving beyond pure sociological orientations towards community, the next section will examine the community construct within the framework of community psychology, which views community through the lens of individual behavior.

2.4. The community construct in community psychology

Influenced by sociological perspectives, the field of community psychology is concerned with how social systems relate to individual behavior and well-being within community settings, adopting a multilevel approach to human behavior (i.e., macro, meso/intermediate, micro systems) (Orford, 2008). Its main focus is to prevent and/or solve social problems and understand human behavior affected by social factors (Levine, Perkins, & Perkins, 2005). In

community psychology, the individuals and groups are situated in the real-world, within which diversity is embedded, and are affected by multiple levels of influence (Trickett, 1996).

A psychological construct highly associated with communities is the construct of *psychological sense of community* which was originally coined by Sarason (1974) and defined as

> the perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, the feeling that one is part of a larger dependable and stable structure. (p. 157)

Nowadays, it is referred to as *sense of community* (SOC). Following the establishment of the theoretical foundation of the SOC by Sarason (1974), many community psychologists focused on its theoretical and empirical advancement (e.g., Chavis & Pretty, 1999; Flaherty, Zwick, Bouchey, 2014; Loomis, Dockett, & Brodsky, 2004; McMillan & Chavis, 1986; Nowell & Boyd, 2011). The most influential advancement of SOC is McMillan and Chavis' (1986) theoretical framework of SOC, which aimed to contribute to the understanding of various types of communities that operate on the principles of understanding and cooperation. In this framework, SOC is conceptualized as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chavis, 1986, p. 9). In particular, SOC consists of four main elements: (a) *membership*, (b) *influence*, (c) *integration and fulfillment of needs*, and (d) *shared emotional connection* (McMillan & Chavis, 1986).

According to McMillan and Chavis (1986), membership refers to a feeling of belonging and identification deriving from individuals' personal investment to each other and to the group. Community membership both defines and is defined by its boundaries, either obvious or subtle, that are set by the community and its members to offer emotional safety that allows for group intimacy to grow. Membership also leads to and is formed by the development of a common symbol system that contributes to the maintenance of the community boundaries.

Influence implies that community members strive for participation in communities in which they can be influential while the community is also influential to its members. In other words, there is concurrent influence of a member on the community and of the community on a member. This reciprocal influence is highly associated with the strength of the bond among the members and with the community and in turn with a consensual validation by the individual and

the community. Consensual validation refers to the assumption that "people possess an inherent need to know that the things they see, feel, and understand are experienced in the same way by others" (McMillan & Chavis, 1986, p. 11).

Integration and fulfillment of needs imply reinforcement of a positive sense of togetherness and binding through rewards relevant to the individuals and the group. According to McMillan and Chavis (1986), possible reinforcers are membership status, competences of others from whom members can profit, and success of the community. Reinforcement has been associated with the concept of shared values, which foster community cohesion. A strong SOC is achieved with parallel fulfillment of everyone's needs (McMillan & Chavis, 1986).

The element of shared emotional connection is based on frequent and meaningful interactions and relationships, the value and importance of relationships and shared events/experiences, group cohesiveness through positive resolution of events, investment at a physical, materialist and/or emotional level, effect of honor associated with community attractiveness, and the spiritual bond. Communities with strong SOC are the ones that offer opportunities for experiencing positive interactions, shared events, resolutions, honor, investment, and spiritual bonding (McMillan & Chavis, 1986).

Although a further in-depth discussion of the community construct from a sociological and community psychology perspective might be worthwhile (albeit with the risk of an endless journey), both perspectives as presented can further inform our understanding of learning communities. In fact, as Komito (1998) suggests, when dealing with or researching communities, the first question that should be asked by community researchers is "what kind of community is being discussed, or what features of 'community' are being emphasized" (p. 98). Therefore, the following sections will address the "community question" with an initial overview of community notions introduced in learning contexts (i.e., learning communities) and a subsequent critical synthesis to illustrate how sociological and community psychology representations of community are incarnated in the learning community notions.

2.5. The community construct in learning contexts

The community construct has been embraced by educational researchers to refer to directed/designed, negotiated, or informal/spontaneously emerging social formations, structures, settings, or systems within which individuals act, interact, interdepend, share, and co-construct

knowledge, expertise, and learning experiences. These community notions are typically referred to as *learning communities* since they all focus on learning aspects, either formal or informal, and they all have been characterized as such by their pioneers.

Although learning communities share the underlying characteristic of a social collective working together to facilitate a learning process (Hill, 2012), they have been approached from different perspectives that serve different purposes (e.g., Bielaczyc & Collins, 1999; Gabelnick, MacGregor, Matthews, & Smith, 1990; Wenger, 1998) Instead of providing a global definition of learning communities, which may not be appropriate or as inclusive as preferred, describing them separately leads to more concrete conceptualizations of the learning community notions and consequently offers substantial ground for the filtering of each learning community through the lenses of sociological and community psychology perspectives discussed in Section 2.3 and Section 2.4.

The selected learning community notions are classified into (a) learning communities in informal learning settings and (b) learning communities in formal learning settings. This classification does not exclude the presence of informal learning communities into formal learning settings, however it highlights the original setting within which a specific learning community notion was coined. The notions of *Communities of Practice* (Lave & Wenger, 1991; Wenger, 1998), *Communities of Interest* (Fischer, 2001), and *Communities of Innovation* (Coakes & Smith, 2007) are predominantly grounded in informal learning settings. Whereas the notions of *Communities of Learners* (Brown & Campione, 1990; Brown 1992; Rogoff, 1994), *Communities of Inquiry* (Lipman, Sharp, & Oscanyan, 1977; Lipman, 1988, 1991, 2003), *Knowledge-Building Communities* (Scardamalia & Bereiter, 1994), and *Learning Communities in Higher Education* (Gabelnick et al., 1990) emerged as learning community notions in formal learning settings (i.e., educational systems).

The reason for selecting these learning community notions lies in their relative popularity in the research community. Table 2.2 serves as an indicator of the popularity of these learning community notions. The search was conducted with Harzing's (2007) Publish or Perish, a software that retrieves academic citations based on Google Scholar as a citation source. The criteria for the identification of publications that dealt with learning communities included each learning notion as a keyword phrase, and in particular as a title phrase within the time period 1970-2015.

Table 2.2

Overview of the indicative popularity of learning community notions

Community notion	Papers	Citations
Learning communities	>1000	>101295
Communities of Practice	>1000	>117455
Communities of Interest	185	1634
Communities of Learners	150	2893
Communities of Inquiry	139	1763
Knowledge-Building communities	78	3569
Communities of Innovation	28	379

Note. The maximum number of results that Google scholar allows is 1000. Queries that resulted in more than 1000 findings indicate that more publications are available but not retrieved by Google Scholar. The Learning Communities in Higher Education notion introduced by Gabelnick et al. (1990) is not included in this overview due to overlap with other learning communities in higher education that do not represent their notion.

Table 2.2 shows that *Learning communities* and *Communities of Practice* are the most commonly used notions within the time period 1970-2015. The popularity of these notions can be justified by the inclusiveness of the *Learning Communities* notion and its frequent use as an umbrella term, and by the attractiveness of the *Communities of Practice* notion across disciplines—even occasionally resulting into inconsistent use as signaled by Wenger (2010, p. 192). The comparatively lower popularity of the remaining notions indicates that they tend to address more specific audiences of interest.

The next section provides a brief overview of the aforementioned learning community notions, as they were originally coined by their pioneers. The learning communities have been classified as notions originally coined and developed within (a) informal learning settings and (b) formal learning settings.

2.5.1. Learning communities in informal learning settings

With their seminal work *Situated learning: Legitimate peripheral participation*, Lave and Wenger (1991) induced a shift in thinking about learning as information and knowledge transfer to participation in socioculturally situated activities, which has led to an increased attention to the "community" construct within authentic and informal learning settings. Within the framework of participation in situated activity, learners participate in communities of

practitioners and they move towards the mastery of knowledge and skills along with their movement from the periphery to the core of the sociocultural practices of the intended community (Brown & Duguid, 1991; Lave & Wenger, 1991). The following learning community notions constitute a set of vocabulary to represent social structures within which knowledge is constructed and shared in informal learning settings.

2.5.1.1. Communities of Practice

Communities of Practice (CoPs) were originally coined as an analytical notion by Lave and Wenger (1991) to describe already existing phenomena in craft production within a situated learning framework. Situated learning implies that "learning, thinking, and knowing are relations among people in activity in, with, and arising from the socially and culturally structured world" (Lave & Wenger, 1991, p. 51). Within this framework, CoPs have been referred to as "a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice" (Lave & Wenger, 1991, p. 98). The CoP notion was further developed by Wenger (1998), who provided an elaborate theoretical analysis of the notion with a focus on its constituent elements, structure and value. Wenger (1998) conceptualized CoPs as social collectives whose participants mutually engage into a constantly negotiated joint enterprise while developing a shared repertoire of resources that support the negotiation of meaning. In their attempt to differentiate CoPs from other social structures, Wenger, McDermott, and Snyder (2002) state that CoPs are loosely connected, informal, and self-managed structures that are based on collegiality as opposed to formal relationships, and on members' participation as opposed to members' affiliation. Once the CoP notion entered the knowledge management field through Wenger's work, it has also influenced and inspired other contemporary researchers within the field to generate or further advance other community notions that highly relate to and are based on CoPs, including *Communities of Interest* (Fischer, 2001) and *Communities of Innovation* (Coakes & Smith, 2007).

2.5.1.2. Communities of Interest

Communities of Interest (CoIs) is a notion that refers to groups that are informally formed based on shared beliefs, values, and concerns as opposed to locality or social patterns. Within the framework of learning communities, CoIs as a notion is highly related to CoPs since it is defined as communities that are constituted of representatives from various CoPs that operate within different knowledge systems and gather to address a particular problem of interest

within collaborative design projects (Fischer, 2001). According to Fischer (2001), CoIs differentiate themselves from CoPs since they are temporary and framed within the context of a specific project. When compared to one single CoP that operates in a single knowledge system, CoIs are described as being more complex, multifaceted, and powerful for innovation—as they have the potential to transform the distribution of knowledge into a source of social learning and creativity through the interaction of multiple knowledge systems across CoPs. Wenger, McDermott, and Snyder (2002) also differentiate CoPs from CoIs—with no specific references to Fischer's work though—by stating that a shared interest does not suffice for a CoP, but that a shared practice in a domain should be developed as well. Nevertheless, the consideration of the multiplicity of knowledge systems and interactions of these systems across CoPs—implied in CoIs—brings the notion of CoI to close resemblance with what Wenger-Trayner and Wenger-Trayner (2015) call "landscapes of practice" (p. 15).

2.5.1.3. Communities of Innovation

Communities of Innovation (CoInvs) is yet another community notion that has been referred to as a special form of CoP that can serve as a mechanism for sustaining innovation within organizations by supporting a secure setting for creation of innovative ideas, practices and products (Coakes & Smith, 2007, p. 74). According to Coakes and Smith (2007), CoInvs are formed and sustained by influential agents and their social networks in organizations, since they have the power to influence the acceptance, support and promotion of a multitude of innovations originating from several sources within a social system (Coakes & Smith, 2007). As CoInvs emerge from the social network of actors in an organization and are not installed through management structures, CoInvs act as informal learning communities.

2.5.2. Learning communities in formal learning settings

The powerful nature of the "community" construct has inspired educators and educational researchers since the 1970s to develop and promote innovative pedagogical and instructional approaches that reflected a quest for educational reform and transformation. Despite the mass interest in educational reform in the 1970s, the foundational inspirations in rethinking education can be traced in Dewey's (1897) work, *My pedagogical creed,* in which education is described as a social process of living and school as a form of community life. This "radical reconceptualization of educational practice" aimed to foster critical thinking, students' control

over their own learning, thinking and understanding, and knowledge advancement and construction through the design of effective learning environments (Bielaczyc & Collins, 1999, p. 269). The following learning community notions reflect efforts of educational innovations and classroom transformations as a response to traditional educational settings and schooling cultures.

2.5.2.1. Communities of Inquiry

Communities of Inquiry[3] **(**CoInqs) is a learning community notion credited to Lipman (1988, 1991, 2003) and Lipman, Sharp, and Oscanyan (1977). Lipman (2003) envisioned a conversion of classrooms into communities of inquiry in which students respectfully exchange information, advance each other's ideas, ask for reasoning and argumentation of opinions, help each other in making valid conclusions, and attempt to realize each other's assumptions. Lipman (2003) views CoInqs as a means for developing critical thinking and problem solving skills in education. According to Lipman (2003), CoInqs are rooted in a reflective educational paradigm that involves conversational apprenticeship (i.e., dialogue between teacher and students based on mutual respect and teacher's non-authoritative role), autonomy (i.e., learners are autonomous thinkers), and reflective thinking (i.e., awareness of thinking assumptions, implications, process, and subject matter). Garrison, Anderson, and Archer (2000) introduced the notion of CoInq within the context of online learning by arguing that the educational experience takes place within CoInqs which are constituted of three interacting core elements, namely (a) cognitive presence (i.e., information exchange, connecting ideas), (b) social presence (i.e., emotions, encouraging collaboration), and (c) teaching presence (i.e., focusing discussion, sharing personal meaning).

2.5.2.2. Communities of Learners

Communities of Learners (CoLs) is a learning community notion that has been both used as an umbrella term and a project-related term that reflects an educational reform initiative in the early 1990s (Brown & Campione, 1990, 1994). The notion of CoLs has been used by educators and researchers to refer to communities that aim for the advancement of knowledge and learning how to learn on the classroom level in educational settings (Bielaczyc, Kapur, & Collins, 2013;

[3] Communities of inquiry were originally coined by Peirce (1955) to exclusively refer to communities of scientific inquiry.

Brown, 1992; Brown & Campione, 1990). Its initial conceptualization by Brown and Campione (1990) described the practical implementation of a set of theoretical principles in classrooms, based upon Vygotskian premises (1930-1934/1978) and Dewey's (1897) experiential learning, towards a reform movement in education through a shift in the culture of education and innovative classroom design based on reciprocal teaching techniques (Brown, 1994; Brown & Campione, 1994; Bruner, 1996; Palincsar, Brown, & Campione, 1993). CoLs in education are particularly associated with a shift in students' role from passive knowledge recipients to active co-constructors of knowledge, while being responsible for their own learning and its design (Brown, 1992). Therefore, CoLs have been used as an instructional technique to enhance knowledge sharing and distribution of expertise and responsibility among students and teachers aiming to build a collective learning culture in which students respect and value each other's contributions (Bielaczyc et al., 2013; Brown & Campione, 1994).

2.5.2.3. Learning communities in Higher Education

Learning communities in Higher Education (LCHEs) constitute a structural reform effort of institutions and curriculum in the United States (Gabelnick et al., 1990). LCHEs have socio-historical significance as they emerged as a response to concerns and criticisms of higher education institutions in the United States in the 1980s (see Association of American Colleges and Universities, 1985). However, the foundations of learning communities as structural reforms in higher education can be traced back to Meiklejohn (1932). Meiklejohn (1932) developed an experimental inter-disciplinary, inter-faculty, and inter-curricular structure at the University of Wisconsin. LCHEs have been defined by Gabelnick et al. (1990) as

> curricular structures that link together several existing courses – or actually restructure the material entirely – so that students have opportunities for deeper understanding and integration of the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise (p. 19).

Along the same lines, but in more contemporary terms, LCHEs are also described as intentional structures that aim to "promote and maximize the individual and shared learning of its members. There is ongoing interaction, interplay, and collaboration among the community's members as they strive for specified common learning goals" (Lenning, Hill, Saunders, Solan, & Stokes, 2013, p. 7). For a recent review on the evolution of LCHEs, see Mathews, Smith, and MacGregor (2012) and Benjamin (2015).

2.5.2.4. Knowledge-Building Communities

Knowledge-Building Communities (KBCs) is a learning community notion coined by Scardamalia and Bereiter (1994) to refer to an attempt to transform/restructure classrooms and schools into "communication systems in which relations between what is said and what is written, between immediate and broader audiences, and between what is created in the here and now and archived are intimately related and natural extensions of school-based activities" (p. 266). In other words, Scardamalia and Bereiter (1994) attempted to restructure schools from first-order environments, in which learners attempt to adapt to a stable system of routines, to second-order environments, in which learners' adaptation in the environment changes the environment itself and instigates re-adaptation of other learners. The KBC notion emphasizes that the students have the ability to construct new knowledge instead of just learn what is already known. According to Scardamalia and Bereiter (1994), the KBC notion better represents a sense of continuity with the other knowledge-building communities outside schools and conceives knowledge-building as a collective product that moves beyond the mere collection of individual products. KBCs have been described in close association with technological advancements (e.g., Computer-Supported Intentional Learning Environments, Knowledge Forum; see Scardamalia & Bereiter, 2006).

2.6. Learning communities: What communities are we talking about?

In this section, sociological and community psychology perspectives are brought together into a critical synthesis of community representations in learning communities. To avoid any potential confusion, it should be highlighted that the sociological and/or community psychology representations attributed to each learning community notion result from the original descriptions of the learning community notions by their pioneers (see Section 2.5). The synthesis of community representations in learning communities, presented in Table 2.3, is based on (a) direct connections and/or references made by the pioneers themselves or on (b) indirect connections and/or subtle references to and/or descriptions of the community representations and their key elements without explicitly stating or drawing the underlying connections to the sociological and community psychology perspectives.

Table 2.3

Connection of sociological and community psychology perspectives to learning community notions

Domain	**Perspective**	**Representation**	**Key elements**	**Learning community notion**
Sociology	Classical human ecology	Human ecology	a. Natural phenomenon b. Succession c. Simple to complex	Community of Practice (CoP)
	Relational	Human relationships	a. Relationships b. Interactions c. Goal achievement quest	Community of Practice (CoP)
	Functionalist	Social structures/system	a. Structure/pattern b. Functions c. Interdependence	Community of Practice (CoP) Community of Interest (CoI) Community of Innovation (CoInv) Community of Inquiry (CoInq) Community of Learners (CoL) Learning community in HE (LCHE) Knowledge-Building Community (KBC)
	Social complexity	Social complex system	a. Emergence b. Self-organization c. Decentralization	Community of Practice (CoP)
	Network	Social network	a. Social ties b. Flows of resources c. Flows of activities	Community of Innovation (CoInv)
Community psychology	Sense of community	Sense of community	a. Membership b. Influence c. Integration and fulfilment of needs d. Shared emotional connection	Community of Practice (CoP)

As shown in Table 2.3, some learning community notions adhere to one community representation (e.g., CoL)—at least explicitly enough to be identified or represented as such—whereas others adhere to a multiplex of representations (e.g., CoP). Despite their differences, all learning communities adopt a functionalist perspective to the community representation in their learning community notion, being represented as social structures/systems, since they constitute non-random social structures that are patterned in one way or another. Nevertheless, the exact way in which learning communities are structured and function may differ. The way in which these community representations are expressed in the different learning community notions will be examined next.

2.6.1. Classical human ecology

From a classical human ecological perspective, communities are viewed as human ecologies that constitute natural phenomena that evolve through succession from simple to complex (see Section 2.3.2.). Out of all selected learning community notions, only the CoP notion adheres to a human ecology representation of community. Wenger et al. (2002) stress the organic nature of CoPs, describing them as natural phenomena that evolve within a natural life cycle. They cannot be designed, in the traditional sense that implies imposition, but can be supported through cultivation for aliveness (Wenger et al., 2002, p. 12, p. 51-53). The lack of emphasis on the representation of a human ecology in all other learning community notions may be associated with the involvement of external agents in the community formation(s) and the prominent element of design therein. Learning communities that are organic in nature, such as CoPs, involve voluntary participation and subsequently members self-attribute relevance to their participation, which in turn might lead to engagement and finally to value creation for their members (Wenger et al., 2002, p. 50). This representation and its accompanying key elements has the potential to influence structures in “non-organic” learning communities to allow for more self-defined relevance and subsequent voluntary participation as opposed to externally defined relevance and pre-defined participation. Design decisions and facilitation strategies between informal/organic and formal/non-organic learning communities may vary significantly due to the different degree of external agency, imposition, interference, and/or intervention that learning communities allow for in the case of organic learning communities, and ask for in the case of non-organic learning communities. This is not to say that non-organic learning communities are

automatically less successful than organic ones, but they are undoubtedly different in nature, and consequently require different design decisions and facilitation strategies.

2.6.2. Relational

The relational perspective on community views communities as human relationships, which constitute the prerequisite for community formation as opposed to other "connectors" (see Section 2.3.2). Wenger (1998) highlights the importance of human relationships in the CoP notion, both as a prerequisite and a constituent element. CoPs are built on pre-existing personal networks, which enable the potential of the CoP formation, but in order for these networks to form a CoP they need to develop what Wenger (1998) calls mutual relationships (see Wenger, 1998, p. 76; Wenger et al., 2002, p. 70-71). Mutual relationships, both in the sociological relational community perspective and in the CoP notion, do not necessarily imply harmony, but a complex medley of dualities (see Wenger, 1998, p. 77). Contrary to the CoP, no other learning community notion emphasizes the function of relationships as a prerequisite for community formation. Undoubtedly, relationships exist and are highly relevant in all other learning community notions, but those communities are not necessarily formed out of these relationships; or in other words, the relationships are neither the driving force for the formation of the learning communities nor pre-existing elements on which their formation is based, yet members' relationships within the learning communities have the potential to contribute to community success. Nevertheless, the role of relationships (i.e., as a prerequisite element or a forming element) in different learning communities is of key relevance to design decisions and facilitation strategies. For example, learning communities such as CoPs that incorporate a relational perspective may not allow for design interventions that interfere with the preexisting relationships among their members, or in other words may resist to imposing interventions that interfere with its natural evolution. Hence, "design" in communities that incorporate a relational perspective cannot be implemented from scratch, but only as a support aid or a facilitation strategy for the communities' cultivation and natural evolution across different developmental stages (see Wenger et al., 2002, p. 51-54).

2.6.3. Functionalist

The functionalist perspective views communities as social structures/systems that involve a patterned structure, functions and members' interdependence (see Section 2.3.2). Table 2.3

indicates that all learning communities are represented as social structures/systems. The degree to which the original pioneers refer to exact representations of social structures differs, but they all explicitly outline learning community characteristics in terms of patterned structures, functions and interdependence. Prior to discussing each learning community notion, it should be highlighted that they all share the element of interdependence in the sense that members in all learning community notions function as resources for each other. As they differ in terms of patterned structures and function, this will be described in more detail for each notion.

Wenger (1998, 2010) draws direct connections between the CoP notion and social structures/systems and their underlying assumptions, represented in Giddens' (2006) work, within the functionalist approach (see Wenger, 1998, p. 281; Wenger, 2010, p. 179). CoPs have a patterned structure of domain, community, and practice within boundaries defined by their members, who are expert and/or novice practitioners. Central functions within a CoP are mutual engagement, mutual accountability, and constant negotiation of a joint enterprise towards a shared development of practice (see Wenger, 1998, pp. 73-85). CoP members mutually interdepend as they act as resources to each other. Likewise, CoIs also share a patterned structure defined by a temporary project-based open structure based on multiple knowledge systems towards a problem resolution (see Fischer, 2001, p. 4). CoInvs also represent a patterned structure that is organizational in nature and is constituted of influential agents and their social networks, but the central function in CoInvs is the exchange of innovatory ideas towards innovation achievement. CoLs are structured in a classroom setting populated by teachers and students with as a central function that of reciprocal teaching and students' co-construction of knowledge towards students' enculturation (i.e., become acquainted with the culture of an intended discipline). CoInqs are also structured in a classroom setting populated by teachers and students and focus on functions of advancement of each other's ideas, asking for reasoning and argumentation, help in making valid conclusions and realizing each other's assumptions towards the development of critical thinking and problem solving skills. KBCs are structured in an extended classroom setting populated by teachers and students with as their key function that of students' co-construction of knowledge towards construction of new knowledge. LCHEs share an intentional thematic-curricular structure set within boundaries that involve cohorts of students, faculties, and teachers. Their main function is linking courses across disciplines, which implies a

mutual structural interdependence, that extends the common element of resource interdependence towards interdisciplinary learning.

The analysis and understanding of the social structure/system of each learning community notion is fundamental for any design decision making process and selection of facilitation strategies. For example, learning communities viewed as social structures/systems entail a specific structure/pattern, functions and members' interdependence, which should be carefully designed (if applicable) or facilitated to enhance its potential for success and/or sustainability. A clear understanding of learning community notions in terms of this functionalist perspective and the degree of members' interdependence is crucial for community facilitation and guidance by internal and/or external agents.

2.6.4. Social complexity

The social complexity perspective conceives communities as complex systems defined by the key elements of emergence, self-organization and decentralization (see Section 2.3.2). Out of all included learning community notions, only CoPs constitute emergent structures that develop on their own with no clear start and end time—which is also in close alignment with the classical human ecology perspective (see Wenger, 1998, p. 96; Wenger, 2010, pp. 179-180; Wenger et al., 2002, p. 12). CoPs also adhere to the principle of self-organization in the sense that their existence and design are not imposed by an external agent and that members select themselves, but CoPs can still benefit from cultivation and "design for evolution" elements (e.g., establishing a support team, developing private and public spaces, combining familiarity and excitement) (see Wenger, 2010; Wenger & Snyder, 2000; Wenger et al., 2002). It should be highlighted, that CoLs and KBCs emphasize the element of decentralization, which is a key feature of complex systems, in terms of distribution of expertise and assigned distribution of partial responsibilities through negotiations, but they do not substantially reflect the elements of self-emergence and self-organization in their structures due to the prominent aspects of design and assignment by external agents.

The elements of (a) emergence, as opposed to design or prescription, (b) self-organization, as opposed to externally defined organization, and (c) decentralization, as opposed to centralization, are "delicate" components of complex social systems that practitioners and/or researchers need to consider and handle carefully when dealing with learning communities. For

example, by definition designing from scratch and/or imposing an organizational or structural pattern on an emergent structure is simply not possible, and if an intervention is implemented the emergent structure is then distorted. This is not to say that practitioners and researchers cannot or should not intervene into emergent structures, but when doing so this yields designed social structures, as opposed to naturally emergent ones. Facilitating emergent structures and ensuring they retain their emergent nature, implies that no imposition or intervention should be implemented in a way that interferes with the emergent properties of these structures.

2.6.5. Network

A network perspective on community conceives it as a network structure based on social ties, flows of resources, and flows of activities (see Section 2.3.2). In this critical synthesis, only the CoInv notion draws direct connections to network perspectives and the critical role of ties and flows of resources in forming and enabling connections in CoInvs and in triggering or expanding organizational innovations (see Coakes & Smith, 2008, p. 14). References to the network perspective also appear in Wenger's (1998) work, but although the network perspective on community is related to the CoP conceptualization, CoPs have a different focus. Specifically, Wenger (1998) claims that "communities of practice could in fact be viewed as nodes of "strong ties" in interpersonal networks, but again the emphasis is different" (p. 283). Therefore, the network perspective evident in the CoInv notion implies a degree of "looseness" in relationships among their members (i.e., weak ties). This is not to say that all other learning community notions do not involve or do not enable the development of networks, but the community structure itself as presented in all other notions does not resemble the open, loose, and flow-based profile of network structures.

Designing and/or facilitating communities that are based on network principles can be quite challenging given their dynamic, permeable, loose and fragile structure in a state of constant flux. Typically, network communities are to be observed and analyzed by practitioners and/or researchers as opposed to be designed by external agents. Nevertheless, the flows of resources and activities can be facilitated with appropriate affordances (e.g., technological innovations).

2.6.6. Sense of community

The sense of community (SOC) perspective is represented by the elements of membership, influence, integration and fulfillment of needs, and shared emotional connection. After a close examination of the learning community notions, the SOC framework seems to be represented in the CoP notion, whereas no explicit references to SOC are made in any of the other notions. In the CoP notion the element of membership is highly associated with the social formation of identity and members' identification and feelings of belonging in a CoP (see Wenger, 1998, p. 163, 197). The element of influence is clearly evident in Wenger's (1998) work through direct references to politics of participation, influences and power relations among CoP members (see Wenger, 1998, p. 91, 240). The element of integration and fulfillment of needs is reflected through the process of value creation (see Wenger et al., 2002; Wenger, Trayner, & De Laat, 2011). The element of shared emotional connection is represented by mutual engagement and shared repertoire (see Wenger, 1998, p. 73-74, 82-83).

Designing and/or facilitating the development of a sense of community can be a challenging endeavor for practitioners and researchers, since it should target each individual on a micro-level and the community as a whole on a meso and/or macro level. Feelings of belonging and emotional connection highlight that a sense of community typically comes from within the community as opposed to interventions from external agents.

2.7. Implications and conclusion

This chapter provided an account of representations of the "community" construct in learning community notions from sociological and community psychology perspectives. First, an overview of sociological and community psychology perspectives on the contested "community" construct was provided to capture the multiplicity of its representations. Although early sociological perspectives already implied that communities are formed in response to surrounding socio-historical phenomena, they still involve different representations developed within different schools of thought. This plurality of representations is more extensively depicted in sociological community perspectives, namely (1) classical human ecology, (2) relational, (3) functional, (4) social complexity, and (5) network. In contrast to sociological perspectives, community psychologists viewed community through psychological lenses that bring it closer to the idea of community as exemplified by individual behavior and experience of collective

endeavours. The Sense of Community (SOC) perspective aims to contribute to the understanding of communities through feelings and perceptions of the individual members of a community. The collection of these perspectives is not intended to be exhaustive, although it is based on a broad review of the learning community literature. Nevertheless, the included notions are representative for the field.

This initial overview was followed by a description of learning communities which aimed to provide a basic understanding of a selection of prominent learning community notions. These notions were subsequently filtered through the sociological and community psychology perspectives to provide a critical synthesis that captures if, and in what ways, these perspectives were reflected in the learning community notions. This decomposition and re-composition of learning community notions revealed that some notions can be described in terms of multiple perspectives, whereas others adhere to one or two perspectives; either explicitly or implicitly. All learning community notions are represented as social structures/systems by their pioneers, reflecting a functionalist perspective, without always relating to this sociological perspective *per se*. Despite this common representation, social structures themselves differ in most learning community notions in terms of patterned structures and functions.

This critical synthesis provides a springboard for a deeper understanding of "what makes learning communities" communities for their pioneers in terms of sociological and community psychology perspectives through a decomposition of each learning community notion's characteristics and descriptions by their pioneers. Such an understanding aims to raise researchers' and practitioners' attention to tracing any community representations prior to any design decisions and selection of facilitation strategies. Nevertheless, this critical synthesis constitutes an initial step to identify the similarities and divergences among conceptualizations of learning community notions that are crucial to researchers' and practitioners'—or at least they should be considered as crucial—design decisions and selection of facilitation strategies.

Although the present critical synthesis has gone some way towards enhancing our understanding of the construct of community in relation to learning community notion, the picture is still incomplete. Further analyses of learning community notions through sociological and psychological lenses are recommended to establish the relevance of design decisions and facilitation strategies for each learning community notion, as well as to a better understanding of learning communities across formal and informal settings. Future analysis on the development of

these learning community notions in relation to sociological and psychological perspectives—from their original coinage up to their current use—is recommended, taken into consideration that the learning community notions have a whole "career" in the community studies and their original use may have been modified by their pioneers and others over the last decades (e.g., Wenger-Trayner & Wenger-Trayner, 2015: landscapes of practice), potentially resulting into different representations than the ones presented in this chapter.

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3. A recombinant notion of learning community: Communities of Learning Practice

If social theories are built for the purpose of enabling certain accounts about the human world, researchers need to choose a theoretical framework based on the account they want to give. But it is often the case that one theory is not sufficient: no single theory provides the conceptual tools to tell the full story researchers want to tell. It is necessary to adopt the plug-and-play principle to combine theories. Of course, the process is a bit more complex because both theory and data can suggest new stories worth telling (…) The plug-and-play principle suggests that you can make your own assemblage, but you need to do justice to the DNA of each theory: its purpose, its stance, its language. When selecting terms, you need to consider the embeddedness of concepts in a broader theory: what else you need to take along to remain true to the concept as used in the theory (Wenger-Trayner, 2013, p. 115-116).

Since everyone prefers to have his or her own concepts, many new terms are invented (…) The final effect appears to be that different names are applied to the same phenomenon and the same name appears to refer to different phenomena (Andriessen, 2005, p. 192).

Abstract: This chapter introduces a learning community notion that recombines aspects of emergence and design towards an equilibrium between the two to characterize non-formal learning communities situated within a formal learning setting. The recombinant learning community notion, termed Communities of Learning Practice (CoLP), is not fully congruent with either the notion of Communities of Practice (CoP) or the notion of Communities of Learners (CoL) and their implied perspectives on emergence and design. Nevertheless, CoLPs are based on a recombination of constituent elements of CoPs and CoLs. This recombination aims to build up an integrative framework, or a set of vocabulary, that moves beyond its precursors to portray non-formal learning communities in a formal learning setting without distorting the original conceptualizations of the CoP and CoL notions and terms associated with their conceptualizations. This chapter aims to stimulate researchers and practitioners to systematically consider the aspects of emergence and design when “orchestrating” and/or supporting learning communities in educational settings.

3.1. Introduction

Various learning community notions have been introduced by theoreticians and researchers since the late 1970s to describe informal and formal social learning settings within which individuals share and co-construct knowledge, expertise, and learning experiences towards a shared enterprise (Barab & Duffy, 2012; Bielaczyc & Collins, 1999; Brown, 1992; Brown & Campione, 1990; Lave & Wenger, 1991; Scardamalia & Bereiter, 1994; Wenger, 1998a) (see Chapter 2). In the present chapter, the notions of Community of Practice (CoP) and Community of Learners (CoL) will be further reviewed given (a) their historical contribution to the learning communities research, (c) their expanded theoretical specifications in relation to their coinage, and (c) their representative diversity in aspects of emergence and design. Despite the vast amount of research that focuses on CoPs and CoLs, only few contributions treat them in relation to their theoretical specifications and the social learning theory frameworks they represent (e.g., Hoadley, 2012).

CoPs were originally coined as an analytical notion by Lave and Wenger (1991) to describe already existing phenomena in craft production within a situated learning framework. The notion was further developed by Wenger (1998a) highlighting the foundational principles of its meaning, structure, and value. The popularity of the notion and its extensive use both by researchers and practitioners in different contexts—although not always consistent with its foundational principles and initial conceptualization—has led to conflicting, contradictory, misleading, or at least superficial treatment of the notion on a theoretical and implementational level (Hoadley, 2012; Kimble, 2006; Roth & Lee, 2006; Wenger, 2010). Its extensive use has also contributed either to an instrumental interpretation of the notion used to design educational or organizational settings, or one-way-fit-all interpretations of the notion to refer to groups of learners or co-workers, raising the issue of using or misusing technical language in vernacular ways (Hughes, 2007; Kimble, 2006; Roth & Lee, 2006; Vann & Bowker, 2001; Wenger, 2010; Wenger-Trayner, 2013). Hoadley (2012) critically approaches the alterations that the CoP notion has endured over the years shifting from a naturally occurring phenomenon to one that can be explicitly designed and fostered by external agents (e.g., teachers, community organizer) along with a shift from the anthropological and social orientation of CoPs to tangible manifestations of CoPs via technological platforms designed to foster CoPs in explicit ways based on external rules and representations. Hoadley (2012) further underscores the attention that educators and

researchers/designers should pay to the different assumptions and implications of explanatory theories when designing learning environments. Wenger (2010) also reflected on the status of the CoP notion, realizing that it is out of control, since practitioners and researchers have been using it without always taking into consideration its theoretical framework and underlying principles. Based on these conceptual alarms set by researchers in the field of CoP studies, the CoP notion will be discussed later in this chapter as close as possible to its original coinage by Lave and Wenger (1991) and Wenger (1998a).

Apart from CoPs, the notion of CoLs has been also widely used by educators and researchers to refer to communities that aim for the advancement of knowledge and learning how to learn on the classroom level in educational settings[4] (Bielaczyc, Kapur, & Collins, 2013; Brown, 1992; Brown & Campione, 1990). Its initial conception by Brown and Campione (1990) aimed to describe the practical implementation of a set of theoretical principles in classrooms, based upon Vygotskian premises (1930-1934/1978) and Dewey's (1897) experiential learning, towards a reform movement in education through an innovative classroom design (Brown & Campione, 1994). CoLs are associated with a shift of the students' role in schools from passive knowledge recipients to active co-constructors of knowledge, while being responsible for their own learning and its design (Brown, 1992). Therefore, CoLs have been used as an educational technique to enhance knowledge sharing and distribution of expertise and responsibility among students and teachers aiming to build a collective learning culture in which students respect and value each other's contributions (Bielaczyc et al., 2013; Brown & Campione, 1994). To avoid any conceptual distortion of the CoL notion, it will be approached in close alignment to its original coinage by Brown and Campione (1990).

According to the foundational theoretical principles of CoP and CoL, the relevance that has been attached to the aspects of emergence and design varies across the two learning community notions. CoPs are built on the idea of emergence, self-generation, self-directedness and voluntary participation, drawing their energy and motivation from within the community

[4] Knowledge-Building Communities (Scardamalia & Bereiter, 1994), Communities of Inquiry (Lipman, 1988, 1991, 2003) and Learning Communities in Higher Education (Gabelnick et al., 1990) could also be included as counterparts to CoPs because all three constitute learning communities in formal learning settings. Nevertheless, CoLs were chosen due to sufficient availability of theoretical specifications and linkages to the underlying learning theoretical principles.

itself (De Laat, 2002; Janson, Howard, & Schoenberger-Orgad, 2004), whereas CoLs are designed and facilitated by educators, researchers or a combination, and are typically applied in a classroom setting with fixed participants (i.e., students and teachers/adults) and pre-defined pedagogical objectives based on the curriculum (Rogoff, 1994) (see Chapter 2). This chapter examines the aspects of emergence and design in CoPs and CoLs and introduces a learning community notion that recombines aspects of emergence and design towards an equilibrium between the two to characterize non-formal learning communities situated within a formal educational setting. The recombinant learning community notion, termed Communities of Learning Practice (CoLP), is not fully congruent with either the notion of CoP or the notion of CoL and their implied perspectives on emergence and design. Nevertheless, CoLPs are based on a recombination of constituent elements of CoPs and CoLs to build up an integrative framework, or a set of vocabulary, that moves beyond its precursors to portray non-formal learning communities in a formal learning setting without distorting the original conceptualizations of the CoP and CoL notions and terms associated with their conceptualizations. The development of a recombinant learning community notion does not aim to question existing foundational learning theories or learning community notions. On the contrary, it builds upon them to provide a framework for observing what is already there and a vocabulary to describe what is observed.

Prior to any discussion of the recombinant learning community notion, the learning theory framework within which the CoP and CoL notions are rooted and their shared theoretical underpinnings are reviewed. Additionally, once their common ground is outlined, their differences on the aspects of emergence and design are explored.

3.2. Setting the stage: Influential psychological perspectives on human development as foundations for social learning theories

Sociological perspectives that aim to understand human behavior within its surrounding context(s) (see Chapter 2), informed and inspired cultural-historical psychologists (e.g., Vygotsky, 1930-1934/1978, 1934/1986), social cognitive psychologists (e.g., Bandura, 1971, 1978, 1989), and developmental psychologists (e.g., Bronfenbrenner, 1979, 1994, 2005) in developing their own approaches to human behavior and development. In this chapter the works from Vygotsky, Bandura and Bronfenbrenner are considered as foundations of social learning theories. Social learning theories or approaches, in general terms, conceive human learning as a

phenomenon that involves interactions between the individual, the other(s), and the surrounding context(s). Despite the acknowledgement of the interactive nature of human behavior and learning, different social learning theories have different foci, treating the term "social" in noticeably diverse ways.

Lev Vygotsky's cultural-historical psychological theory contributed strongly to the development of social learning theories and to the paradigm shift from behaviorism[5] to traditional cognitive psychology to social cognitive psychology, and finally, to sociocultural-historical psychology. Vygotsky[6] (1930-1934/1978) views learning as a dynamic process of interdependence between socially shared activities and internalized processes, since the former are transformed into the latter, within concrete sociocultural and historical settings (John-Steiner & Mahn, 1996; Minick, 1989; Minick, Stone, & Forman, 1993; Wertsch, 1989). In Vygotsky's theory, human development involves a transformation of an interpersonal process into an intrapersonal process, also referred to as internalization (Sawyer, 2002). Another central metaphorical concept used in Vygotsky's work is the Zone of Proximal Development (ZPD), which is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1930-1934/1978, p. 86).

Albert Bandura (1971), being influenced by but moving beyond behaviorism, adopts a reciprocal deterministic perspective on human behavior (see Bandura, 1978) and views learning as a reciprocal influence process that involves continuous interactions between personal (cognitive and affective), behavioral and environmental elements. Bandura's (1989) social cognitive theory is typically associated with observational learning, since the main principle of

[5] Behaviorism, mainly attributed to Pavlov (1897/1910), Watson (1913), and Skinner (1938), viewed human behavior as responses to environmental stimuli that shape and control behavior.

[5] Vygotksy and his collaborators' works on human learning and development of human behavior were published in the 1920s and 1930s in Russia, but they only became available in the western world in the mid-1970s and 1980s after the publications of collected writings in *Mind in Society* (Vygotsky, 1930-1934/1978) and *Thought and Language* (Vygotsky, 1934/1986).

his theory is observation through modeling. Bandura (1971) suggests four interrelated processes of modeling (or observational learning): (a) attentional processes, (b) retention processes, (c) motoric reproduction processes, and (d) reinforcement and motivational processes.

Urie Bronfenbrenner (1979), within the framework of developmental psychology, developed an ecological systems perspective on human behavior and development, emphasizing the evolving interaction between a developing person and his/her environment. Development, from this perspective, is defined as "a lasting change in the way in which a person perceives and deals with his environment" (Bronfenbrenner, 1979, p. 3), constituting the environment a perceived entity rather an objective one. Bronfenbrenner (1979) initially referred to a four-level ecological system of human development that was later developed into a five-level system (Bronfenbrenner, 1994, 2005). As described by Bronfenbrenner (2005), the first level is referred to as the microsystem and represents the immediate surroundings of an individual. The second level is referred to as mesosystems and represents sets of microsystems. The third level is referred to as exosystems and represents systems that indirectly influence an individual. The fourth level is referred to as the macrosystems and represents abstract systems that guide and shape systems that are relatively distal to the individual, and the fifth system is referred to as chronosystems and represents the systems of time and history.

In light of this chapter, it is important to know how "social" as a context, setting, or environment is treated by these three psychologists. Vygotsky (1930-1934/1978) moves beyond the element of "social interaction and discourse to include both cultural and socio-institutional levels of analysis" (Minick et al., 1993, p. 3). In Vygotsky's perspective, human development is embedded "in" the social context (i.e., cultural and socio-institutional) constituting the individual as conceptually indistinguishable from the social context and their in-between boundaries as blurred. In Bandura's perspective, the "social" influences the individual and the individual influences the social but the social is conceptually situated outside the individual, namely in the observation and modelling processes that involve the other(s) and in the reciprocal interactions between behavior and the environment. The environment is described as "a potentiality, not a fixed property that inevitably impinges upon individuals and to which their behavior eventually adapts. Behavior partly creates the environment and the resultant environment, in turn,

influences the behavior" (Bandura, 1973, p. 43)[7]. Finally, Bronfenbrenner (1979) views the "social" context as an ecological environment that consists of "a set of nested structures, each inside the next, like a set of Russian dolls" (p. 3), implying a multilevel systemic approach to the social context. In contrast to Bandura, Bronfenbrenner (1979) states that "the ecological environment is conceived as extending far beyond the immediate situation affecting the developing person" (p. 7), i.e. the meso-, exo-, macro-, and chronosystems (Bronfenbrenner, 2005).

While all three perspectives relate the individual to the social context, Vygotsky and Bronfenbrenner conceptualize this relationship as embedded and nested, respectively, considering the individual as an inseparable unit from the direct context or the systems beyond. On the contrary, Bandura conceptualizes this relationship as a dynamic influence from the social context to the individual and vice versa implying that the unit of the context and the unit of the individual can be separable, while focusing on socio-cognitive processes. Considering this emphasis on socio-cognitive processes and properties of the individual, Bandura's perspective—although influential to learning community notions (see Wenger, 1998a, p. 280)—moves beyond the scope of the learning community notions included for further analysis in this chapter. The sociocultural and ecological perspectives on learning, reflected in Vygotsky's and Bronfenbrenner's works, are regarded as psychological frameworks with considerably more relevance—in both theoretical and methodological terms—in this chapter and dissertation as a whole. In this chapter, Vygotsky's social learning theory is considered to have direct influence on sociocultural approaches to learning referred to as situated learning and situated cognition that constitute frameworks within which the notions of CoPs and CoLs were coined, respectively. A further review of both sociocultural approaches follows prior to discussing CoP, CoL and CoLP.

3.3. Sociocultural approaches to learning: Situated learning and situated cognition

Vygotsky's social learning theory has been frequently associated with sociocultural approaches to learning that have received considerable attention since the 1970s by anthropologists and educational researchers as a multifaceted framework to explore alternative ways of understanding learning (John-Steiner & Mahn, 1996; Sawyer, 2002; Wertsch, 1991,

[7] For more about differentiations in the role of social context in human development between Vygotsky and Bandura, Tudge and Winterhoff (1999) provide a thorough analysis.

1998). It should be highlighted that in most cases Vygotsky's work has not been used as a panacea for all learning situations, but instead as an inclusive frame of reference leading into "a complex of related but heterogeneous proposals" (Rogoff, Radziszewska, & Masiello, 1995, p. 125; for similar arguments see also Lave, 1991; Wertsch, 1989).

Socioculturalists are not interested in the confined individual, but in "(…) events, activity and practice, and they are considered to be irreducible to properties of individuals" (Sawyer, 2002, p. 285). In particular, Vygotsky conceives experience as a unit of analysis that constitutes the link between one's personality and the social situation within which one develops (Minick, 1989). The individual is perceived as a *singular plural* (Nancy, 2000), which emphasizes the idea that "(…) individual actions always constitute concrete realizations of collective action possibilities" (Roth & Lee, 2006, p. 30). Therefore, the unit of analysis for socioculturalists is the socially situated practice, since the individual and the group cannot be studied in isolation due to their interrelation (Hatano & Wertsch, 2001; Sawyer, 2002; Wertsch, 1981, 1985).

Situated learning (Lave & Wenger, 1991) and situated cognition (Brown, Collins, & Duguid, 1989) are sociocultural approaches to learning[8] – that have been developed within the framework of sociocultural theory and reflect anthropological and pedagogical perspectives. Situated learning and situated cognition both emphasize that learning is a socially situated practice and that learning, thinking, and knowing constitute relations among individuals, who engage in authentic collective activities, and arise from the surrounding sociocultural setting (Brown et al., 1989; Lave, 1988; Lave & Wenger, 1991). Yet, they differ in the way they can be implemented in learning settings.

3.3.1. Situated learning: When looking at non-institutionalized learning

An attribution of value to informal, experience-based learning in everyday activities, as occurring in various forms of apprenticeship in craft production, has gradually led to the development of a situated perspective on learning referred to as *situated learning* (Lave & Wenger, 1991). Situated learning reframes learning in social, cultural and historical terms and

[8] Other sociocultural approaches to learning include activity theory and expansive learning (Engeström, 1987, 2009; for an overview of the historical origins of activity theory see Yagamata-Lynch, 2010), socially shared cognition (Brown & Cole, 2000), group cognition (Stahl, 2006), and situative learning (Greeno, 1998, 2006) or even integrative approaches such as the situative perspective on learning in activity (Greeno & Engeström, 2014).

views it as "a social phenomenon constituted in the experienced, lived-in world, through legitimate peripheral participation in ongoing social practice" (Lave, 1991, p. 64). Situated learning focuses on learning as participation in practices in informal learning settings and not on formal learning settings such as schools (Lea, 2005). The term situated does not merely imply that learning is located somewhere in terms of time and space or just in terms of other people, but that "learning is an integral part of generative social practice in the lived-in world" (Lave & Wenger, 1991, p. 35). A situated learning perspective perceives "mind, culture, history, and the social world as interrelated process that constitute each other, and intentionally blurs social scientists' divisions among component parts of persons, their activities, and the world" (Lave, 1991, p. 63-64). This perspective clearly exemplifies the positioning of situated learning in the sociocultural theoretical framework.

Lave (1991) further elaborates on situated learning by stating that learning is a socially situated phenomenon in the experienced world and the process of engaging in social practice and developing knowledgeable skills constitutes a process of developing identities through Legitimate Peripheral Participation (LPP) in ongoing situated social practices. LPP refers to the process by which peripheral members/newcomers move from peripherality towards full participation (i.e., core members/oldtimers) in a social practice through "a social process of increasingly centripetal participation, which depends on legitimate access to ongoing community practice" (Lave, 1991, p. 68; Lave & Wenger, 1991). Both peripherality and full participation do not intend to imply physical or identifiable boundaries. Peripherality implies that various ways and degrees of participation and engagement exist in a social practice that are often associated with members' learning trajectories, changing identities and membership formation (Lave & Wenger, 1991, p. 36). Full participation also does not imply that there is an identifiable single center that members should reach through a linear acquisition process. Instead, full participation is accomplished through the development of constantly changing understanding of the social practice over time that also leads to the development of an identity as a practitioner (Lave, 1991; Lave & Wenger, 1991). There is an interdependent relationship between peripheral members/newcomers and core members/oldtimers, since the peripherals learn from the core and the core needs the peripherals for the continuity of social practice (Lave, 1991; Lave & Wenger, 1991).

Both situated learning and LPP have been developed in non-institutionalized learning settings (e.g., Yucatec midwives, tailors, non-drinking alcoholics etc.). Lave (1991) remarks on the positioning of situated learning and LPP, as originally coined, in relation to institutionalized settings (i.e., workplace and schools) that "when official channels offer only possibilities to participate in institutionally mandated forms of commoditized activity, genuine participation, membership, and legitimate access to ongoing practice – of a practice considered worthy of the name – are rare" (p. 79). Lave (1991) further highlights that "schools and school-like workplace educational enterprises accord knowledgeable skill a reified existence, turning it into something to be 'acquired' and its transmission into an institutional motive [which leads to the] generation of negative identities and misrecognized or institutionally disapproved interstitial communities of practice" (p. 79). Regarding the concept of LPP and its role in educational practices, Lave and Wenger (1991) specifically underscore that

> (…) legitimate peripheral participation is not itself an educational form, much less a pedagogical strategy or a teaching technique (…) this view makes a fundamental distinction between learning and intentional instruction (…) this is very different from attributing a prescriptive value to the concept of legitimate peripheral participation and from proposing ways of "implementing" or "operationalizing" it for educational purposes. (pp. 40-41)

This quote depicts that situated learning's constituent characteristic of LPP was not meant to be operationalized as an instructional approach with pre-defined educational purposes. Brown and Duguid (1991) have also emphasized that LPP "is not a method of education. It is an analytical category or tool for understanding learning across different methods, different historical periods, and different social and physical environments. It attempts to account for learning, not teaching or instruction" (p. 48).

3.3.2. Situated cognition: When looking at learning and instruction

The emergence and spread of sociocultural theory in education led to a critical reaction to assumptions of knowledge as a substance independent of the situations, activity and the context in which it is learned and used, and of school as the medium of transfer of this substance, implying a need to holistically rethink education (Brown et al., 1989, p. 32). Situated cognition, proposed by Brown et al. (1989), implies that learning and cognition are situated in and

inseparable from the situations, activities and context within they occur. Students frequently have to use disciplinary or domain-specific tools without being acquainted with the culture of the intended discipline or domain, which in turn does not allow them to participate in any other enculturation process than that of schooling enculturation (Brown et al., 1989, p. 33-34). However, meaningful learning can only occur when embedded in the social context within which it is used to "(…) enculturate students into authentic practices through activity and social interaction" (Brown et al., 1989, p. 37).

Within the context of situated cognition, authentic activities refer to the socially constructed and negotiated activities within a specific practice and its underlying culture (Brown et al., 1989, p. 34). From a situated cognition perspective, activities such as observation and coaching involved in apprenticeship learning (Lave, 1988) and in reciprocal teaching (Palincsar & Brown, 1984) are considered to be authentic activities, since these are the typical activities of authentic practitioners within a domain, practice or discipline. The criticism of traditional schooling by Brown et al. (1989) highlights that instead of authentic activities as represented in the authentic cultures within which these activities originally occur, students in traditional classroom settings typically participate in "ersatz activities" (Brown et al., 1989, p. 34). Ersatz activities refer to intended authentic activities which due to their integration in the classroom context and school culture are converted into classroom tasks distantiated from their originating and authentic contexts and their accompanying features (Brown et al., 1989, p. 34).

Situated cognition can be translated into educational practice through the instructional approach of cognitive apprenticeship, which represents a rethinking of teaching and learning in schools (Collins, Brown, & Newman, 1989). Cognitive apprenticeship aims to foster learning in a domain by promoting students' knowledge acquisition and development of complex skills through the use of cognitive tools in authentic activities (Brown et al., 1989; Collins et al., 1989). Cognitive apprenticeship heavily borrowed, extended but also rejected several aspects of traditional apprenticeship learning and situated learning. In particular, cognitive apprenticeship borrowed the traditional apprenticeship methods of observing, coaching and practice, and transferred them into instruction. More specifically, instructional methods referred to as modeling (i.e., developing a conceptual model of the task), scaffolding (i.e., providing support in the form of reminders and help) and fading (i.e., providing only limited support, refinements and feedback) (Collins et al., 1989). The aim of these instructional methods is to foster students' and

teachers' awareness of cognitive and metacognitive processes and support students' observation, enactment and practice of those processes (Collins et al., 1989). However, cognitive apprenticeship differs from traditional apprenticeship in terms of problems and tasks being addressed, since the former underlies pedagogical objectives and the latter authentic demands. In addition, cognitive apprenticeship highlights the importance of decontextualized knowledge due to its usefulness in various settings, which seems to be in contradiction with the highly contextualized knowledge underlined in traditional apprenticeship (Collins et al., 1989).

3.3.3. Non-interchangeable notions: Representation, situatedness, and implication

Despite their common ground in sociocultural theory and in apprenticeship learning settings, situated learning as conceptualized by Lave (1991) and Lave and Wenger (1991), and situated cognition as conceptualized by Brown et al. (1989) and Collins et al. (1989), should not be treated interchangeably. The preceding analysis of the two situated approaches to learning revealed a collection of indicative, yet distinctive, aspects that differentiate them (see Table 3.1).

Table 3.1

Differentiation between situated learning and situated cognition

	Situated learning	**Situated cognition**
Representation	Rethinking non-institutionalized learning	Reforming teaching and learning in schools
Objectives	Authentic demands	Pedagogical concerns
Engagement	LPP	Cognitive apprenticeship
Goal	Full participation	Knowledge and skills development
Situatedness	Contextualized knowledge for application *in situ*	Decontextualized knowledge for application across settings

Note. LPP = Legitimate peripheral participation.

In terms of representation, situated learning represents a rethinking of the importance and value of non-institutionalized learning (i.e., learning as an ongoing process in the course of our everyday lives in the world in which we live), whereas situated cognition represents a reform of educational practice within institutionalized learning (i.e., schools and classrooms). Regarding the objectives implied by each perspective, situated learning refers to objectives emerging from authentic learning demands within informal learning situations, whereas situated cognition refers to objectives defined by pedagogical concerns associated with an educational reform. In terms of the engagement process in the learning situation, situated learning occurs through LPP with the

goal to achieve full participation in a social practice, whereas situated cognition is reflected through instructional approaches such as cognitive apprenticeship leading to the development of knowledge and skills through the use of the physical and social context. The term situatedness here refers to individuals' involvement within a social context comprised of materialist and symbolic dimensions along with social processes embedded in this context (Vannini, 2008, p. 815). Situatedness is dynamic and in constant flux having different—potentially multiple—representations to individuals depending on their definition(s) of the situation. For example, although teachers and students might have a shared understanding of the classroom context, their individual perspectives, objectives, values, identities and orientations to the context shape in turn different experiences, feelings and representations (e.g., classroom as fun, classroom as imposition, classroom as struggle) (Vannini, 2008, p. 815). The aspect of situatedness is positioned differently in each perspective. From a situated learning perspective, knowledge and meaning is contextualized for use within the setting in which learning occurs, whereas from a situated cognition perspective knowledge is viewed as decontextualized for application across settings.

Situated learning and situated cognition constitute the theoretical frameworks within which the notions of Communities of Practice and Communities of Learners are grounded. In the following section these two learning communities will be reviewed in relation to these situated frameworks.

3.4. Representative "situated" community notions: Communities of Practice and Communities of Learners

Over the past two decades, the notions of Communities of Practice (CoPs) and Communities of Learners (CoLs) have dominated research on learning communities in educational and work-place settings. Despite their popularity, their slightly different theoretical foundations have slipped out of focus. The following sub-sections analyze both notions of learning communities—in close alignment to their foundational elements and theoretical principles—along with the underlying degree of emergence and design.

3.4.1. Communities of practice

Within the framework of sociocultural theory and situated learning, Lave and Wenger (1991) coined the multifaceted and analytical notion of CoP to refer to "(…) a set of relations

among persons, activity and the world, over time and in relation with other tangential and overlapping communities of practice" (p. 98). In other words, a CoP is formed by individuals who have a common interest in a domain of human endeavor and mutually engage in a process of social learning, working together and sharing ideas in order to collectively solve problems and co-construct knowledge over a period of time (Wenger, 1998a). A theoretical analysis of the CoP notion was further developed by Wenger (1998a) and Wenger, McDermott, and Snyder (2002) highlighting the foundational principles of a CoP's meaning, structure and value. More recent works by Wenger (2010) and Wenger-Trayner and Wenger-Trayner (2015) have also referred to CoPs as *social learning systems* and *landscapes of practice*[9] due to characteristics they borrow from complex systems theory, including the aspects of emergence, self-organization, and complex relationships.

CoPs share a common structural model, which is constituted of three elements: domain, community and practice (Wenger et al., 2002). The element of domain refers to a shared domain of interest that matters to members (Wenger, 1998a) and contributes to the identity of the community which reflects "a set of issues, challenges and passions through which members recognize each other as learning partners" (Wenger, White, & Smith, 2009, p. 5). Individuals' membership in a CoP is related to their dedication to that domain along with a communal competence that diversifies the members of the community from others, without necessarily requiring high expertise in a specific field (Wenger, 1998a). Members of the community tend to appreciate their collective competence and learn together, even though people outside of the community might not value or identify with their collective experience (Wenger, 1998a). The element of community is evident when individuals engage in joint activities and discussions, help each other, and share information, while building relationships that enable members to interact and learn from each other (Wenger, 1998a). This does not imply that members of a CoP work together on a consecutive basis, although interactions are essential in the constitution of a CoP (Wenger, 1998a). The element of practice refers to a shared repertoire of resources, such as experiences, tools and ways of addressing issues (Wenger, 1998a). As Wenger et al. (2002) highlight, the characterization of any group as a CoP should be based on a close examination of

[9] Landscapes of practice was as a term first introduced by Wenger (1998a). It was then further developed by Wenger-Trayner and Wenger-Trayner (2015) and defined as a complex and dynamic social body of knowledge enabled in an era of globalization and technological innovations.

the interplay among the elements of domain, community and practice. Hence, a CoP should not be conceptualized merely as a community of people with common interests, but rather as a community whose members develop a shared practice within a domain of shared interest (Wenger et al., 2002). The process of a developing a shared practice requires time and interaction and seems to be a more or less self-conscious process (Wenger, 1998a). Wenger (1998a) further defined the relationship between practice and community, within the framework of CoPs, by three core dimensions: mutual engagement, joint enterprise and shared repertoire (see Table 3.2).

Table 3.2

Dimensions of practice as the property of a community

Core dimension	**Description**	**Implication**	**Value**
Mutual engagement	Engagement in collectively negotiable actions	Does not imply homogeneity as a prerequisite for community development	Recognition of the importance of others' competences, knowledge and contribution
Joint enterprise	Negotiated response to address their common situation	Moves beyond a common goal to involve relations of mutual accountability	Mutual negotiation of actions and sharing responsibility for the common enterprise
Shared repertoire	Developed routines, activities, artifacts and stories	Can be used as reference points for negotiation of meaning	Negotiation of new meaning and dynamic development

The mere existence of these dimensions does not imply a coherent community, but rather whether these dimensions are collectively used by the participants for a common enterprise (Wenger, 1998a). The major challenge of a CoP is to collectively identify the community, continuously negotiate the reasons of its existence and sustain a social space for learning along with being involved and committed over time (Wenger, Trayner, & De Laat, 2011).

Originally, the CoP notion was coined to differentiate "practice from prescription (in particular educational, institutional, or managerial prescriptions) and to view learning as inherent in practice rather than reified in an educational setting" (Wenger, 2010, p. 192). The popularity of the CoP notion and its use by researchers and practitioners in different contexts—not always consistent with its foundational principles and initial conceptualization—has led to conflicting,

contradictory, misleading, uncritical or at least superficial treatment of the CoP notion on a theoretical and implementational level (McDonald, Star, & Margetts 2012; Kimble, 2006; Lea, 2005; Roth & Lee, 2006; Wenger, 2010). This has contributed to (a) instrumental interpretations of the notion used to design educational or organizational settings, as well as (b) one-way-fit-all interpretations of the notion to refer to groups of learners or co-workers (Hughes, 2007; Kimble, 2006; Roth & Lee, 2006; Vann & Bowker, 2001; Wenger, 2010). Yet, even Wenger (1998a) and Wenger et al. (2002) modified the original conceptualization over the years by integrating organizational aspects, including leadership and "design", that were not initially included as part of the original coinage (McDonald et al., 2012; Lea, 2005). However, even after Wenger et al.'s (2002) latest modification of the CoP notion no direct implications of CoPs as educational or instructional approaches can be assumed without distorting the notion (Lea, 2005; Wenger, 2010), which in turn calls for a closer examination of aspects of emergence and design in CoPs.

3.4.1.1. Emergence and design in CoPs

CoPs constitute informal entities within the minds of its members, built around the relationships that members develop with each other while sharing common problems and interests (Ardichvili, Mauer, Li, Wentling, & Stuedemann, 2006). Within the framework of CoPs, as coined by Lave and Wenger (1991), the community construct does not necessarily imply "co-presence, a well-defined, identifiable group, or socially visible boundaries" (Lave & Wenger, 1991, p. 98). A CoP is conceived as a fundamentally self-generated and self-organized system, an organism or an autonomous group that needs time to form itself, exists for the benefit of its members, and may continue its existence even after the completion of a project or task (Lave & Wenger, 1991; Kimble, 2006; Wenger, 1998a; Wenger, 1998b; Wenger et al., 2002). Therefore, a CoP differentiates itself from other sets of people who operate in groups, because it neither starts its existence and its action the exact moment that a task or project starts, nor disappears at the end of it (Wenger, 1998a). As Kirschner and Lai (2007) explain, CoPs are not things, but processes in which social learning takes place; they are as diverse as the situations within which they emerge (Wenger & Snyder, 2000, p. 141). Along the same lines, Brown and Duguid (1991) refer to CoPs within organizational settings as noncanonical, interpenetrative and emergent, since "their shape and membership emerges in the process of activity, as opposed to being created to carry out a task" (p. 49).

Since learning occurs in the sphere of experience, neither CoPs, learning, nor practice, can be designed in the sense of producing reified organizational units or being implemented as a pedagogical technique. Lave and Wenger (1991) argue for the value of a learning curriculum—as a main characteristic of a CoP—which constitutes "a field of learning resources in everyday practice view from the perspective of learners", as opposed to a teaching curriculum, which "is constructed for the instruction of newcomers" (p. 97). Wenger (1998a) draws our attention to the role of design in CoPs by stating that

> communities of practice are about content – about learning as a living experience of negotiating meaning – not about form. In this sense, they cannot be legislated into existence or defined by decree. They can be recognized, supported, encouraged, and nurtured, but they are not reified, designable units. (p. 229)

The aspect of "design" within the CoP notion refers to a "systematic, planned and reflexive colonization of time and space in the service of undertaking" (Wenger, 1998a, pp. 228-229) and not to any institutionalization of the community. This is further clarified by Wenger et al. (2002) stating that "designing them [CoPs] is more a matter of shepherding their evolution than creating them from scratch. Design elements should be catalysts for a community's natural evolution" (p. 51). Contrary to the aspects of creation and design that accompany groups, CoPs are accompanied by aspects of detection and support, since they are emergent or existing social constellations (Brown & Duguid, 1991). Therefore, a CoP cannot be "designed" from scratch to serve purposes of an effective learning environment, since it either exists as a learning environment that might be effective for its members and continues its existence or it is not effectives for its members and it fades away.

CoPs are not only informal, but also unintentional, unstructured and unplanned formations implying that any structural or institutional intervention in CoPs will meet CoPs' resistance to institutionalization, intervention, or supervision due to their organic nature (Wenger, 1998a, p. 229; Wenger & Snyder, 2000, p. 140). Moreover, any intervention will interfere with CoPs foundational principles leading to modifications of the original notion (McDonald et al., 2012). However, as Wenger (2010) explains, "(…) it is indeed difficult to find the right balance between enough formality to give them legitimacy in the organization and enough informality to let them be peer-oriented, self-governed learning partnerships" (p. 193). In

contrast to self-generated and self-developed CoPs, the emergence and design of CoLs in educational settings underlies intentionality and particular objectives.

3.4.2. Communities of learners

Based upon the premises of sociocultural theory and situated cognition, the notion of Communities of Learners (CoLs) emerged in the early 1990s as part of the *Fostering Communities of Learners* (FCL) project by Brown and Campione (1990). The FCL project—originating in a reading-comprehension program (Palincsar & Brown, 1984)—aimed to transform traditional classrooms into innovative learning environments that foster the distribution of expertise among adults and children underlying a need for educational reform (Brown, 1992, 1994; Brown & Campione, 1996). In particular, the FCL project envisioned the conversion of classrooms into "learning communities – communities in which each participant makes contributions to the emergent understanding of all members, despite having unequal knowledge concerning the topic under study" (Palincsar, Brown, & Campione, 1993, p. 43).

The main underlying learning principles of CoLs, as described within Brown and Campione's (1990) FCL project, were outlined by Bruner (1996) as (a) agency, which fosters learners' control over their own thinking, (b) reflection, which fosters learners' sense-making and understanding of their learning, (c) collaboration, which fosters resource sharing between learners and teachers, and (d) a culture of learning, constructing, negotiating, sharing and producing. Brown (1997) further complements these principles by adding the principle of (e) deep disciplinary content, which helps students to advance their reasoning in scientific issues, and (f) developmental corridors, which fosters the development of disciplinary understanding and knowledge.

Bielaczyc et al. (2013) treat the CoL notion more inclusively, with references to FCL but also to Knowledge-Building Communities, and outline the constituent characteristics of CoLs as including (a) diversity of expertise among participants through valued contributions, (b) a shared objective of developing collective knowledge and skills over time, (c) learning how to learn, and (d) mechanisms for sharing. In their view, the main objective of a CoL is to promote a learning culture, in which individuals and the community as a whole are learning how to learn and develop disciplinary knowledge, while respecting and valuing different contributions by its members (Bielaczyc et al., 2013).

3.4.2.1. Emergence and design in CoLs

CoLs have been used as a community-based instructional approach by educators who aim to foster student-centered learning, therefore CoL is associated with a shift in the learners' role in schools from a passive knowledge recipient to an active co-constructor of knowledge responsible for their own learning (Brown, 1992). Directed, designed or intentional CoLs by educators often start with a course, operate on the classroom level, assume that the classroom is one community, and the participants are students whose individual achievement is evaluated and rewarded and prioritized over the collective success (Barab, Kling, & Gray, 2004; Roth & Lee, 2006).

One of the main design components employed in the FCL project is the instructional technique of *reciprocal teaching* (Brown, 1997; Brown & Campione, 1990, 1994; Palincsar et al., 1993). Reciprocal teaching refers to a guided practice led by teachers, parents, peers, or senior students that aims to enhance the visibility of mental activity involved in the understanding of a shared text or other materials with the application of four "comprehension-monitoring" strategies (Brown, 1994; Palincsar et al., 1993). These strategies are discussion-based and include the exchange of turns among leaders and students in (a) asking questions to stimulate discussion, (b) summarizing to identify the main discussion points, (c) opportunistic clarifications for restoring any necessary meaning, and (d) predicting upcoming content.

Within CoLs students are "partially responsible for designing their own curriculum" (Brown, 1994, p. 7) like researchers and teachers, who enact roles typical of a research community. However, CoLs are supported and guided by a teacher-facilitator or other adults (Brown, 1992), which is reflected in Vygotsky's definition of the ZPD as the distance between the actual and potential development level that is to be minimized with the support of experts or other more capable peers (Vygotsky, 1930-1934/1978). The ZPD contains the element of "more expert" and in most CoLs this is typically the teacher who aims to advance students' thinking and supports them to identify goals (Brown, 1994). Therefore, in most CoLs the teacher organizes and supports activities with a student-orientation, instead of directing activities (Bielaczyc & Collins, 1999). In particular, reciprocal teaching scaffolds students' engagement and progressive participation in discussion by explaining, modeling, supporting, and providing feedback until the students reach the stage of internalization of the discussion in which they were engaged and fully participating (Palincsar et al., 1993).

However, the implementation of the CoL notion by educators in classrooms has been a challenging process, often misrepresenting the notion itself since it has been frequently employed by educators "(…) as a slogan rather than as an analytical category" (Barab et al., 2004, p. 3). Challenges might arise in the process of balancing the relationships between teachers and students' roles to create a community atmosphere, in teachers' transition from traditional instructors to teacher-facilitators, and in promoting a shared belonging among students within a classroom setting.

3.5. A recombinant notion of learning community: Communities of learning practice

Despite differences between the notions of CoP and CoL, their commonalities have contributed to theoretical and implementational confusion. In an attempt to clarify theoretical confusion related to CoP, Roth and Lee (2006) claim that "(…) the notion of community in the context of classrooms is inappropriate or even false—unless the students concretely realize the collectively defined motive and have some choice and control in the matters" (p. 32). Indeed, it is misleading to consider by definition whole classrooms as CoPs, because the notion of CoP entails emerging elements and not pre-defined, pre-designed or pre-selected attributes to students in classrooms. Hence, although CoPs may exist within the context of the classroom or the broader educational setting—in the same way that they may exist in any other social context—it is more likely that CoPs are formed *ad hoc* outside the classroom or school, or within the classroom or school by students' own initiatives (Lave, 1991).

In contrast, CoLs have been used in educational settings as an instructional approach by educators to foster students' control and responsibility in collectively developing knowledge through sharing of contributions, which are respected and valued by others (Rogoff, 1994). Therefore, classrooms were transformed into CoLs as part of an educational reform movement. The CoL notion is not based on emergent elements in terms of its existence, but intentionally and instructionally defined and designed ones. It should be highlighted that emergent structures, interactions and or relational patterns might be formed even in an intentionally designed CoL, since no matter what CoL is referred to it is still a social constellation that involves individuals who are encouraged to interact among themselves and with the instructor.

In the spectrum of learning communities (see Chapter 2), it seems that we have two representative learning community notions in terms of emergence and design. On the one hand,

the self-organized CoP and on the other hand, the intentionally and instructionally designed CoL. A striking question then is: Is there room for a middle path between these two notions with the possibility to employ theoretical perspectives and/or elements from both? If so, what could a middle path be for a community notion to emerge in an educational setting and be "designed" to an extent that such a "design" does not interfere with its underlying "emergent" values and principles? And if a middle path were possible, why would we need it?

This section proposes the recombinant learning community notion, termed Communities of Learning Practice (CoLP), as such a middle path. Is not fully congruent with either the notion of CoP or the notion of CoL and their implied perspectives on emergence and design. Nevertheless, CoLPs are based on a recombination of constituent elements of CoPs and CoLs to build up an integrative framework, or a set of vocabulary, that moves beyond its precursors to portray non-formal learning communities in a formal educational learning setting without distorting the original conceptualizations of the learning community notions of CoPs and CoL notions and terms associated with their conceptualizations. Considering CoLP as a recombinant notion also implies a reconsideration of situatedness, termed "situated learning practice" and this will be elaborated upon in the next section.

3.5.1. "Situating" learning in a Community of Learning Practice

As indicated in Table 3.1 (Section 3.3.3), situatedness in learning contexts can be conceptualized, interpreted and implemented in different ways, leading to differences between situated learning (predominantly associated with CoPs) and situated cognition (predominantly associated with CoLs), despite their common roots in sociocultural theoretical principles. Situated learning practice does not imply a new learning theory, on the contrary, it underlies the same sociocultural theoretical principles as situated learning and situated cognition, but it constitutes a further re-instrumentalization and reconfiguration of "situatedness" in the context of interest. In situated learning practice, "learning" integrates sociocultural, situated, and systemic aspects to refer to a multi-level process of potentiality that enables mutli-dimensional expansions of one's states, such as identity, personality, skills, capabilities, and knowledgeability; or in other terms, one's states of potential expansion. In situated learning practice, "practice" moves beyond a particular profession, domain or discipline, to refer to the process of exposing one's current states of learning to one's or others' sphere of awareness to enable one's development through

feedback loops resulting from social interaction (i.e., with the other) or intra-action (i.e., within oneself). The relationship between learning and practice is realized at two levels is situated learning practice. It can be either perceived as (a) "learning how to practice" that has the potential to contribute to the broader educational context, or (b) "practicing how to learn", through the practice of skills within the community setting. How participants may experience the relationship between learning and practice may vary, as well as how they value this relationship—which is in line with the situatedness of the context.

Table 3.3

Situated learning practice

	Situated learning	**Situated cognition**	**Situated learning practice**
Representation	Rethinking non-institutionalized learning	Reforming teaching and learning in schools	Rethinking how non-formal institutionalized learning can contribute to formal institutionalized learning
Objectives	Authentic demands	Pedagogical concerns	Authentic demands deriving from pedagogical concerns
Engagement	LPP	Cognitive apprenticeship	Intent community building
Goal	Full participation	Knowledge and skills development	Value creation
Situatedness	Contextualized knowledge for application *in situ*	Decontextualized knowledge for application across settings	Inter-contextualized knowledge that can inform similar cases across settings
Community notion	Community of practice	Community of learners	Community of learning practice

Note. LPP = legitimate peripheral participation.

Table 3.3 illustrates the differences between situated learning, situated cognition and situated learning practice along the features of representation, objectives, engagement, goal, situatedness and accompanying community notion. In terms of representation, the situated learning practice perspective reflects a rethinking of the contribution of non-formal institutionalized learning to formal institutionalized learning, which partially bridges the gap between situated learning and situated cognition because it provides room for both to co-exist in parallel with the potential of the non-formal institutionalized learning to contribute to the formal institutionalized learning. In particular, it reflects the potential of non-formal institutionalized

communities and learning therein to directly support and contribute to formal institutionalized learning, implying a transferability and inter-contextualization of the learning practice into the practice within the surrounding context. For example, students who expect that they can learn from each other and practice with each other voluntarily come together to actually practice with each other learned and to-be learned skills in a learning community that takes into consideration the demands of their surrounding study program and the broader socio-educational setting(s). Their participation builds shared experiences of added value to the community members within their immediate surrounding study program and the broader socio-educational context. The objectives from a situated learning practice perspective represent authentic demands that were generated through participation in a pedagogically defined setting and its broader institutional (e.g., school, university) and exo-institutional settings (e.g., society). More specifically, participation in an institutionalized formal, structured setting may generate real-life problems, concerns or needs that can be addressed in a non-institutionalized, non-formal and negotiated setting with the support of others who face similar problems, concerns, or needs. For example, students who lack confidence in or wish to practice academic skills, relevant to their performance in courses of the study program, may develop these skills through their participation in the CoLP. The engagement process in a situated learning practice perspective occurs through contribution in the intent community building with the ongoing goal of value creation, which refers to "(…) the value of learning enabled by community involvement and networking" (Wenger et al., 2011, p. 7). Intent community building signifies the role of interdependence, not necessarily in structural functionalist terms, but in terms of sustainability. Sustaining the social structure within which various kinds of needs are addressed allows the sustainability of the process of needs fulfillment, which in turn leads to value creation. From a situated learning perspective value creation is a reciprocal process of the community creating value to the individual and the individual creating value to the community as a whole or to other individual members. For example, a member's participation in the CoLP might be valuable as an experience *per se* (i.e., community creating value to the individual) but one members' participation in the CoLP might also be valuable resource for another member and to the community as a whole.

To sum up, situated learning practice can be defined as the process of exposing one's current states of learning—irrespective of the profession, domain or discipline—to one's or

others' sphere of awareness to enable one's or others' development through peer feedback. Peer feedback is enabled by outeraction (i.e., social communicative processes that enable and facilitate information exchange; Nardi, Whittaker, & Bradner, 2000), interaction (i.e., information exchange, communication), and/or intra-action (i.e., agential dynamic process of interactivity in sense-making; for more see agential realism, Barad, 2003). From a situated learning perspective, "situatedness" signifies that knowledge is inter-contextualized, implying that what learners may learn within the non-formal learning setting may inform similar learning situations in the surrounding formal setting or elsewhere. When compared to the CoP and CoL notions, the situatedness of the CoLP notion moves in-between and beyond CoPs and CoLs.

In this section the community notion of *Community of Learning Practice* (CoLP) is proposed as an in-between and beyond notion. In-between in the sense of borrowing constituent elements of the CoP and the CoL notions and beyond in the sense of merging them in a way that enables accounts of unique constellations of potential experiences. When compared to the CoP and the CoL notions, its situatedness also moves in-between and beyond CoPs and CoLs and consequently in-between and beyond situated learning and situated cognition, respectively, leading to what is here referred to as situated learning practice (see Table 3.3).

3.5.2. Emergence and design in Communities of Learning Practice: A comparative approach to the CoP and CoL notions

A *Community of Learning Practice* (CoLP) incorporates elements from both the CoP and CoL notions, while creating a unique profile that does not constitute a mere variation of either of these two learning community notions (see Table 3.4). Since emergence and design are differently represented in the CoP and CoL notions, a careful recombination of emergent and designed elements has been incorporated in the theoretical conceptualization of the CoLP notion.

Table 3.4

Communities of Learning Practice: A recombinant notion of learning communities

	Learning Community Notions		
	Communities of Practice	**Communities of Learning Practice**	**Community of Learners**
Members	Practitioners/ Just Plain Folks (JPFs)	Just Plain Peers (JPPs)	Students and teachers/ Adults
Setting	Apprenticeship/ Organizational	Extracurricular	Curricular/Pedagogical
Objectives	Emergent	Emergent	Pre-defined
Space	Public and private	Public and private	Public
Facilitation	Oldtimer coordinator	Participatory facilitator	Teacher/Adult facilitator
Participation	Voluntary	Voluntary	Pre-determined
Responsibilities	Distributed between members	Distributed between JPPs and participatory facilitator	Guided distribution by teacher/adult facilitator
Formation	Self-formation in pre-existing networks	Victual formation in co-existing networks	Pre-defined formation
Structure	Self-structure	Negotiated with participatory facilitator	Pre-defined
Lifespan	Open	Course-based	Course-based

Table 3.4 provides an overview of the CoP, CoL and CoLP notions along ten elements: (1) members, (2) setting, (3) objectives, (4) space, (5) facilitation, (6) participation, (7) responsibilities, (8) formation, (9) structure, and (10) lifespan. The remainder of this section will elaborate on these elements in relation to the notion of CoLP while commenting on the aspects of emergence and design. Comparative comments to the CoP and CoL notions are included in each subsection to highlight the differences and similarities across the learning community notions.

3.5.2.1. Members: Just Plain Peers

The participants of CoLPs are peers, who are students in the same formal educational setting (i.e., same student cohort, same study program, same university) and voluntarily come together in a non-formal learning setting (i.e., the CoLP) to address common, individual or mixed needs (e.g., study problems, personal development, skill development, academic challenges) that derive from the broader socio-educational setting(s). The participants of CoLPs are referred to as Just Plain Peers (JPPs) as a context-specific instantiation of the term “Just Plain Folks” (JPFs) introduced by Lave (1988). The term JPFs was introduced within the framework of ethnographic studies and emphasized the difference between learning within a schooling culture and everyday activities. JPFs are highly associated with legitimate peripheral

participation within the situated learning framework and apprenticeship learning. Following Brown et al. (1989), the issues and problems that JPFs face "(…) arise out of, are defined by, and are resolved within the constraints of the activity they are pursuing" (p. 35). Table 3.5 provides a summary of the features characterizing JPFs/JPPs, students, and practitioners and also shows the similarity between JPFs/JPPs and practitioners as well as the difference between those two and students due to the "schooling identity" attributed to learners within the classroom.

Table 3.5

JPFs/JPPs, Students and Practitioners

	JPFs/JPPs	**Students**	**Practitioners**
Reasoning with:	Causal stories	Laws	Causal models
Acting on:	Situations	Symbols	Conceptual situations
Resolving:	Emergent problems and dilemmas	Well-defined problems	Ill-defined problems
Producing:	Negotiable meaning and socially constructed understanding	Fixed meaning and immutable concepts	Negotiable meaning and socially constructed understanding

Note. JPFs = Just Plain Folks. JPPs = Just Plain Peers. This table is adapted from Brown et al. (1989).

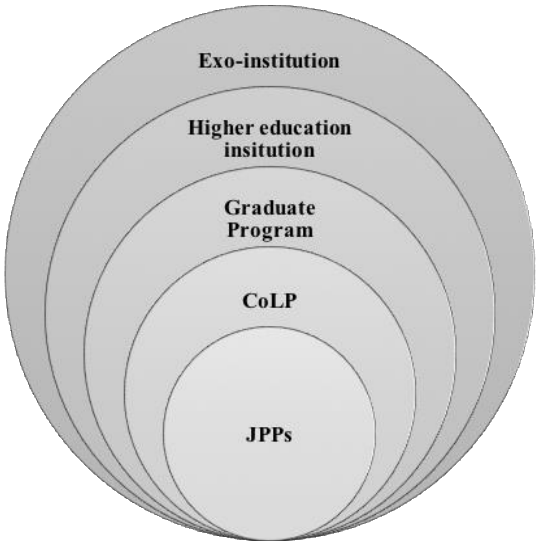
Although, CoLs typically involve students and adults/teachers as participants, they are designed to enhance a shift in students' activity in classrooms and move beyond laws, symbols and fixed meanings. CoPs may have as participants either practitioners or JPFs. JPPs in a CoLP on the one hand resemble the activity of practitioners and on the other hand are more closely related to everyday activity and the emergent problems, needs or concerns therein (like JPFs). The use of the term "peers" has been purposefully selected to reflect the "similar other", or in other words, the other as a social self with whom there are similarities of whatever nature and with no particular roles ascribed to the term, as the use of students, practitioners, learners, colleagues would imply. JPPs are free to identify themselves and the others differently (e.g., friends, classmates, expatriates), without necessarily being in agreement with each other—reflecting a symbolic perspective to their roles or identities in a CoLP. Additionally, the term peer aims to draw direct links to the sharing mechanism of peer feedback that is central to the CoLP notion. JPPs are encouraged to participate in peer feedback processes within the CoLP setting to support each other with their individual needs (e.g., academic, social, personal).

3.5.2.2. Setting: Extracurricular

CoLPs are extra-curricular social learning systems that emerge within institutionalized educational systems and operate in parallel with—but not integrated into—the curriculum employed in the surrounding educational system. Students gather to form a social system due to their expected value in collectively addressing common, individual or mixed needs, concerns or problems either associated with curricular and/or extracurricular aspects. Therefore, the institutionalized educational system together with the underlying pedagogical objectives that reflect the curriculum only "frame without prescription" the existence of CoLPs. In other words, CoLPs have a systemic functional and structural role within a multi-level system of learning and socially acting and interacting (see Figure 3.1).

Figure 3.1

A mutli-level systemic approach to CoLPs



Note. JPPs = Just Plain Peers. CoLP = Communities of Learning Practice.

Their existence serves an "elective functional role" as part of a multi-level system that surrounds the individual, which means that community members can utilize the CoLP setting to address different objectives or needs that derive from different levels of the surrounding socio-educational system(s). For example, discussing possible solutions for addressing a study problem related to a specific course in the study program, practicing a particular set of skills relevant to a specific course(s), preparing a cover letter for job/internship applications etc. The existence of

other institutional levels also serves an "elective structural role" as settings within which individuals interact while constantly changing roles and/or structural positions within the frame of JPPs. For example, JPPs on the CoLP level are students on the graduate program level, might be participants of other university-based communities or groups on the educational institution level, and might be foreigners, parents, employees and endless other roles on the exo-institutional level.

By referring to CoLPs as extracurricular settings, there is no intention to eliminate any relationship with the surrounding curricular, institutional and exo-institutional settings. In fact, these surrounding settings are considered vital to the existence and sustainability of a CoLP. Members of CoLPs come together to form a CoLP because of these surrounding settings, since they constitute common frames of reference for all members. In sociocultural terms, they constitute the sociocultural and socio-historical context within which social interactions between JPPs take place. Likewise, in ecological systemic terms, they constitute meso-, macro-, exo-, and chrono-systems (see Bronfenbrenner, 1979, 2005) that affect interactions in the micro-system of the CoLP.

In sum, CoLPs are not implemented as an instructional approach by stakeholders, educators, or researchers to foster exo-institutional, institutional, curricular, and/or instructionally pre-defined objectives. CoLPs live *in parallel* as opposed to *in* the institutional and curricular setting. Instead, CoLPs can be viewed as complex social learning systems constituted of JPPs who interact and interdepend among themselves and with the surrounding socio-educational settings. The learning community notions of CoPs and CoLs have been mostly represented in different settings, namely CoPs in apprenticeship/organizational settings and CoLs in classroom settings. The element of setting is defining to the learning community objectives; whose analysis follows in the next section.

3.5.2.3. Objectives: Emergent objectives

What brings the JPPs together is their common belief in the value of gathering with their peers in order to address any emergent needs, problems or concerns deriving from the surrounding educational or other learning systems. JPPs are not invited to solve any pre-defined problems based on pre-defined objectives or tasks by an external agent. Instead, JPPs form and sustain a CoLP due to the fact that they can use this social space to address any emergent needs, which in turn define the emergent objectives whose relevance is negotiated among JPPs. This

emergence retains a sense of aliveness and sustainability in the CoLP since there is a constant attempt to retain members' attribution of personalized value to their participation with no pedagogical or institutional impositions. As opposed to pre-defined pedagogical objectives evident in a classroom-based CoL operating on the basis of a curricular structure, CoLPs, resembling CoPs in this aspect, constantly address emerging issues.

3.5.2.4. Space: Public and private space

CoLs and CoPs differ regarding the spheres within which they operate, since the CoL operates in the public space (e.g., classroom) whereas the CoP operates in both the public and private space (Wenger et al., 2002). The element of co-existence of public and private spaces of CoLPs has been borrowed from the CoP notion. The public space refers to informal events which are open to community members to exchange ideas, and find solutions to their problems, attributing a ritualistic and substantive dimension to the community by offering its members the experience of participation. The private space refers to a web of relationships among members who can be involved into one-to-one informal discussions that inform how the public space can be more effectively facilitated (Wenger et al., 2002). The co-existence of the public and private spaces is of fundamental importance to the sustainability of a CoLP, since emergent objectives of value to the community members might be generated after negotiation in the private space and further addressed on the community level in the public space and emergent objectives generated in the public space might be addressed in more focused one-to-one discussions in the private space. Furthermore, private discussions also contribute to the empowerment of one-to-one relationships, which in turn constitute building blocks for the community aliveness and richness (Wenger et al., 2002). This is not to say that there is no private space in CoLs—that would be a misleading assumption—but the webs of private relationships in the private space are not necessarily defining for decisions made about the facilitation of the public space.

3.5.2.5. Facilitation: Participatory facilitator

CoLPs act as a support structure for students generated by the students themselves. However, a participatory facilitator, who is neither an expert nor a peer-member, convenes the community events (i.e., face-to-face meetings of peers who gather to discuss and practice issues of interest) and further facilitates and negotiates structural aspects of the community events and around them. In contrast, the facilitator in CoLs is the teacher or another expert (Brown & Campione, 1996), whereas in CoPs the coordination role is taken on by any of the community

members—typically oldtimers/core members (Wenger et al., 2002). The main role of the participatory facilitator is to facilitate the social interactions among the JPPs and to foster the sustainability of the CoLP by reassuring that all community members can find the social space that they prefer, either in the core or the periphery, in order to address their personalized values through their valuable and valued participation in the community. The participatory facilitator also aims to enhance awareness of aspects that are not frequently externalized in a purely self-organized community, including how members feel about their participation and about each other as peers within a CoLP. In addition, since the main sharing mechanism within the CoLP is peer feedback, the participatory facilitator identifies the commonly accepted peer feedback culture within the community and coordinates any peer feedback activities for the benefit of the JPPs and the community. Moreover, the participatory facilitator facilitates and supports interactions in the public and the private spaces when JPPs call for it. However, instead of a community coordinator(s) (i.e., one or more of the core community members), both the public and the private space in a CoLP are mainly facilitated by both a participatory facilitator and any core or peripheral members who wish to be involved. The participatory facilitator should strive for making JPPs feel comfortable by sensing personal and cultural cues of JPPs to foster a safe and non-judgmental atmosphere, resembling the profile of a social artist (Wenger, 2011, p. 201).

3.5.2.6. Participation: Voluntary participation

Participation in the CoLP is voluntary. CoLPs are open to any student from the same educational setting or other similar settings who wishes to act as a peer among peers and share, negotiate and co-construct learning experiences. More specifically, address any academic, personal, social or other needs in a social constellation that is comprised of JPPs in a non-traditional classroom. JPPs are free to withdraw whenever the value of participating in the CoLP fades away and free to re-join whenever they feel they (or others) can profit from re-joining in the CoLP. Participation does not imply a pre-specified set of obligations, expectations or contributions and allows JPPs to participate either actively or passively in accordance with their individual needs and the needs of the CoLP. In other words, participation does not involve any distribution of tasks or responsibilities towards the accomplishment of a shared goal, since the goals might be also individually defined in parallel to shared goals. Along the same lines, participation in CoPs is also voluntary and not prescriptive. In other words, no external agents can ascribe community participation to CoP members, unless CoP members identify themselves

as such and their co-members also recognize them as such. This is in sharp opposition to participation in CoLs in which members are pre-defined as participants in CoLs by the community organizers (e.g., teachers, stakeholders). For example, all classroom students and participating adults are identified or described as CoL members, irrespective of their self-identification as CoL members.

3.5.2.7. Responsibilities: Shared responsibilities

The participatory facilitator and the JPPs share responsibility for coordinating and co-structuring the public space and for reinforcing social interactions in the private space. Responsibilities here do not imply obligations imposed on the JPPs, but rather shared decisions for the coordination and co-construction of the public space (i.e., community events). Although the participatory facilitator is responsible for the overall practical organization of the community events and for communicating individual needs, requests or preferences to the community, no vertical or formally defined accountability applies (see Wenger, 2011, p. 205-206). JPPs share responsibilities on any decisions regarding the thematic focus of each community event, the activities involved in the community events and mainly they share the social responsibility of contributing to the CoLP in a way that is valuable for themselves and for others. For example, JPPs are responsible for the social interactions with other JPPs within the CoLP setting that are enabled by self-organized social scaffolds that JPPs use. The participatory facilitator is then responsible for recognizing the self-organized social scaffolds and further supporting their emergent function. The role of the participatory facilitator in the distribution of responsibilities is what distinguishes CoLPs from CoPs, in which the distribution of responsibilities only involves the "actual members" themselves. Although responsibilities might be also shared in CoLs (i.e., student-centered), they are typically guided by a community organizer (e.g., teacher, other adult) to meet the pre-defined objectives.

3.5.2.8. Formation: Victual formation

The formation of a CoLP is not entirely self-generated, as in the case of a CoP, but there is a victual approach to this formation by the participatory facilitator; i.e. by supplying the community with mechanisms that facilitate community sustainability and members' social bonding. More specifically, the participatory facilitator communicates an invitation to the potential JPPs for a CoLP to be initiated (if relevant to the JPPs). The participatory facilitator also supplies the community with ritualistic sustainability (i.e., a consistent rhythm of public

community events), enhances the informality of the public community events, facilitates the "learning how to practice" and "practicing how to learn" aspects of the community on a public level, and builds private social bridges with the JPPs with the aim to reinforce community aliveness (Wenger et al., 2002). With respect to the setting within which communities are formed, CoLPs and CoLs are both formed in an educational setting. CoPs could also be formed in educational settings, but usually do so *ad hoc* and outside the schooling culture (Lave, 1991).

3.5.2.9. Structure: Negotiated structure

Along with the victual formation, the structure of the community is negotiated between the JPPs and the participatory facilitator. Structure refers to the ritualistic and structural dependence of the members on each other, which is negotiated throughout the lifespan of the CoLP. The structure of the CoLP is neither self-emergent, as in the case of CoPs, nor pre-defined, as in the case of CoLs, but negotiated. More specifically, an initial structural proposal based on the articulated needs and preferences of the JPPs is presented to the whole CoLP and is subsequently negotiated throughout the CoLP life cycle to fit any situated needs and preferences to maximize the value of CoLP participation for its members.

3.5.2.10. Life span: Course-based lifespan

The lifespan of a CoLP is course-based, given that the relevance of its formation derives from the study program within and in parallel to which they evolve. Therefore, since the suprasystem operates within the lifespan of an instructional unit (i.e., course, semester or study year) with a specific start and end, the same applies to the lifespan of the CoLP. Considering the aspect of lifespan, the CoLP notion resembles a CoL, which is also based on the timeframe of the formal educational program within which it operates, and distinguishes itself from a CoP which does not start or end with a task or project (Wenger, 1998a). Although the lifespan of a CoLP as an identifiable system might end together with the end of an instructional unit, there is no imposed interruption of any interactions either in the public or private space by external agents. The CoLP might regenerate or transform itself as long as the JPPs continue to identify potential values of participation in their CoLP which might change in profile due to the change in needs that might emerge.

3.5.3. Recombining aspects of emergence and design in learning communities

All three learning community notions and their underlying theoretical learning theory principles, presented in this chapter, operate within a learning paradigm as opposed to a teaching

paradigm (see Barr & Tagg, 1995; Lave, 1996). However, the role of the curriculum is differently represented, with the notion of situated learning and CoPs to purely underlie a learning curriculum and the notion of situated cognition and CoLs to consider a teaching curriculum within which they are embedded (Lave & Wenger, 1991). The notion of curriculum itself implies pedagogical objectives to be addressed by appropriate instructional approaches or design decisions. In this sense, emergence and design cannot be identically represented in these dominant learning community notions, and apparently do not have to be—there is no need to "ex-curriculate" all learning communities for the sake of "making" them naturally emerging.

The rationale for the coinage of the CoLP notion lies in the need to build a conceptual framework that has the potential to appropriately represent a balance between emergence and design *in parallel to* the curriculum as opposed to *in* the curriculum or *outside* the curriculum. According to Wenger (1998a), the balance between emergence and design in a community context is depicted in the paradox that "(…) no community can fully design the learning of another (…) no community can fully design its own learning" (p. 234). The emphasis expressed by "fully" in Wenger's statement is what makes the relationship between emergence and design complex and asks for an equilibrium between the two.

Wenger et al. (2002) suggest a set of design principles that could foster a sense of community aliveness without designing an intervention to achieve this. Hence, designing a CoP as an intervention would be contradictory with the underpinning theory of self-organized systems. In contrast, CoLs do not allow for much "structural" freedom on behalf of the community members, since the participation and objectives are pre-defined and pre-structured to serve instructional and curricular purposes. Therefore, in an attempt to achieve an equilibrium between emergence and design—without being conflicting or incompatible with the CoL and CoP notions (and their underlying perspectives of situated cognition and situated learning)—the CoLP constitutes a middle path that incorporates community values from both notions *and* stands on its own as well.

3.6. Implications and conclusion

This chapter, by building upon the previous analysis of learning communities (see Chapter 2), has gone some way towards enhancing our understanding of the aspects of emergence and design that are attached to the dominant notions of CoP and CoL and presented a

new recombinant community notion to characterize non-formal learning communities in formal institutionalized settings. This new notion of Communities of Learning Practice (CoLP) incorporates elements from both community notions, constituting an entity in-between and beyond them. In particular, CoLPs are based on a recombination of constituent elements of CoPs and CoLs to build up an integrative framework, or a set of vocabulary, that moves beyond its precursors to portray non-formal learning communities in a formal institutionalized setting without distorting the original conceptualizations of the learning community notions of CoPs and/or CoLs (Hoadley, 2012; McDonald et al., 2012; Wenger, 2010). Metaphorically, this resembles the reproduction of living organisms, in which a new living entity is generated by recombining different chromosomes from two other living organisms.

The emergence of the CoLP notion has theoretical and practical implications. First of all, the emergence of the notion by itself calls researchers' and educators' attention to the aspects of emergence and design within either the CoP or the CoL notion (or any other learning communities), highlighting the importance of considering them before attributing the label of CoP or CoL to the communities of their interest, to avoid conceptual conflicts. In addition, a CoLP and the community notion it represents, offers a theoretical framework for a community that is neither self-generated and self-developed, nor instructionally designed and pedagogically guided that can emerge within an institutionalized setting but operates *in parallel to* the curriculum as opposed to *in* or *outside* it. This notion has the potential to describe victually formed communities in educational settings that are informed by but move beyond the curriculum supported by a participatory facilitator. With respect to the practical implications in education, CoLPs suggest even more autonomous communities than CoLs that educators could call for and foster to emerge out of the voluntary participation of the students and let them be JPPs for their own emergent needs and problems which might derive from the curriculum or beyond it. A CoLP notion cannot be used as an instructional approach, but instructors, educators and stakeholders should give it the ground, space and time to flourish.

This chapter provides a springboard for practitioners and researchers to systematically consider the aspects of emergence and design when "orchestrating" and/or supporting learning communities in educational settings. Instead of an *a priori* designation of a learning community notion to an existing community or a community to be, researchers and practitioners should investigate the aspects of emergence and design by reflecting on or addressing at least the

following questions: (1) Is the learning community of interest emergent and self-organized or is it to be intentionally and prescriptively formed? (2) Taking into consideration this aspect, how can practitioners/researchers facilitate the learning communities to take the most value out of themselves prior to intervening as external agents?

This story does not end here, as there is much theoretical and empirical work still to be done. To begin with, more learning community notions should be analyzed from an emergence-design perspective to draw a comprehensive picture across learning community notions. In addition to any further conceptual analysis, empirical investigations on design decisions and facilitation strategies in emergent, designed or recombinant learning community notions could shed light on the implications of such a conceptual awareness in and for the communities *in situ*.

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4. Value creation in Communities of Learning Practice: What is it that matters most?

The planning of new educational institutions ought not to begin with the administrative goals of a principal or president, or with the teaching goals of a professional educator, or with the learning goals of any hypothetical class of people. It must not start with the question, 'What should someone learn?' but with the question, 'What kinds of things and people might learners want to be in contact with in order to learn?' (Illich, 1971, p. 80).

Abstract

This study examines value creation enabled by peers' participation in Communities of Learning Practice (CoLPs). The participants were 27 international master students enrolled in a Learning Sciences study program in Germany who voluntarily participated in two CoLPs (N_{colp1} = 9, N_{colp3} = 18). Data were collected from CoLP members' post-participation written narratives; so-called value creation stories (VCSs). An integrated mixed-methods research approach was employed at the analysis and interpretation level. A theory-driven content analysis of VCSs was initially conducted to classify members' attributed values. The results demonstrated that CoLP members most frequently attributed values to CoLPs as contexts. This striking result called for a further exploration of the context-related values. An emergent data-driven thematic analysis was employed to extrapolate the specific aspects of CoLPs as contexts that were deemed valuable by participants. Overall, the findings illustrate that each participant and each CoLP weaves a unique constellation of values enabled by CoLP participation. Nevertheless, some common value-patterns across participants and CoLPs were observed. For example, the opportunity for peer feedback and practice were reported as valuable by participants in both CoLPs. The findings provide considerable insights into what constitutes valuable experiences of participation in CoLPs—as considered by community members themselves—and call for an overall re-thinking of the notion of "outcomes" of participation in learning communities.

4.1. Introduction

The community construct has been embraced by educators and learning scientists since the 1970s to refer to either directed/designed, negotiated, or informal/spontaneously emerging social formations, structures, settings or systems within which individuals (intra)act, interact, interdepend, share, and co-construct knowledge, expertise, and learning experiences (e.g., Bielaczyc & Collins, 1999; Gabelnick, MacGregor, Mathews, & Smith, 1990; Wenger, McDermott, & Snyder, 2002). These representations have been typically referred to as *learning communities* due to their common focus on learning and the shared underlying characteristic of a social collective working together to facilitate a learning process (Hill, 2012). Nevertheless, several learning community notions have been developed over the years within different frameworks to represent different structures with diverse objectives and reasons for community formation (for a more detailed overview see Chapter 2 and Chapter 3).

Depending on the learning community notion and its representations in various fields, community researchers have examined the impact of learning communities on a wide range of measures (e.g., individual performance, collaborative practices, value to organizations). In the context of higher education, there is a vast amount of literature examining the impact of learning communities on outcome measures, such as (a) student success (Lenning & Ebbers, 1999; Tinto, 2003; Price, 2005; Weiss, Visher, Weissman, & Wathington, 2015), (b) students' persistence (Engstrom & Tinto, 2008), (c) students' motivation (Stefanou & Salisbury-Glennon, 2001), (d) students' engagement (Rocconi, 2011; Zhao & Kuh, 2004) and (e) students' academic and social attitudes (Bonilla, Buch, & Johnson, 2013). These measures reflect external expectations, standards, and criteria of outcomes set by teachers, researchers and/or stakeholders, overlooking or deprioritizing the self-defined expected and experienced outcomes of learning community participation—potentially due to the assumption that these self-defined aspects might be more relevant in informal learning situations (see Peeters et al., 2014).

In association with the Communities of Practice (CoP) notion, "value creation" emerged as an assessment and evaluation framework (Wenger, 1998; Wenger, Trayner, & De Laat, 2011). CoPs have been initially referred to as "a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice" (Lave & Wenger, 1991, p. 98). Wenger (1998) further refined the conceptualization of CoPs as social collectives whose participants mutually engage into a constantly negotiated joint enterprise while

developing a shared repertoire of resources that support the negotiation of meaning. Predominantly in relation to the CoP notion (as well as networks) Wenger et al. (2011) conceptualize value creation as "(…) the value of learning enabled by community involvement and networking" (p. 7) with communities or networks serving as social settings for social learning activities (e.g., sharing ideas, co-constructing knowledge, exchanging experiences).

In terms of empirical applications of the value creation framework (Wenger et al., 2011), studies have only focused on professional learning communities for educators in professional development research (e.g., Booth & Kellogg, 2015; De Laat & Schreurs, 2013; U.S. Department of Education Report, 2014). However, the value creation framework by itself is not restricted to professional context and thus could also serve as an assessment and evaluation framework for learning communities of students, with values being process and outcome "measures" of what matters in (social) learning situations. By shifting the focus from traditional measures (e.g., students' success, persistence, motivation, etc.) to values, the role of learners in defining their own learning enabled by social interactions in learning communities is empowered and magnified. This shift also implies a parallel shift from a teaching paradigm to a learning paradigm (Barr & Tagg, 1995), from a teaching curriculum to a learning curriculum (Lave & Wenger, 1991), and from external agency in defining values of learning to self-agency in defining values of learning as an experience and/or as an outcome.

To date, no study has explored the phenomenon of value creation in learning communities of students. This study constitutes the first empirical endeavor to examine value creation for students enabled by participation in Communities of Learning Practice (CoLPs) in higher education. The aim of this study is to examine expected and experienced values of participation in CoLPs. To address this research gap and meet the aim of this study two research questions are explored. It should be highlighted that RQ2 emerged from the results for RQ1.

RQ1: What are the values attributed by CoLP members to their community participation?

RQ2: What are the values attributed by CoLP members to the community as a social learning context?

Prior to addressing the research questions, the following sections set the theoretical scenery of this study. The first subsection provides a brief analysis of the learning community notion within which the phenomenon of value creation is examined. The second subsection

outlines how the value concept is approached in this study. Finally, the third subsection provides an analysis of the phenomenon of value creation in learning contexts.

4.1.1. Communities of Learning Practice: A social learning space

The phenomenon of value creation is examined in the context of Communities of Learning Practice (CoLPs), which is an extra-curricular learning community notion (see Chapter 3). By referring to CoLPs as extracurricular settings, there is no intention to eliminate any relationship with the surrounding curricular, institutional and exo-institutional settings. On the contrary, these surrounding settings are deemed vital to the existence and sustainability of CoLPs. It is because of these surrounding settings that members of CoLPs gather to form a CoLP in the first place, since these settings constitute common frames of reference for all members (e.g., shared difficulties in the study program, need to better know their peers with whom they work together in class) regardless what the community personally serves them for.

Therefore, CoLPs have an elective functional and structural role within a multi-level socio-educational system of learning that surrounds the individual learner. Their "elective functional role" is mirrored in community members' utilization of the CoLP setting to address different objectives or needs that derive from different levels of the system(s) within which they are embedded. For example, some members may view CoLPs as ground for improving their skills, whereas some others as ground for socially interacting with their peers. Their "elective structural role" is reflected in individuals' interactions that are characterized by constantly changing positions and roles across the surrounding systems. For example, some socially peripheral students might use the CoLP setting to develop a more socially central position, or some academically weak students might use the CoLP setting to develop a stronger academic profile.

The central sharing mechanism within CoLPs is that of peer feedback, due to its potential to support learning and practice within social constellations. The relationship between learning and practice in CoLPs is realized at two levels, namely (a) "learning how to practice" that has the potential to contribute to the broader educational context and beyond and (b) "practicing how to learn" through the practice of skills within the community setting. How participants may experience the relationship between learning and practice may vary, as well as how they value this relationship. Peer feedback is central at both levels in CoLPs and does not serve any formal

assessment purposes. Peer feedback in CoLPs includes but moves beyond task-specific feedback related to the surrounding socio-educational contexts, to further include global feedback on learning practices, learning styles or even attitudes to learning—deriving from and associated with the surrounding socio-educational context(s) and interpersonal communication within them. In sum, peer feedback is considered an authentic learning practice and sharing mechanism within CoLPs utilized by members to share knowledge, experiences, advice, perceptions, and/or attitudes in relation to learning as a social process.

In sum, CoLPs represent social learning spaces. Wenger (2011) refers to social learning spaces as "social containers that enable genuine interactions among participants" (p. 193). Participants bring their learning experiences and other personal experiences, while creating new ones in the social learning space (Wenger, 2011). CoLP success is not based on objectification of knowledge and/or its outcomes, but on participants' experiences of success as self-defined and self-perceived. The goal of CoLPs as social learning spaces is to make participation matter to its members. The following sections operationalize the concepts of value and value creation in relation to social learning spaces.

4.1.2. The concept of value

The concept of value is rich, complex and appealing, but often causes conceptual fuzziness among philosophers, sociologists, psychologists and anthropologists due to its either narrow or broad treatment—which in turn resulted in the development of several typologies and theories of values (e.g., Kluckhohn, 1951; Rescher, 1969; Rokeach, 1973, 1979; Schwartz, 1992; Williams, 1968). In philosophical terms, the concept of value might be interpreted as (a) the value of an object (associated with objectivism in value theory) or (b) the process of a subject attributing value to an object based on a set of criteria or standards (associated with subjectivism in value theory; i.e. valuation). However, this axiological division seems contradictory since the criteria or standards lead to the assignment of value to an object and the value to an object requires the existence of standards or criteria set by the subject (Pauls, 1990).

Frondizi (1971) adopts a critical view towards the objectivism-subjectivism division and claims that value is a relational construct with the existence of both the subject and the object being prerequisites. The relational nature of value is reflected in social psychology, with Rokeach's (1973, 1979) definition of value as "(…) an enduring belief that a specific mode of

conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973, p. 5). Rokeach (1979) further emphasized that values imply the presence of criteria or standards of preference for any selective orientation and constitute both guiding factors of expected and goal-oriented behavior and justification/explanatory factors of past behavior. Rokeach (1973) classified values into (a) terminal values, preferred end-states of existence, and (b) instrumental values, preferred modes of behavior or means for achieving the end-states of existence.

The concept of value in this study is neither used in purely philosophical terms (e.g., moral philosophy, ethics, deontology) nor in purely socio-psychological terms (e.g., terminal/instrumental values). Though informed by philosophical and axiological principles the concept of value in this study moves beyond these philosophical and socio-psychological approaches to refer to the process of a subject attributing value to an action, interaction, activity, process, object, person, or any experience based on self-defined criteria and standards. In particular, values in this study refer to any experiences that are perceived by participant-agents to be of relevance to personal-, social-, skill-, study-, and context-related benefits that are associated and/or enabled by participation in the CoLPs under study. Within this framework, values are treated in relational, attributive, and agent-based terms, that is, values are not treated "objectively" or based on a set of "objective" standards of what is valuable or not by external agents. Any attribution of value is relevant and/or meaningful to the participant-agent himself/herself. Tools, practices, social behavior, perceptions, processes, interactions are not perceived as "good" in themselves, but only in the cases in which the participant-agent attributes value or positive meaning to them based on relative criteria that are set by the participant-agent either consciously or unconsciously. No alignment with any external set of criteria or expectations is implied, which constitutes values significantly different from any outcome measures that are defined by external criteria and standards. Within this value framework, no absolute values are taken into consideration (i.e., values independent of the individual).

4.1.3. Value creation in learning contexts: A value creation framework

Aligned with the notion of CoP, Wenger et al. (2002) first proposed a typology of values for community members and organizations, including (a) *short-term* (e.g., improve business outcomes) and *long term* values (e.g., develop organizational capabilities), (b) *tangible* (e.g.,

performance) and *intangible* values (e.g., relationships, identities), and (c) *strategy-implementing* (e.g., application of innovations) and *strategy-making* values (e.g., development of new approaches). Their typology was further developed by integrating the idea of the value creation process, which has been mostly associated with financial, organizational, knowledge and strategic management (e.g., Goh, Gao, & Agarwal, 2016; Schiuma, 2010; Seth, 1990; Tsai & Ghoshal, 1998). It should be highlighted that Wenger et al. (2002) mainly associate the value creation of CoPs *for* the organization(s) within which they grow and the practice(s) that frames them.

Wenger et al. (2011) further refined the value creation process considering both a community and a network perspective, and conceptualize value creation as "(…) the value of learning enabled by community involvement and networking" (p. 7) with communities or networks serving as social settings for social learning activities (e.g., sharing ideas, co-constructing knowledge, exchanging experiences). In this later work, the "value to whom" question prioritizes the community members, individually or collectively, as value recipients over the organization(s) and/or other external entities—as opposed to the external prioritization that was more prominent in Wenger et al.'s (2002) position (i.e., value for the organization). The value that community participation creates for the members themselves is the driving force for community existence and sustainability. Whether the community additionally creates value for third parties can be considered when relevant (Wenger et al., 2011).

Wenger et al. (2011) adapted and extended Kirkpatrick's (1994) four-level model of evaluating training programs (i.e., reaction, learning, behavior, and results) and outlined a spectrum of value creation that consists of five cycles of values: (a) *Immediate value*: activities and interactions, (b) *Potential value*: knowledge capital, (c) *Applied value*: changes in practice, (d) *Realized value*: performance improvement, and (e) *Reframing value*: redefining success (see Table 4.1). It should be highlighted that this framework was originally intended to serve as foundation for assessment and measurement of value creation in CoPs and networks.

Immediate value refers to the activities and interactions that can create value in and of themselves (e.g., helping a member with a problem, providing advice). Typical measurement indicators for this cycle together with some examples of potential data sources include: the level of participation (e.g., attendance at meetings), level of activity (e.g., frequency of queries), level of engagement (e.g., intensity of discussions), quality of interactions (e.g., bringing experience of

practice into the learning space), value of participation (e.g., people coming back to the community), networking (e.g., new connections made), value of connections (e.g., frequency of interactions), collaboration (e.g., joint projects), and reflection (meta-conversations about community/network).

Potential value refers to the knowledge capital (human, social, tangible, reputational, or learning capital) that activities and interactions can create for the community members (e.g., a useful skill, a social connection, access to resources, status, transfer of experience to other contexts) and may or may not be put into use. Typical measurement indicators for this cycle together with some examples of potential data sources include: skills acquired (e.g., self-reports), information received (e.g., self-reports), change in perspective (e.g., self-reports), inspiration (e.g., self-reports), confidence (e.g., self-reports), types and intensity of social relationships (e.g., social network analysis), structural shape of networks (e.g., social network analysis), level of trust (e.g., bringing up different problems), production of tools and documents to inform practice (e.g., quantity and types of output), quality of output (e.g., evaluation of products), documentation (e.g., summaries of events and discussions), reputation of the community (e.g., feedback from stakeholders), and news views of learning (e.g., self-reports).

Applied value refers to the adaptation and application of knowledge capital in other contexts. Typical measurement indicators for this cycle together with some examples of potential data sources include: implementation of advice/solution/insight (e.g., self-reports), innovation in practice (e.g., new ways of doing things, new perspectives), use of tools and documents to inform practice (e.g., self-reports), reuse of products (e.g., self-report of reuse), use of social connections (e.g., collaborative arrangements), innovation in systems (e.g., new processes), and transfer in learning practices (e.g., using communities, networks, or other peer-to-peer processes and tools for learning in other contexts).

Realized value refers to the reflection on the effects of the application of the knowledge capital on one's performance. Typical measurement indicators for this cycle together with some examples of potential data sources include: personal performance (e.g., speed and accuracy), organizational performance (e.g., project assessments), organizational reputation (e.g., ability to attract projects related to domain), and knowledge product as performance (e.g., clients interested in knowledge itself).

Reframing value refers to the reconsideration of the learning objectives and success criteria which in turn can lead to community restructuring or even transformation. Typical measurement indicators together with some examples of potential data sources include: community aspirations (e.g., new learning agenda), assessment (e.g., new assessment processes), relationships with stakeholders (e.g., new sets of expectations), institutional changes (e.g., new strategic directions that reflect the new understanding), and new frameworks (e.g., new social, institutional, legal, or political systems).

Table 4.1

Value creation cycles: Key questions and examples

Value creation cycle	Key questions	Examples
Immediate value	What happened and what was my experience of it?	Providing advice Helping with a problem
Potential value	What has all this activity produced?	A useful skill Access to resources
Applied value	What difference has it made to my practice/life/context?	Application of a skill Collaborations
Realized value	What difference has it made to my ability to achieve what matters to me or other stakeholders?	Personal performance Organizational performance
Reframing value	Has it changed my or other stakeholders' understanding of what matters?	New learning agenda New frameworks/systems

These value cycles imply complex and dynamic interrelations and by no means a hierarchical or linear sequential pattern. Within a community setting, members might be involved in the sharing of expertise, learning from each other's experiences, and helping each other with challenges. These activities might be related to the values members attribute to a community or derive from it (Wenger et al., 2011). The value of learning in a CoP derives from members' ability to develop a shared intention to enhance learning in a common domain. The shared domain of interest, shared practice (developed through a joint history of learning) and the shared repertoire (consisting of shared perspectives, strategies, and stories), all constitute learning resources for the community members (Wenger et al., 2011, p. 10).

Notwithstanding the conceptual advancement by Wenger et al.'s (2011) value creation framework as "a means to appreciate value created in communities and networks" (De Laat,

Schreurs, & Nijland, 2015, p. 254), empirical examination of the phenomenon of value creation in learning communities did not concurrently emerge. This study aims to empirically support the potential of value creation to serve as an assessment and measurement framework for value creation for learning community members themselves (and particularly in CoLPs). To address the research questions that aim to unravel the phenomenon of value creation in CoLPs, the following methodological approach was employed.

4.2. Method

This study employed an integrated mixed-methods research (MMR) approach at the analysis level with an underlying pragmatic stance to methodology. Pragmatism moves beyond the incompatibility thesis between qualitative and quantitative paradigms and emphasizes the importance of the research question in guiding the selection of appropriate research methods used to achieve the most informative answers to the question (Howe, 1988; Johnson & Onwuegbuzie, 2004). This study highly acknowledges the value of integrating distinct elements of both qualitative and quantitative stances to address different purposes (Dingyloudi & Strijbos, in press; Morgan, 2007; Onwuegbuzie & Leech, 2005).

The main purposes for employing an MMR approach to this study were (a) understanding more comprehensibly the phenomenon of value creation by aiming for a more complete picture of the social reality of the community members, and (b) understanding more insightfully the experienced values by aiming for a mixture of framing perspectives, ideas and meaning (Greene, Kreider, & Mayer, 2005, p. 275). MMR is acknowledged as a valuable approach or "way of thinking and researching" (p. 10) for questions framing experienced social realities, which constitute the researcher's central phenomenon of examination (Mason, 2006b). This study adopted a qualitatively driven approach to mixing methods, which is considered appropriate for a deeper understanding of the multidimensionality of social experiences and lived realities (Mason, 2006a, 2006b).

4.2.1. Research context

The phenomenon of value creation is explored within the framework of Communities of Learning Practice (CoLPs) project (see for more detail subsection 4.1.1. and Chapter 3). The CoLP project lasted three consecutive academic years exploring three CoLPs (CoLP1: 2011,

CoLP2: 2012, CoLP3: 2013). The CoLPs operated in parallel with a two-year international master's program in the Learning Sciences at a university in Germany. The CoLPs differed in their overall lifespan ranging from one semester to three semesters (CoLP1: 3 semesters, CoLP2: 2 semesters, CoLP3: 1 semester). Prior to each CoLP formation, students were briefly introduced to the idea of learning communities and peer feedback processes to orient them towards the nature of the CoLP and were invited to voluntarily initiate a learning community with the support of a researcher/non-peer participatory facilitator, in short referred to as participatory facilitator (see Appendix C/ Appendix D). For consistency purposes in this study, only the first community cycle of CoLP1 and CoLP3 are examined (see Table 4.2). CoLP2 has been excluded due to its structural difference. More precisely, CoLP2 was facilitated and coordinated by senior peers along with the participatory facilitator. Senior peers had an active role as community facilitators and contact people for the community members, likely affecting the community dynamics and resultant influence, positive or negative, on the process of value creation for community members.

Each community cycle involved a number of face-to-face meetings with community members and the participatory facilitator lasting approximately 2.5 hours each. These meetings are referred to as Community Events (CEs). All CEs took place in a classroom on the university campus to facilitate video-recording of the events and students' mobility (i.e., easy and convenient access in alignment with students' course schedule). To foster the informal and cozy atmosphere of the community setting snacks and refreshments were freely available to the community members at each CE. The classroom layout was adapted in various formats of a round-table layout to foster community members' mutual visibility, possibility for interaction, and overall comfort.

Table 4.2

Overview of CoLPs

CoLP	Entry year	SS parallel with CoLP	CEs	Location	Overall sommunity lifespan	Examined community cycle in this study
CoLP1	2011	2	6	Campus	3 SSs	1st
CoLP3	2013	1	7	Campus	1 SSs	1st

Note. SS = study semester parallel with CoLP. CEs = community events. Community cycle = study semester.

Prior to the formation of each CoLP, a needs analysis survey (see Appendix A/ Appendix B) was conducted for each cohort to gather information about possible students' needs, perceptions of peer feedback, and scheduling preferences to inform structural and practical decisions about the CEs to be negotiated with the participatory facilitator. The students who voluntarily participated in each CoLP were free to withdraw their participation at any time over the course of each CoLP. No ECTS credits were awarded to students for CoLP participation.

Students who expressed interest in participating in the CoLP indicated their preferred thematic foci of the CEs after negotiation with the participatory facilitator. Both CoLPs shared similar thematic foci in their CEs, which were relevant to the members' curricular studies and their surrounding socio-educational contexts (see Table 4.3). In addition to the foci selected by the community members, two CE-foci were proposed and added by the participatory facilitator in negotiation with the community members (i.e., introductory and closing event). More specifically, (a) the first event for each CoLP functioned as an introductory session in which members were presented with the underlying community principles of the community events and the sharing mechanism of peer feedback, and the (b) last event for each CoLP functioned as a closing session in which members were encouraged to provide specific or overall feedback to each other and to the community as a whole.

Table 4.3

Thematic overview of community events per CoLP

CoLP	CEs	Thematic focus
CoLP1	CE1.1	Introductory session: Peer feedback training
	CE1.2	The power of language
	CE1.3	Design of power point presentations
	CE1.4	Poster design and presentation: Part 1
	CE1.5	Poster design and presentation: Part 2
	CE1.6	Closing feedback session
CoLP3	CE3.1	Introductory session: Peer feedback training
	CE3.2	The power of language: Words, voice and body in academic presentations
	CE3.3	Reviewing literature: Reading theoretical and empirical papers
	CE3.4	Aspects of an article to consider in your presentations: What and how?
	CE3.5	Preparing your cover letters
	CE3.6	Actual performance only
	CE3.7	Closing feedback session

Note. CoLP = Community of Learning Practice. CE1 = community event of CoLP1. CE3 = community event of CoLP3.

4.2.2. Participants

The participants of this study were 27 international students (26 female, 1 male) on a master's program in the Learning Sciences at a university in Germany. Out of the entire cohort of students, only those students who participated in the CoLP for at least two CEs were considered community members. This resulted in thriteen CoLP1 members and twenty-two CoLP3 members. However, 4 out of 13 CoLP1 members and 4 out of 22 CoLP3 members had to be excluded due to relevant missing data. Consequently, nine CoLP1 members and eighteen CoLP3 members were considered in this study. A detailed overview of the number of students in each cohort, CoLP members and participants included in this study is provided in Table 4.4.

Table 4.4

Overview of participants per CoLP

CoLP	*N*	M_{age}	Age_{range}	*SD*	Gender	Nationality	Total CoLP members	Total cohort students	Entry year	SS
CoLP1	9	26.33	24-31	2.65	F: 9 M: 0	German (4) International (5)	13	26	2011	2
CoLP3	18	24.89	22-30	2.37	F: 17 M: 1	German (6) International (12)	22	29	2013	1

Note. SS = study semester parallel with CoLP.

Participants shared a similar age group and study background (i.e. social sciences, humanities), but were noticeably heterogeneous in terms of nationality, given that the study program was international. In all cases participants' consent was obtained (see Appendix F) prior to CoLP participation.

4.2.3. Instruments

4.2.3.1. Value creation stories

People are storytellers who, individually and collectively, engage in experiencing, imagining, telling, retelling, re-experiencing, and re-imagining stories of their lived-in worlds (Conelly & Clandinin, 1990; Denscombe, 2010; Riessman, 2005). A story can be expressed through different media, such as written text and/or interviews (Denscombe, 2010). Stories can be treated as narratives when written or told with a particular purpose in mind (e.g., an account of personal experience), when drawing a link between the past and the present to reveal any developments or changes over time, or when including feelings and experiences emerging from social activities and interaction (Denscombe, 2010). Voice is a fundamental element of stories, since it is through voice that individuals are enabled to participate in a community and convey their meanings to others (Britzman, 2003). Voice is aimed at the social process of understanding relationships between the individual, her/his experience and the other (Britzman, 2003). From a narrative point of view, stories can be analyzed in terms of how individuals construct their personal or surrounding world, and educational researchers have used stories as data sources for capturing lived experiences in higher education (e.g., Jehangir, 2010).

In line with Denscombe (2010) and Riessman (2005), Wenger et al. (2002) state that the realization of values cannot derive from mere identifiable static measurements, but from stories

that depict the complex relations between activities, resources and outcomes, while revealing the contextual aspects that frame those relations. The stories themselves—apart from providing evidence of community members' co-construction, exchange and application of gained knowledge—also foster a sharing culture through the visibility of one's practice within their context. According to Wenger et al. (2002), three main components should be incorporated in one's story to foster systematicity in describing how community resources actually emerged and were applied into practice, creating value: (1) the initial activity, (2) the knowledge resource generated by this activity, and (3) the way the resource was applied to create value.

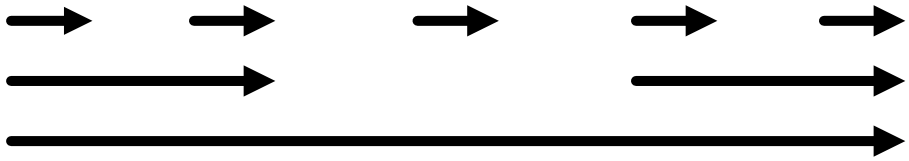
While considering the importance and richness of participants' stories and voices as devices of capturing in-depth, non-observable participants' experiences of value creation in a CoLP, we invited the participants to write their own so-called Value Creation Stories (VCS) after their participation in the community events (i.e., at the end of the community cycle). A VCS refers to a story that adopts a specific format that is "woven through each of the cycles of value creation" (Wenger at al. 2011, p. 33). Therefore, these stories have a retrospective orientation with a direct focus on linking expected, experienced and realized values of the past, with applied values of the present, and potential and reframing values for the future.

The format of the VCS intends to scaffold such cross-cutting accounts by community members. We adopted Wenger et al.'s (2011) scaffolding template as a systematic approach to collect value creation stories. However, we added the pre-cycle of "expected value" in addition to Wenger et al.'s (2011) five value cycles. This extension is based on the following premises: (a) needs can act as prerequisites for the development of values (Pauls, 1990) and (b) values themselves constitute guiding factors of future behavior (Rokeach, 1979). Along with this alignment with value theory, the integration of expected value as a pre-formation cycle is also in alignment with the first stage of community development as described by Wenger et al. (2002), during which a network of people identify the potential for a community to emerge through the identification of common interests and needs. Figure 4.1 illustrates the six value creation cycles as adopted in the current study.

Figure 4.1

Six cycles of value creation in the current study

Pre-cycle: Expected value	Cycle 1: Immediate value	Cycle 2: Potential value	Cycle 3: Applied value	Cycle 4: Realized value	Cycle 5: Reframing value
Reasons for participation and expectations	Productive activities	Robust resources	Promising practices	Return on investment	New framework
Skill-development	Networking	Skills acquired	Implementation of insights	Personal performance	Community aspirations
Networking	Value of connections	Change in perspectives	Innovation in doing things	Educational performances	Assessment
Professional development	Collaboration	New views of learning	Use of social connections	Knowledge products as performance	New frameworks



Note. Adapted from Wenger et al. (2011, p. 34). The pre-formation cycle of *Expected values* has been added.

The template by Wenger et al. (2011) was adapted to the setting of a CoLP (see Figure 4.2 and Figure 4.3). It includes open-ended questions to scaffold participants in reporting and describing expected, immediate, potential, applied, realized and reframing values. The template consists of two scaffolds that support participants in (a) depicting aspects of their overall experience of participation and the overall value (see Figure 4.2), and (b) depicting how a specific story led to value creation (see Figure 4.3). The complete version of the VCS template is available in Appendix G.

Figure 4.2

Scaffold for overall value creation story (adapted from Wenger et al., 2011, p. 45)

Personal value narrative	How participation is changing **me**	How participation is affecting **my social connections**	How participation is helping **my practice**	How participation is changing **my ability to influence** my studies
Reasons for participation				
Activities, outputs, events, networking				
Value to me				

The first scaffold aims to capture the overall experience of participation and suggests various ways of talking about it. It includes several stages of the experienced participation (rows) and several aspects of the participant's experienced values (columns). A variety of value cycles can be extracted from the overall personal value narrative, including *Expected values*. The second scaffold guides the telling of specific stories/examples of how participation created value to the participants. Some storytelling aspects are included as guiding prompts: (a) describe a meaningful activity they participated in and how they experienced it (*Immediate values*), (b) describe the resources the activity produced and their usefulness (*Potential values*), (c) describe the application of the resources into practice (*Applied values*), (d) describe the personal and educational outcomes of this experience (*Realized values*), and (e) describe the reconsideration, if applicable, of what success is (*Reframing values*). Although the two scaffolds of the template implied a different level of specificity, both aimed at contributing to the depiction of each participant's VCS of their experiences within their CoLP.

Figure 4.3

Scaffold for specific value creation story (adapted from Wenger et al., 2011, p. 46).

Specific value creation story

Typical cycles	**Your story:**
1. Activity: Describe a meaningful activity you participated in and your experience of it.	
2. Output: Describe a specific resource this activity produced for you and why you thought it might be useful.	
3. Application: Say how you used this resource in your practice and what it enabled that would not have happened otherwise.	
4. Outcome: a. **Personal:** Explain how it affected your success. b. **Educational:** Has your participation contributed to the success of your seminars?	
5. New definition of success: Sometimes, such a story changes your understanding of what success is. If this is the case include it here.	

The two scaffolds were distributed to all CoLP members upon the completion of the first community cycle. Table 4.5 provides an overview of participants who completed their VCS along with each participant's CoLP participation pattern (i.e., attendance or not during each CE and overall frequency of participation). This overview serves as a participation framework for enablement of value creation on the CE and participant level. For example, CEs with many or few participants might enable value creation in different ways, or, participants with high or low overall CE participation might attribute different values to their CoLP experience.

Table 4.5

Overview of participants who completed a VCS and their participation in CEs in both CoLPs

CoLP	Participants	Participation in CEs							**Total (P)**
		CE1	CE2	CE3	CE4	CE5	CE6	CE7	
CoLP1	C1.1	0	0	1	1	0	1	NA	**3**
	C1.4	1	1	1	1	1	0	NA	**5**
	C1.5	1	1	1	1	1	1	NA	**6**
	C1.7	0	1	0	0	1	0	NA	**2**
	C1.8	1	0	1	0	1	1	NA	**4**
	C1.9	0	1	1	1	1	1	NA	**5**
	C1.10	1	0	1	1	1	1	NA	**5**
	C1.12	1	1	1	0	1	1	NA	**5**
	C1.13	1	0	0	1	0	1	NA	**3**
CoLP3	C3.1	1	0	1	1	0	0	1	**4**
	C3.2	1	1	1	1	0	0	1	**5**
	C3.3	1	1	1	0	0	0	0	**3**
	C3.4	1	1	1	0	0	0	1	**4**
	C3.5	1	1	1	0	0	0	1	**4**
	C3.6	1	1	1	1	0	1	1	**6**
	C3.7	1	1	0	0	0	0	0	**2**
	C3.8	1	1	1	0	1	0	0	**4**
	C3.9	1	1	1	0	1	0	1	**5**
	C3.10	1	1	1	1	1	0	0	**5**
	C3.11	1	1	1	1	0	0	0	**4**
	C3.12	1	0	1	1	0	0	1	**4**
	C3.13	0	0	1	0	0	0	1	**2**
	C3.14	1	1	1	1	1	1	0	**6**
	C3.15	1	0	0	0	0	0	1	**2**
	C3.16	1	1	1	0	0	0	1	**4**
	C3.17	1	1	1	1	0	0	1	**5**
	C3.18	1	1	0	1	1	0	0	**4**

Note. VCS = value creation story. NA = non-applicable (i.e., CoLP1 had only 6 CEs). The CE7 is only applicable for CoLP3.

Both CoLP1 and CoLP3 participants attended on average 4 CEs with a minimum attendance of 2 CEs and a maximum attendance of 6 CEs. A nonlinear participation pattern is observed, particular in CoLP3, which cannot be empirically justified, but can be associated with students' irregular attendance due to external obligations and/or responsibilities.

4.2.4. Data analysis

An MMR approach at the analysis and interpretation level was employed. The six key features of MMR proposed by Creswell and Plano Clark (2011) were implemented in the following way (see Table 4.6).

Table 4.6

MMR implementation in this study

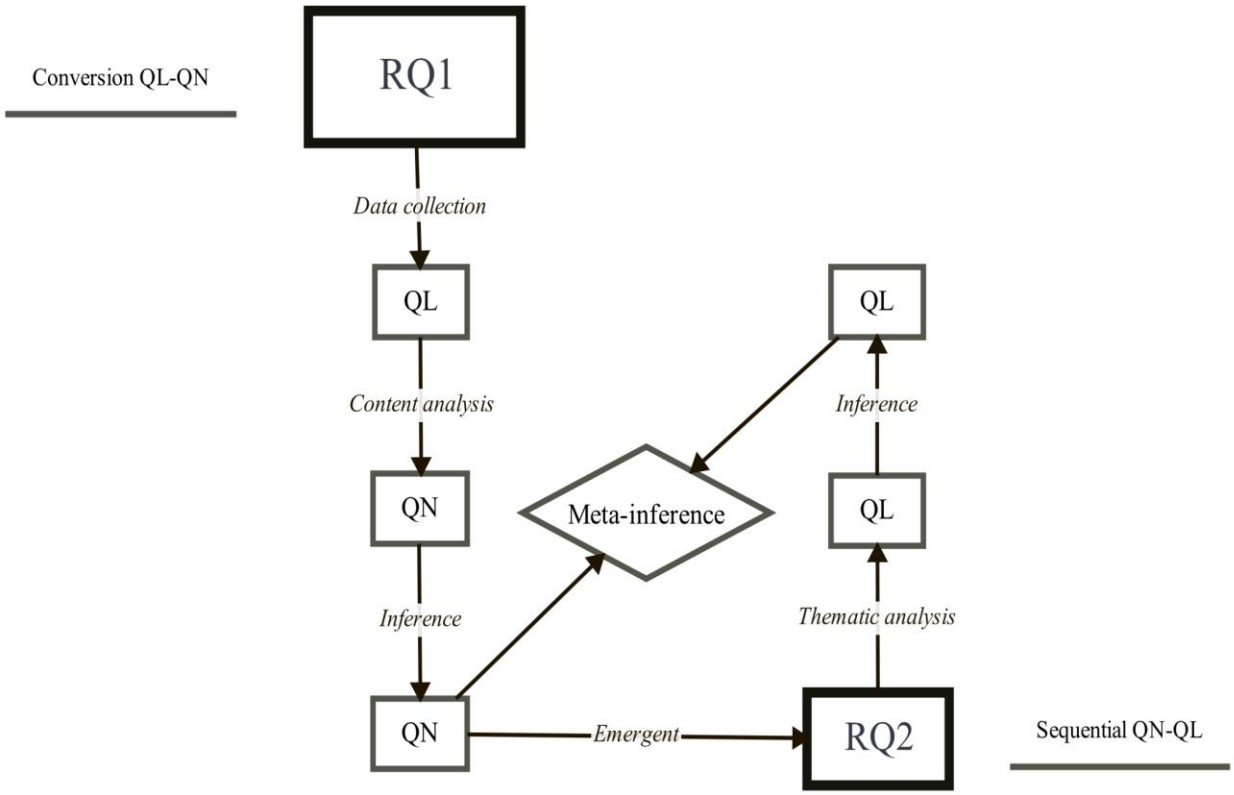
Key MMR features	MMR implementation in this study
• Persuasive and rigorous collection and analysis of both qualitative and quantitative data	• Qualitative data were collected • Quantification of qualitative data by content analysis (conversion) • Emergent thematic analysis of a sub-set of original qualitative data (sequential QN-QL)
• Mixing/integrating/linking the two forms of data concurrently or sequentially by having one build on the other or embedding one within the other	• Integrated MMR design • Quantitative and qualitative analytical approaches on the same data set • Conversion of qualitative data to quantitative data • Qualitative analysis of a data sub-set built on quantitative analysis/results • Mixing on the analysis and interpretation level
• Prioritization of one or both forms of data	• Qualitative orientation/emphasis
• MMR in single study or multiple study phases	• Use in a singly study
• Philosophical and theoretical framework	• Pragmatism • Theoretical framework of value creation in learning communities
• Combinations in specific research designs that direct the research plan	• Integrated MMR design

Note. MMR = mixed-methods research. QN = quantitative. QL = qualitative.

As shown in Table 4.6, an integrated mixed-methods research approach at the analysis and interpretation level with a qualitative orientation was employed. More specifically, data reduction through (a) quantitative content analysis on the complete data set (conversion), followed by (b) qualitative thematic analysis on parts of the quantified data set (sequential QN-QL). A representation of the integrated MMR design is provided in Figure 4.4.

Figure 4.4

Integrated MMR design at the analysis level



Note. RQ = research question. QN = quantitative. QL = qualitative.

First, a content analysis of VCS was conducted to identify and classify members' attributed values using a pre-defined typology of values that extends prior theoretical developments of value creation in learning communities. This initial content analysis was deductive/top down, theory-driven and with quantitative orientation. However, considering the potential limitations of data filtering (see Dingyloudi & Strijbos, 2015) when only applying a pre-defined coding scheme to the analysis of the VCSs and the likelihood of missing context when only applying content analysis (Vaismoradi, Turunen, & Bondas, 2013), a supplementary thematic analysis was conducted on a sub-set of the data. The argument for enriching the content analysis with a supplementary thematic analysis was supported from the need to extrapolate more specific values. In sum, the thematic analysis was chosen (a) to allow for the emergence of

themes of meaningful and/or valuable experiences reported in the VCSs that were not captured by the pre-defined coding scheme, and (b) to foster a closer to the participant-narrator approach to data analysis.

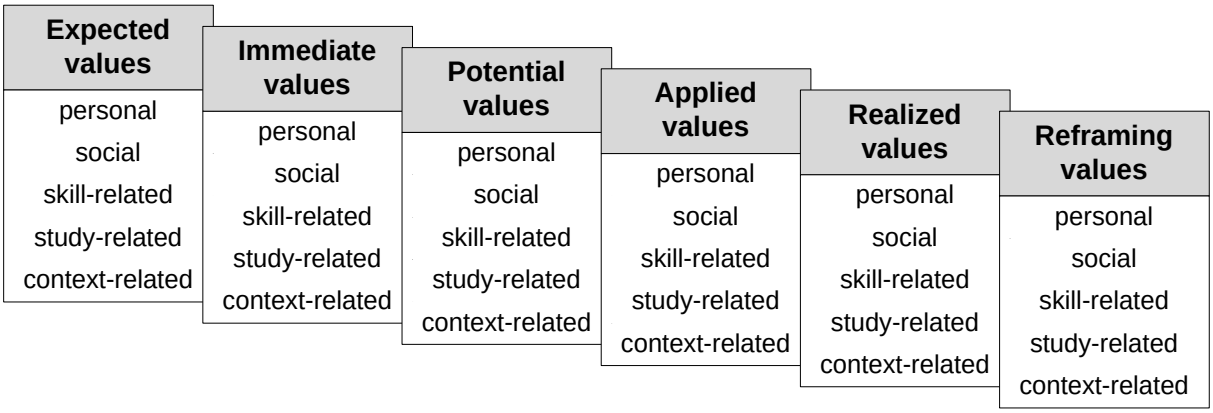
4.2.4.1. Content analysis

Krippendorff (2013) defines content analysis as a technique that allows replicable and valid inferences to be extracted from data sources that are meaningful to their framing contexts. To avoid the pitfall of treating the results of content analysis as data themselves—a practice that can distantiate the reader from the real data and the phenomena being studied—fundamental standards for reporting the employed methods have been taken into consideration (Hammer & Berland, 2014; Schoenfeld, 1992). The content analysis in this study involved a coding scheme that was based on a theory-driven, but still contextually situated, Situated Multilevel Typology of Values (SMTV).

The premises of a *situated perspective on values* are (a) Frondizi's (1971) value contextualism theory which implies that the existence and meaning of values is situation-defined and situation-dependent, and (b) Lave and Wenger's (1991) situated approach to learning which implies that learning is a socially situated practice. In line with the extension of Wenger et al.'s (2011) framework with the pre-formation cycle of *Expected value* (see section 4.2.3.1), the SMTV typology naturally includes this cycle as well (see Figure 4.5). Besides the incorporation of the *Expected value* cycle in the SMTV, Wenger et al.'s (2011) framework is further extended with the inclusion of five types of values within each cycle: (a) *personal values*, (b) *social values*, (c) *skill-related values*, (d) *study-related values*, and (e) *context-related values*. Personal values refer to any values that draw a direct link to one's development as a person, self, or identity. Social values refer to any values associated with one's network, social relationships, and membership development. Skill-related values refer to any values associated with one's development of academic skills. Study-related values refer to any values associated with one's understanding of—or contribution to—her/his studies (in parallel to the study program alongside which the community operated). Context-related values refer to the usefulness and/or importance of community atmosphere and setting, the overall facilitation, and any general activities, tasks and/or tools therein.

Figure 4.5

Situated Multilevel Typology of Values (SMTV)



These five types of value have been included in the SMTV due to their relevance to the social setting of CoLPs being examined (Dingyloudi & Strijbos, 2015), which in turn adds to the situated nature of this typology. Although the SMTV has been developed to study value creation from a situated perspective in the specific context of CoLPs, it also contributes to the theoretical and analytical development of Wenger et al.'s (2011) value creation framework for communities and networks in general—for example, CoPs and CoLs often serve members' needs to develop a certain skill in relation to a practice, organization, or study program. However, even if the SMTV can be applied in structure (for the most part), the situatedness of participants' expression of their experienced value will necessitate that the typology is recalibrated (in terms of the description of codes and examples) to the observed setting.

Based on the SMTV, a coding scheme was developed (see Appendix H), consisting of 30 codes representing five typological combinations for each value cycle (i.e., expected, immediate, potential, applied, realized, reframing). The content analysis of the VCS took place in separate stages. The first stage refers to the segmentation of the VCS into meaningful statements and the second stage concerns the coding of each segment based on the 30 possible codes of the SMTV. The segmentation and coding procedures were performed separately to increase precision, as suggested by Strijbos, Martens, Prins, and Jochems (2006). Before the main coder proceeded to the analysis of all members' narratives, the agreement on the identifiable segments and the subsequent required reliability of coding these segments between two independent coders were checked. Segmentation principles were set in advance and during the segmentation process to specify the criteria of segmentation.

The segmentation procedure was in line with Strijbos et al. (2006). The unit of analysis was set to be a unit of meaning/thematic meaning. The extracted meaning did not have to be linked or reflected in the coding scheme for it to be a segment. Any statement that conveyed a comprehensible meaning of whatever kind was considered to be a segment. Comprehensible segments that were not related to the categories in the coding scheme or any sort of values in general were considered non-codable segments. An overview of the reliability of the segmentation and coding procedure for both CoLP1 and CoLP3 is provided in Table 4.7.

Table 4.7

Overview of the reliability of the content analysis procedure

Content analysis		
	CoLP1	CoLP3
Segmentation		
Trial 1 % agreement	47.6% (unsatisfactory)	70.3% (satisfactory)
Trial 2 % agreement	60% (unsatisfactory)	-
Trial 3 % agreement	69% (satisfactory)	-
Total number of segments	455	602
Coding		
Segments coded	47	61
Inter-rater reliability (Cohen's Kappa)	.78	.72

Note. CoLP = Community of Learning Practice.

4.2.4.2. Thematic analysis

Due to the results of the content analysis, an emergent thematic analysis of a subset of statements was performed to capture in more detail contextual elements of value to the community members. Thematic analysis refers to the method of "identifying, analyzing, and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 79). A theme represents an attribute, descriptor, element, concept or implicit topic that organizes a group or repeating ideas or patterned responses within a data set and can be analyzed on the semantic or latent level (Braun & Clarke, 2006; Vaismoradi, Jones, Turunen, & Snelgrove, 2016). The "significance" of a theme does not necessarily rely on quantifiable measures as long as it captures something important in relation to the research question, although some researchers argue for accompanying thematic analysis with frequencies of thematic occurrences on a rhetoric or

analytical level to support researcher's reliability (Braun & Clarke, 2006; Guest, MacQueen, & Namey, 2012).

A systematic approach to thematic analysis was taken to support the reliability of the analytical process and its subsequent results. More specifically, the thematic analysis in this study resulted in data-driven categorizations (i.e., themes) of the self-reported values, constituting this approach inductive/bottom up, data-driven and with qualitative orientation (Patton, 1990). One of the two coders (i.e., the main researcher) involved in the content analysis proceeded with the thematic analysis of the immediate context-related value-statements and extracted data-driven themes. In line with the suggestions by Guest et al. (2012), frequencies of thematic occurrences on an analytical level were computed. A second coder not previously involved in the content analysis also independently attributed the themes to the same subset of statements. Two trials were conducted and for each Cohen's Kappa inter-rater reliability was determined. An overview of the thematic analysis procedure is provided in Table 4.8.

Table 4.8

Overview of thematic analysis procedure

Thematic analysis		
Inter-rater reliability (Cohen's Kappa)	CoLP1	CoLP3
Nr. of themes	7	7
Nr. of segments	94	107
Trial 1	.65 (unsatisfactory)	.74 (moderate)
Nr. of revised themes/same segments	8	8
Trial 2	.90 (high)	.87 (high)

Note. CoLP = Community of Learning Practice.

The themes that were extracted by the first coder and subsequently used by in the inter-rater reliability Trial 1 by the two independent coders along with any modifications across trials are provided in Table 4.9. Any theme modifications that resulted from coders' negotiations after completing Trial 1 were implemented for analysis on the same segments for both CoLPs in inter-rater reliability Trial 2.

Table 4.9

Identified themes and modifications across trials

Trial 1		**Trial 2**		**Modification from trial 1 to trial 2**
Theme	**Description**	**Theme**	**Description**	
Input by facilitator	Value assigned to input by facilitator.	**Input by facilitator**	Value assigned to input by facilitator.	No modification
Peer feedback	Value assigned to any peer-feedback interaction and/or exchange within the CoLP.	**Peer feedback**	Value assigned to any peer-feedback interaction and/or exchange within the CoLP.	No modification
Practice	Value assigned to opportunities for practice and/or self- or others' exposure enabled within the CoLP.	**Practice**	Value assigned to opportunities for practice and/or self- or others' exposure enabled within the CoLP.	No modification
Setting	Value to the atmosphere within/of the CoLP.	**Atmosphere**	Value assigned to the atmosphere created or offered within/by the CoLP.	The theme *setting* was split to *atmosphere* and *structural elements* due to coder's 2 confusion. The theme structural elements was observed only in CoLP3.
		Structural elements	Value assigned to any contextual elements that come together with the context per se on which the participants and their in-between interactions have no immediate effect.	
Sharing of ideas	Value assigned to sharing ideas, discussions, opinions among peers within the CoLP.	**Sharing of ideas**	Value assigned to sharing ideas, discussions, opinions among peers within the CoLP.	No modification
Social bonding	Value assigned to the social bonding offered by/within the CoLP.	**Peer familiarization**	Value assigned to the familiarization with the peers offered by/enabled within the CoLP.	The theme *social bonding* was modified to *peer familiarization* due to second coder's argument that it had strong social connotations.
Unspecified contextual value	Value assigned to the context of the CEs, the CoLP and/or participation therein without any specification.	**Unspecified contextual value**	Value assigned to the context of the CEs, the CoLP and/or participation therein without any specification.	No modification

4.3. Results

The results of the content analysis of the VCSs of both CoLPs are presented in this section to address RQ1, followed by the results of the follow-up thematic analysis on a sub-set of VCS data to address RQ2. The results for each RQ are presented on two levels: (a) the CoLP level and (b) the participant level. The first level aims to capture each CoLP's microcosm as a whole and the second level aims to unravel each participant's value creation pattern and any patterns across participants that can further inform and unravel the process of value creation in/across CoLPs.

4.3.1. RQ1: What are the values attributed by CoLP members to their community participation?

The VCS (CoLP1: 9, CoLP3: 18) were segmented and showed a relatively wide variation in the amount of segments per participant in both CoLPs, with CoLP1 having a higher SD (see Table 4.10). This variation is considered relevant to the interpretation of the results on a CoLP level, since the dominance of some CoLP members in the amount of statements may potentially affect the occurrence and the dominance of some values on the CoLP level.

Table 4.10

Segmentation in CoLP1 and CoLP3

CoLP	Total segments	Minimum	Maximum	*M*	*SD*
CoLP1	455	16	96	50.56	25.33
CoLP3	602	14	73	33.34	19.17

Note. CoLP = Community of Learning Practice.

The segments were subsequently coded using the SMTV typology which revealed the following pattern of value creation on the CoLP level in terms of value cycles (see Table 4.11) and value types (see Table 4.12).

Table 4.11

Proportion and frequencies of segments per value cycle per CoLP

CoLP	EV		IV		PV		AV		RV		RfV		NC		Sum	
	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*
CoLP1	.13	60	**.23**	**103**	.13	61	.14	63	**.28**	**127**	.03	13	.06	28	.100	455
CoLP3	.17	102	**.19**	**117**	.18	106	.05	28	**.30**	**183**	.05	30	.06	36	.100	602

Note. EV = Expected Values. IV = Immediate Values. PV = Potential Values. AV = Applied Values. RV = Realized Values. RfV = Reframing Values. NC = non-codable segments. The proportions are based on the sum of identified segments per CoLP (CoLP1: 455; CoLP3: 602).

In terms of value cycles, there is a high dominance of Realized Values (CoLP1: .28, CoLP3: .30) and Immediate Values (CoLP1: .23, CoLP3: .19). In CoLP1, Applied Values, Expected Values, and Potential Values are also frequently reported, whereas Reframing Values sporadically occurred. In CoLP3, Expected Values and Potential Values are also highly frequent, whereas Applied Values and Reframing Values sporadically occurred. In both CoLPs, the proportion of non-codable segments is relatively low.

Table 4.12

Proportion and frequencies of segments per value type per CoLP

CoLP	PE		SO		SK		ST		CO		NC		Sum	
	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*
CoLP1	.06	26	.09	43	**.43**	**198**	.07	30	**.29**	**130**	.06	28	.100	455
CoLP3	.09	52	.15	90	**.40**	**238**	.06	35	**.25**	**151**	.06	36	.100	602

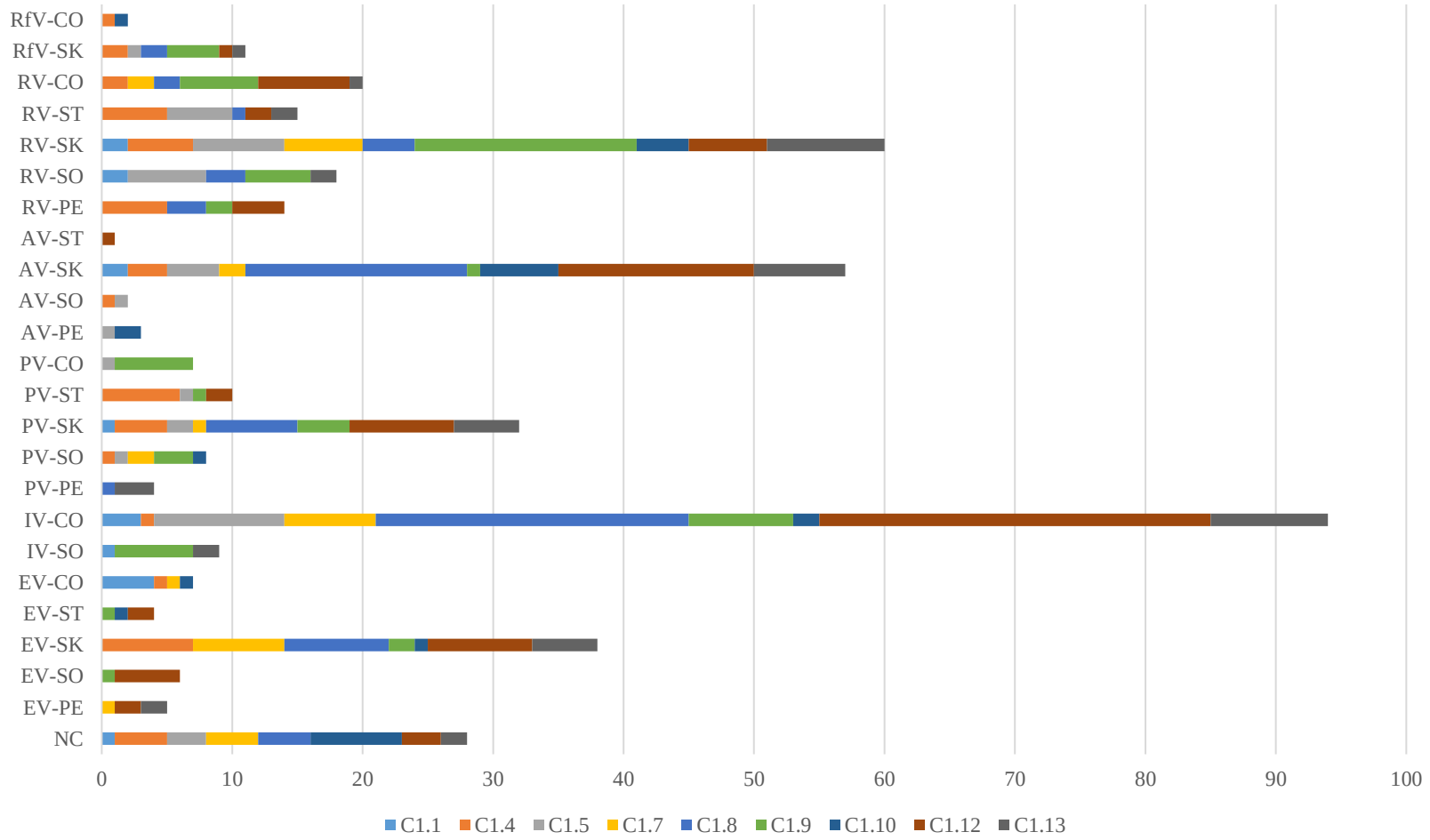
Note. PE = Personal Values. SO = Social Values. SK = Skill-related Values. ST = Study-related Values. CO = Context-related Values. NC = non-codable segments. The proportions are based on the sum of the identified segments per CoLP.

In terms of value types, there is a high dominance of Skill-related Values (CoLP1: .43, CoLP3: .40) and Context-related Values (CoLP1: .29, CoLP3: .25). With respect to the dominance of the remaining value types, it can be observed that Social Values have a slightly higher proportion than Personal Values and Study-related Values.

After the presentation of the six value cycles and five value types distribution within each CoLP, a detailed presentation of all code occurrences (i.e., thirty cycle-types combinations) for each CoLP follows (see Figure 4.6 and Figure 4.7).

Figure 4.6

Pattern of SMTV-codes and occurrence per participant in CoLP1

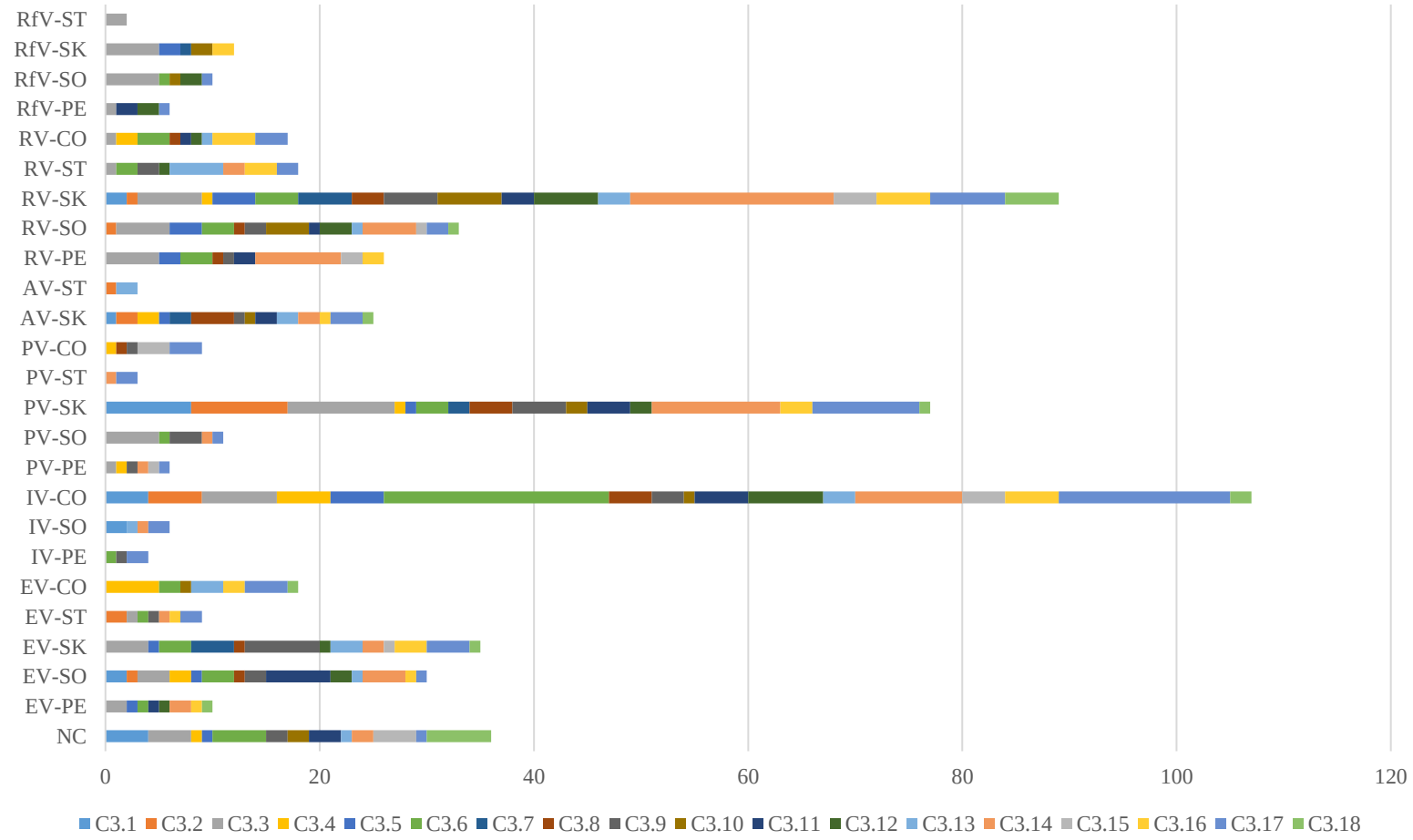


Note. EV = Expected value. IV = Immediate value. PV = Potential value. AV = Applied value. RV = Realized value. RfV = Reframing value. SK = Skill-related. PE = Personal. SO = Social. ST = Study-related. CO = Context-related. NC = non-codable. C1 = member in CoLP1.

As shown in Figure 4.6, 23 of 30 possible SMTV codes occurred in CoLP1. The Immediate Context-related Values (IV-CO) were most frequent (94 segments), followed by the Realized Skill-related Values (RV-SK) with 60 segments and the Applied Skill-related Values (AV-SK) with 57 segments. All three most frequent cycle-type combinations seem to be highly affected by participant dominance, with C1.8 and C1.12 highly dominant in IV-CO and AV-SK, and C1.9 to dominate in RV-SK. The least frequent codes are the Applied Study-related Values (AV-ST) with one segment, the Reframing Context-related Values (RfV-CO) and Applied Social Values (AV-SO) with two segments each, and the Applied Personal Values (AV-PE) with three segments.

Figure 4.7

Patterns of SMTV-codes and occurrence per participant in CoLP3



Note. EV = Expected value. IV = Immediate value. PV = Potential value. AV = Applied value. RV = Realized value. RfV = Reframing value. SK = Skill-related. PE = Personal. SO = Social. ST = Study-related. CO = Context-related. NC = non-codable. C3 = member in CoLP3.

As shown in Figure 4.7, 24 of 30 possible SMTV codes occurred in CoLP3. The Immediate Context-related Values (IV-CO) were most frequent (107 segments), followed by Realized Skill-related Values (RV-SK) with 89 segments and the Potential Skill-related Values (PV-SK) with 77 segments. The rank-order position of IV-CO and RV-SK seem to be highly affected by participant dominance, with C3.6 and C3.17 to dominate in IV-CO and C3.14 to dominate in RV-SK. The participant dominance in PV-SK seems to be more distributed among CoLP members. The least frequently occurring codes are the Reframing Study-related Values (RfV-ST) with two segments and the Potential Study-related Values (PV-ST) and the Applied Study-related Values (AV-ST) with three segments each.

Across CoLP1 and CoLP3, 20 out of 30 possible codes are observed in common, with Reframing Context-related (RfV-CO), Applied Social Values (AV-SO) and Applied Personal Values (AV-PE) to appear only in CoLP1, and with Reframing Study-related Values (RfV-ST), Reframing Social Values (RfV-SO), Reframing Personal Values (RfV-PE) and Immediate Personal Values (IV-PE) to appear only in CoLP3. Table 4.13 provides a comparison of both CoLPs in terms of rank-order position of cycle-type combinations to illustrate the similarities and differences between the two CoLPs. In both CoLPs the IV-CO, RV-SK and EV-SK are among the four most frequently occurring codes and also have the same rank-order position. The remaining codes seem to have different rank-order positions in CoLP1 and CoLP3. The presentation of the rank-order position on the CoLP level is followed by the results of the content analysis per participant.

Table 4.13

Comparison of CoLP1 and CoLP3 in terms of rank-order position of cycle-type combinations

Rank-order position	Code	CoLP1 segments	Code	CoLP3 segments
1	IV-CO	94	IV-CO	107
2	RV-SK	60	RV-SK	89
3	AV-SK	57	PV-SK	77
4	EV-SK	38	EV-SK	35
5	PV-SK	32	RV-SO	33
6	RV-CO	20	EV-SO	30
7	RV-SO	18	RV-PE	26
8	RV-ST	15	AV-SK	25
9	RV-PE	14	EV-CO	18
10	RfV-SK	11	RV-ST	18
11	PV-ST	10	RV-CO	17
12	IV-SO	9	RfV-SK	12
13	PV-SO	8	PV-SO	11
14	EV-CO	7	EV-PE	10
15	PV-CO	7	*RfV-SO*	10
16	EV-SO	6	EV-ST	9
17	EV-PE	5	PV-CO	9
18	EV-ST	4	IV-SO	6
19	PV-PE	4	PV-PE	6
20	*AV-PE*	3	*RfV-PE*	6
21	*AV-SO*	2	*IV-PE*	4
22	*RfV-CO*	2	AV-ST	3
23	AV-ST	1	PV-ST	3
24			*RfV-ST*	2

Note. Codes in italic were only observed in one of the CoLPs. EV = Expected value. IV = Immediate value. PV = Potential value. AV = Applied value. RV = Realized value. RfV = Reframing value. PE = Personal. SO = Social. SK = Skill-related. ST = Study-related. CO = Context-related.

Table 4.14

Results of content analysis of VCS in CoLP1: Values per participant

P	Ss	%	EV		IV		PV		AV		RV		RfV		NC
C1.1	16	.03	**CO**	**.25**	SO	.06	SK	.06	SK	.13	SO	.13			.06
					CO	.19					SK	.13			
C1.4	48	.11	**SK**	**.15**	CO	.02	SO	.02	SO	.02	PE	.10	SK	.04	.08
							SK	.08			SK	.10			
			CO	.02			ST	.13	SK	.06	ST	.10	CO	.02	
											CO	.04			
C1.5	43	.09			**CO**	**.23**	SO	.02	PE	.02	SO	.14	SK	.02	.07
							SK	.05							
							ST	.02	SO	.02	SK	.16			
							CO	.02	SK	.09	ST	.12			
C1.7	33	.07	PE	.03	**CO**	**.21**	SO	.06	SK	.06	SK	.18			.12
			SK	**.21**			SK	.03			CO	.06			
			CO	.03											
C1.8	76	**.17**	SK	.11	**CO**	**.32**	PE	.01	SK	.22	PE	.04	SK	.03	.05
							SK	.09			SO	.04			
											SK	.05			
											ST	.01			
											CO	.03			
C1.9	67	**.15**	SO	.01	SO	.09	SO	.04	SK	.01	PE	.03	SK	.06	.00
							SK	.06			SO	.07			
			SK	.03	CO	.12	ST	.01			**SK**	**.25**			
			ST	.01			CO	.09			CO	.09			
C1.10	26	.06	SK	.04	CO	.08	SO	.04	PE	.08	SK	.15	CO	.04	.27
			ST	.04					**SK**	**.23**					
			CO	.04											
C1.12	96	**.21**	PE	.02	**CO**	**.31**	SK	.08	SK	.16	PE	.04	SK	.01	.03
			SO	.05			ST	.02	ST	.01	SK	.06			
			SK	.08							ST	.02			
			ST	.02							CO	.07			
C1.13	50	.11	PE	.04	SO	.04	PE	.06	SK	.14	SO	.04	SK	.02	.04
			SK	.10	**CO**	**.18**	SK	.10			**SK**	**.18**			
											ST	.04			
											CO	.02			

Note. P = participant (C1 stands for participant in CoLP1). Ss = segments per participant. % = proportions of segments per participant. EV = Expected value. IV = Immediate value. PV = Potential value. AV = Applied value. RV = Realized value. RfV = Reframing value. NC = non-codable, PE = Personal. SO = Social. SK = Skill-related. ST = Study-related. CO = Context-related. Proportions in bold aim to emphasize the dominance of code per participant.

As shown in Table 4.14, content analysis on the participant level in CoLP1 revealed that each participant expressed a diverse value constellation. Nevertheless, a dominance of value types was observed across participants, with Context-related Values (CO) (6 out of 9 participants) and Skill-related Values (SK) (5 out of 9 participants) being the most dominant values. The CO values were mostly reported in the Immediate (IV) value cycle (5 out of 6 CO in the IV-cycle), whereas the SK values were distributed in the EV, AV, and RV cycles. It should be noted that—irrespective of value cycles—C1.7 and C1.13 reported the highest proportions for CO and SK values.

Table 4.15

Results of content analysis of VCS in CoLP3: Values per participant

P	S	%	EV		IV		PV		AV		RV		RfV		NC
C3.1	23	.04	SO	.09	SO	.09	**SK**	**.35**	SK	.04	SK	.09			.17
					CO	.17									
C3.2	22	.04	SO	.05	CO	.23	**SK**	**.41**	SK	.09	SO	.05			.00
			ST	.09					ST	.05	SK	.05			
C3.3	68	**.11**	PE	.03	CO	.10	PE	.01			PE	.07	PE	.01	.06
			SO	.04			SO	.07			SO	.07	SO	.07	
			SK	.06			**SK**	**.15**			SK	.09	SK	.07	
			ST	.01							ST	.01	ST	.03	
											CO	.01			
C3.4	21	.03	SO	.10	**CO**	**.24**	PE	.05	SK	.10	SK	.05			.05
			CO	**.24**			SK	.05			CO	.10			
							CO	.05							
C3.5	22	.04	PE	.05	**CO**	**.23**	SK	.05	SK	.05	PE	.09	SK	.09	.05
			SO	.05							SO	.14			
			SK	.05							SK	.18			
C3.6	57	.09	PE	.02	PE	.02	SO	.02			PE	.05	SO	.02	.09
			SO	.05	**CO**	**.37**	SK	.05			SO	.05			
			SK	.05							SK	.07			
			ST	.02							ST	.04			
			CO	.04							CO	.05			
C3.7	14	.02	SK	.29	SK	.14	SK	.14	SK	.14	**SK**	**.36**	SK	.07	.00
C3.8	21	.03	SO	.05	**CO**	**.19**	**SK**	**.19**	**SK**	**.19**	PE	.05			.00
			SK	.05			CO	.05			SO	.05			
											SK	.14			
											CO	.05			
C3.9	37	.06	SO	.05	PE	.03	PE	.03	SK	.03	PE	.03			.05
			SK	**.19**	CO	.08	SO	.08			SO	.05			
			ST	.03			SK	.14			SK	.14			
							CO	.03			ST	.05			
C3.10	20	.03	CO	.05	CO	.05	SK	.10	SK	.05	SO	.20	SO	.05	.10
											SK	**.30**	SK	.10	
C3.11	30	.05	PE	.03	CO	.17	SK	.13	SK	.07	PE	.07	PE	.07	.10
			SO	**.20**							SO	.03			
											SK	.10			
											CO	.03			
C3.12	28	.05	PE	.04	**CO**	**.25**	SK	.07			SO	.11	PE	.07	.00
			SO	.07							SK	.21			
			SK	.04							ST	.04	SO	.07	
											CO	.04			

Table 4.15 continues

P	S	%	EV		IV		PV		AV		RV		RfV		NC
C3.13	26	.04	SO	.04	SO	.04			SK	.08	SO	.04			.04
			SK	.12	CO	.12			ST	.08	SK	.12			
			CO	.12							**ST**	**.19**			
											CO	.04			
C3.14	73	**.12**	PE	.03	SO	.01	PE	.01	SK	.03	PE	.11			.03
			SO	.05			SO	.01			SO	.07			
			SK	.03	CO	.14	SK	.16			**SK**	**.26**			
			ST	.01			ST	.01			ST	.03			
C3.15	20	.03	SK	.05	**CO**	**.20**	PE	.05			PE	.10			.20
							CO	.15			SO	.05			
											SK	**.20**			
C3.16	33	.05	PE	.03	**CO**	**.15**	SK	.09	SK	.03	PE	.06	SK	.06	.00
			SO	.03							**SK**	**.15**			
			SK	.09							ST	.09			
			ST	.03							CO	.12			
			CO	.06											
C3.17	68	**.11**	SO	.01	PE	.03	PE	.01	SK	.04	SO	.03	PE	.01	.01
			SK	.06	SO	.03	SO	.01			SK	.10	SO	.01	
			ST	.03	**CO**	**.24**	SK	.15			ST	.03			
			CO	.06			ST	.03			CO	.04			
							CO	.04							
C3.18	19	.03	PE	.05	CO	.11	SK	.05	SK	.05	SO	.05			.32
			SK	.05							**SK**	**.26**			
			CO	.05											

Note. P = participant (C3 stands for participant in CoLP3). Ss = segments per participant. % = proportions of segments per participant. EV = Expected value. IV = Immediate value. PV = Potential value. AV = Applied value. RV = Realized value. RfV = Reframing value. NC = non-codable. PE = Personal. SO = Social. SK = Skill-related. ST = Study-related. CO = Context-related. Proportions in bold aim to emphasize the dominance of code per participant.

As shown in Table 4.15, content analysis on the participant level in CoLP3 revealed that each participant expressed a diverse constellation of values. Nevertheless, a dominance of value types was observed across participants, with Skill-related Values (SK) (11 out of 18 participants) and Context-related Values (CO) (8 out of 18 participants) being the most dominant values. The SK value types were mainly observed in the Potential (PV) and Realized (RV) value cycles, whereas the CO value type was most observed in the IV value cycle. It should be highlighted that – irrespective of value cycle – C3.8, C3.15 and C3.16 reported the highest proportions for SK and CO value types. Expected Social Values were dominant only within participant C3.11 and Realized Study-related Values only within participant C3.13.

Although each participant in each CoLP reported a unique value constellation that represented each participant's value creation process, some common value creation patterns were observed across communities. These patterns refer to the common across-CoLP dominance of Context-related Values and Skill-related Values. The dominance of the Context-related Values across CoLPs called for a closer analysis of the CoLPs as social learning spaces leading to the emergence of RQ2.

4.3.2. RQ2: What are the values attributed by CoLP members to the community as a social learning context?

Taking into consideration the dominance of the Immediate Context-related Values (IV-CO) in 5 out of 9 CoLP1 members and 8 out of 18 CoLP3 members, a qualitative thematic analysis was conducted on the sub-set of data coded as IV-CO to identify specific themes related to values attributed by participants to the CoLP as a context

As shown in Table 4.15, the thematic analysis of the IV-CO coded segments resulted into eight themes of which seven were common across CoLPs and one was only observed in CoLP3. The seven common themes were: input by facilitator, peer feedback, practice, atmosphere, sharing of ideas, peer familiarization, and unspecified contextual value. The theme of structural elements was only found in CoLP3. The most marked finding from the thematic analysis is that a similar pattern of thematic dominance can be observed in both CoLPs, i.e. *peer feedback*, *practice* and *sharing of ideas* were the most frequently reported. It is plausible that participant dominance may have influenced the frequencies of the reported themes, for example C1.8 in CoLP1 for the theme *practice*. To enhance visibility of any potential influence of participant dominance, the frequencies of the reported themes per participant are presented in Table 4.16.

Table 4.16

Thematic analysis of IV-CO coded segments in CoLP1 and CoLP3

Theme	Description	Segments CoLP1	Segments CoLP3	Examples	CoLP1	CoLP3
Input by facilitator	Value assigned to input by facilitator.	8	3	Information Guidelines How-to suggestions	C1.8 (2x) C1.9 (2x) **C1.12 (4x)**	C3.5 (1x) C3.9 (1x) C3.13 (1x)
Peer feedback	Value assigned to any peer-feedback interaction and/or exchange within the CoLP.	22	30	PF provision PF reception Feedback session (last CE)	C1.1 (1x) **C1.5 (7x)** **C1.8 (8x)** C1.9 (2x) C1.10 (1x) C1.12 (1x) C1.13 (2x)	C3.1 (3x) C3.2 (1x) **C3.6 (6x)** C3.8 (1x) C3.9 (2x) C3.10 (1x) C3.11 (2x) **C3.12 (5x**) C3.13 (1x) C3.14 (2x) C3.16 (1x) **C3.17 (5x)**
Practice	Value assigned to opportunities for practice and/or self- or others' exposure enabled within the CoLP.	18	34	Opportunity for exposure Creating a poster Presenting	C1.4 (1x) C1.5 (2x) C1.7 (3x) **C1.8 (7x)** C1.9 (1x) C1.10 (1x) C1.12 (3x)	C3.1 (1x) **C3.2 (4x)** **C3.3 (4x)** C3.4 (2x) **C3.5 (4x)** **C3.6 (4x)** C3.11 (1x) **C3.14 (6x)** C3.16 (3x) C3.17 (3x) C3.18 (2x)
Atmosphere	Value assigned to the atmosphere created or offered within/by the CoLP.	15	3	Trustful Safe Receptive	C1.1 (1x) **C1.8 (5x)** **C1.12 (7x)** C1.13 (2x)	C3.3 (1x) C3.11 (1x) C3.17 (1x)
Sharing of ideas	Value assigned to sharing ideas, discussions, opinions among peers within the CoLP.	15	26	Discussions Negotiations Different perspectives	C1.5 (1x) C1.8 (2x) C1.9 (2x) **C1.12 (6x)** **C1.13 (4x)**	C3.4 (3x) **C3.6 (5x)** C3.8 (3x) C3.12 (2x) C3.13 (1x)

						C3.14 (2x) C3.15 (3x) **C3.17 (7x)**
Peer familiarization	Value assigned to the familiarization with the peers offered by/enabled within the CoLP.	9	2	Know each other better Come closer Spend time together	**C1.7 (4x)** **C1.12 (4x)** C1.13 (1x)	C3.6 (2x)
Unspecified contextual value	Value assigned to the context of the CEs, the CoLP and/or participation therein without any specification.	7	4	Process Participation	C1.1 (1x) C1.9 (1x) **C1.12 (5x)**	**C3.6 (3x)** C3.15 (1x)
Structural elements	Value assigned to any contextual elements that come together with the context per se on which the participants and their in-between interactions have no immediate effect.	NA	5	Observational learning Problem-based learning	NA	C3.3 (2x) C3.6 (1x) C3.11 (1x) C3.16 (1x)

Note. Participants in bold show indicative participant dominance in reported frequencies of themes; NA = non-applicable for CoLP1.

4.4. Discussion

The main aim of this chapter was to address the issue of value creation for participants in Communities of Learning Practice (CoLPs) in higher education. Particular attention was paid to the values that students attribute to their experience of participation in the CoLPs and the values students attribute to the CoLPs as a social learning space. To our knowledge, this is the first study to systematically investigate the phenomenon of value creation in learning communities in higher education with the use and extension of the theoretically grounded value creation framework proposed by Wenger et al. (2011). Although the added value of learning communities in higher education has been shown, many of these studies focus on a pre-defined set of outcomes and benefits and do not address what the added value is at the participant level, whereas this study specifically addressed the added value *for* community members as defined *by* community members.

In this study, value creation in CoLPs has been examined with the use of participants' written narratives, more specifically Value Creation Stories (VCS) (i.e., scaffolded written narratives). The VCS were analyzed with an integrated mixed methods research approach consisting of (a) an initial content analysis on the complete data set based on a Situated Multilevel Typology of Values (SMTV) and (b) a follow-up thematic analysis on a relevant sub-set of the content-coded data, to address RQ1 and RQ2, respectively. It should be highlighted that RQ2 emerged out of the findings of RQ1. The interpretation and implications of the results will be initially presented separately per RQ and will be consequently brought together at a meta-inference level.

4.4.1. RQ1: What are the values attributed by CoLP members to their community participation?

The results of RQ1 showed that CoLPs created value for their members in distinct ways, implying that participation in CoLPs enables different values for different members. This overall finding supports the relational nature of values attributed to objects, activities, interactions, and experiences by subjects/individuals/agents as defined by their own set of criteria and standards (Frondizi, 1971). Nevertheless, common value creation patterns were observed among participants and across CoLPs. The dominance of Immediate Values (IV) and Realized Values (RV), in terms of value cycles, highlights the importance of values that are within activities,

interactions, exchanges and resources themselves (see Wenger et al., 2011) and the identified members' development and/or improvement of different kinds of values deriving from these activities and participation experiences. A possible explanation for the proportions of the non-codable segments is that any meaningful statement reported by the participants in the VCS was considered as a segment irrespective of its adherence to the codes.

As also advocated by Wenger et al. (2011), value creation is not a linear process and the results of the present study support this non-linearity of value cycles. Although all value cycles were observed, there was a significant difference in dominance, with Reframing Values rarely being reported. However, the CoLPs' goal was not the reframing of perspectives or attitudes. Akin to the value cycles, all value types were observed but again with significant differences in dominance. The dominance of Skill-related Values (SK) and Context-related Values (CO) supports the theoretical notion of CoLP (see Chapter 3) in that both CoLPs served as a social learning space that supported contextualized (i.e., curricular) and intercontextualized (i.e., curricular and beyond) development of academic and social skills. The dominance of SK values as intercontextualized benefits implies that intercontextualized values/benefits have their own place in CoLPs, constituting CoLPs as potential value generators for contexts that move beyond the CoLP boundaries.

The results of RQ1 strengthen the potential of CoLPs to move beyond traditional outcome measures and instead (also) include personalized within-CoLP and intercontextualized valuable experiences and/or benefits that are considered as such not merely by external agents but by the community members themselves. The dominance of Context-related Values emphasized that context is an important factor in the value creation process. This dominance will be further discussed and interpreted in the next section.

4.4.2. RQ2: What are the values attributed by CoLP members to the community as a social learning space?

The results show that CoLPs – as a learning community notion – successfully realize their functional and structural elements, by supporting the aspect of practice, peer feedback, and sharing of ideas. *Practice* is key to the CoLP notion, in a twofold manner: (a) learning how to practice and (b) practicing how to learn. The dominance of values attributed to practice as a contextual element, underlines that CoLPs enabled opportunities for practice. The finding that community members perceived peer feedback as another valuable contextual element, supports

the role of peer feedback as the main sharing mechanism within CoLPs. Sharing of ideas within a trustful and safe atmosphere was highly valued by community members as a contextual element, relating to the enablement of feelings of membership due to emotional safety (see McMillan & Chavis, 1986; see Chapter 2).

As a whole, CoLPs seem to have the potential to serve as a social learning space that offers opportunities for practice, peer feedback and sharing of ideas within a trustful and safe atmosphere and consequently generate relevant values for its participants. These results underline how powerful CoLPs can be in creating values that move beyond curricular or externally defined outcomes such as performance, success, achievement and motivation.

4.4.3. Meta-inferences

The results of this study further our knowledge on the phenomenon of value creation enabled in and by CoLPs and possibly in and by similar social learning contexts that share similar constituent elements (see Chapter 3). Concerning outcomes of participation, this study draws the focus away from traditional outcome measures (e.g., grades), which is a typical focus in more formal learning communities, towards value creation as a process and outcome measure. However, this is not to argue that value creation should not be considered in formal learning communities; even formal learning communities highlight the role of learners in defining their own learning, so therefore why not also the value of their own learning for themselves.

Taken together, the results of the content analysis and the thematic analysis comprise a more inclusive and complete picture of value creation in CoLPs in contrast to what either analysis could have achieved separately. Although the thematic analysis sequentially followed the content analysis, conceptually it seems to precede it in the following way. The results of the thematic analysis support that CoLPs were perceived by members as social learning spaces/contexts that immediately created value for their members by enabling participation in meaningful interactions, exchanges and practices (i.e., IV-CO) generated by and for their members. The most dominant themes attributed to the immediate value of context were in relation to social processes, such as practice (with and in front of others), peer feedback, and sharing of ideas, whereas no remarkable frequencies were observed in relation to pre-selected or built-in elements, such as the input by the participatory facilitator and the structural elements that were there irrespective of members' social involvement in the CoLP practices. This further

underpins that the CoLPs supported the learning principles underlying socio-cultural and situated learning perspectives, as outlined in Chapter 3.

In sum, the CoLPs' social learning space/context enabled the creation of any other values in relation to members' participation. Namely, as shown in the content analysis, participants frequently reported realized values that were skill-related (i.e., RV-SK). Moreover, applied values (CoLP1) and potential values (CoLP3) that were also skill-related became realized (ColP1) and/or applied (CoLP3) out of participation in "valuable-within" practices in that specific learning context. This meta-inference underlines the value of the "situated" context as a social structure or mechanism for further value creation that has the potential to cross boundaries moving from 'situated value within a social context' to 'situated value across surrounding social learning contexts', as implied by the potential, applied, realized skill-related values that seem to be valuable due to their implications for the surrounding learning contexts.

4.5. Methodological limitations

Several limitations may have influenced the results obtained, which are principally due to difficulty of collecting equally distributed and timely data on self-attributed values of participation in a non-formal learning community. These limitations include: (a) participant dominance, (b) post-participation self-reported measurement, and (c) the use of one data source.

4.5.1. Participant dominance

On account of the fact that written narratives were the only data source and that participants reported their own stories of experienced participation with different writing styles of different lengths, it is not surprising that some dominance in the number of VCS segments and reported value cycles and value types was observed in both CoLPs; with a higher degree of participant dominance in CoLP1 than in CoLP3. This dominance may have hindered the representativeness of the results on the CoLP level. Nevertheless, even with the use of other instruments, such as interviews or video observation, participants still report their experiences differently and to a different extent. To address this limitation, the analysis at the CoLP level was followed by a more detailed analysis at the participant level.

4.5.2. Post-participation self-reported measurement

Self-reported written narratives were used for the data collection at a post-community participation stage (i.e., after the completion of the last community event). A limitation accompanying any type of self-reported measurement is that of participants' selective memory (i.e., remembering or not remembering relevant events or experiences). However, in order to allow students to re-view their lived-in experiences and connect them to any realized or reframing values, the post-participation self-reported narrative was considered to be a rich research tool. To add to the reliability of some value cycles (i.e., immediate, potential and applied) an in-participation value creation measurement, such as the community barometer proposed by Smith and Coenders (2002) (see Appendix I) or, in the same line, the network barometer suggested by Meijs, Prinsen, and De Laat (2016) could be added to future research.

4.5.3. One data source

The use of one data source may have obscured aspects that could have informed the value creation phenomenon. Further qualitative analysis on the participant level may reveal within-participant value creation elements that may not have been sufficiently represented in this study. Expanding the mixed method approach, by adding the analysis of video data (i.e., recordings of community events) aimed to capture the elements that construct the social learning space, could further inform the value of the CoLPs as a social learning space.

4.6. Theoretical, methodological and practical implications

4.6.1. Theoretical implications

This study has gone some way to enhancing our understanding of the value creation framework proposed by Wenger et al. (2011). One of the major theoretical implications of this study is its contribution to the value creation framework *per se* in two distinct ways. First, it empirically supports the potential of the theoretically grounded value creation framework to serve as a lens for empirically examining value creation in learning communities. Second, through the development of the Situated Multi-level Typology of Values (SMTV) which extended the original framework with the addition of the expected value cycle and the five value types that offer more concrete lenses for examining the phenomenon of value creation for learners in learning communities. The SMTV typology opens up new directions for the original

framework by highlighting the role of the context and elements within it that may more holistically capture the phenomenon of value creation. Future studies on the phenomenon of value creation and the proposed typologies (i.e., original and SMTV) are required to elucidate value creation patterns across learning communities and further inform the applicability of the value creation framework across settings.

4.6.2. Methodological implications

The employed integrated mixed methods approach, i.e. by incorporating content analysis and thematic analysis, is considered more suitable than a mono-methodological approach to narrative analysis due to its potential to capture the phenomenon of value creation more holistically on the community level, the participant level and zoom in to contextual aspects with constant reference to the participant level. The approach taken to thematic analysis, which is based on systematicity and reliability principles that underlie content analysis but not frequently reported in qualitative studies that employ thematic analysis, also contributes to the thus far limited references to systematic procedures of thematic analysis (see Guest et al., 2012; Vaismoradi et al., 2013, 2016). This approach suggests that these principles should be taken into account when applying thematic analysis on narratives or any other self-reported measurements to enhance rigor and reliability in light of the often criticized lack of rigor in thematic analysis. Considering the implied complexity and multi-dimensionality of the value creation process, further qualitative approaches are needed to capture the depth of the value creation process for each individual participant, such as in-depth interviews and participant observation.

4.6.3. Practical implications

The findings have considerable practical implications for educators/stakeholders/policy makers and community "designers"/researchers/facilitators. For educators/stakeholders/policy makers, instead of examining one or two variables as potential externally defined outcomes or benefits related to learning community participation, it might be more informative and more enriching to examine the benefits or "values" that participants attribute to their experience of participation in a learning community and use them as empowering mechanisms for learning within communities and across learning settings. For community "designers"/researchers/ facilitators, the exploration and understanding of what matters most to community members, can further inform practices to support and foster activities and practices within the learning

community that are deemed valuable by community members. Taking into account that learning communities can serve as social structures within which learning values are enabled and that they have the potential to expand across the broader situated socio-educational learning settings, makes them powerful social learning "tools" instead of mere evaluative tools (also see Wenger-Trayner & Wenger-Trayner, 2014).

4.7. Conclusion

The recognition of the role of the value creation framework in learning communities embedded in educational settings and more broadly speaking any social structures embedded in educational settings which support a shift to a learning paradigm/curriculum will be a challenge for years to come. However, that this study can serve as a base for future work on the phenomenon of value creation in learning communities in higher education and other educational contexts. It is recommended that future research should be undertaken on a larger number of learning communities to determine any similarities and/or differences in value creation across learning community notions to elucidate how value creation is enabled therein.

4.8. References

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5. Just Plain Peers across social networks: Peer-feedback networks nested in personal and academic networks

I believe that a shift in mindset about learning is in the air – from a view of learning as a formal process caused by instruction to learning as an essential aspect of everyday life and thus a capacity inherent in social systems (Wenger, 2011, p. 210).

Feedback is an anomaly. People have a general sense that feedback is good to give and receive. But many people avoid it like the plague. They are uncomfortable telling others they have done well, and they feel even more uncomfortable telling others they have performed poorly (London, 2015, p. xii).

We cannot consider the world (…) as a meaningful aggregation of independent elements whose properties sum up in a meaningful whole (Bellotti, 2015, p. 2).

Abstract

The study reported in this chapter examines peers' centrality across peer feedback networks—as captured in Communities of Learning Practice (CoLPs)—and personal networks and academic networks within which CoLPs are nested. Additionally, the content of the peer-feedback networks (i.e., peer-feedback types and foci) is examined. In this study, peer feedback represents an authentic learning practice and sharing mechanism among peers. Participants were 47 students in an international master program at a university in Germany. Some of the participants voluntarily participated in two CoLPs (N_{CoLP1} = 13; N_{CoLP3} = 19), which constitute the main analytical focus of this study. A mixed-methods research approach to Social Network Analysis (SNA) was employed on the data collection, analysis, and interpretation level. Data were collected from self-reported social network questionnaires (cohort level) and video recordings of community events (CoLP level). Data analysis involved (a) contextual SNA (CxSNA) of questionnaire data to identify participants' centrality in personal and academic networks (cohort level), (b) SNA of video data to identify CoLP members' centrality in peer-feedback networks (CoLP level), and (c) content analysis of video data to identify the types and the foci of peer-feedback provision episodes (CoLP level). Findings on the cohort level indicate that peers' centrality varies across personal and academic networks. Findings on the CoLP level

underscore that peer-feedback provision constitutes a relational learning practice and that peer-feedback providers' centrality in personal networks is to some degree reflected in their centrality in the peer-feedback provision networks, whereas peers' centrality in academic networks is less reflected in their centrality in the peer-feedback provision networks. Peer-feedback providers used a combination of peer-feedback types (i.e., mainly verification positive, argumentation and suggestions) focused predominantly on skill/performance aspects, but also personal, study and socially related aspects—which underscores the multiplexity of peer-feedback interactions. This study contributes to the understanding of peer-feedback interactions, as relational phenomena nested within multiplex networks.

5.1. Introduction

Learning is a multifaceted phenomenon that has been examined through different analytical lenses by researchers, who focus on different elements and processes of the learning phenomenon(a). From a social perspective, learning that takes place in networks and/or communities is emphasized. According to Wenger, Trayner, and De Laat (2011), networks and communities are not necessarily different *social structures*, but rather different *aspects* of social structures within which learning takes place. The network aspect of a social learning structure stresses the set of relationships and interactions among individuals, who purposefully connect to each other (Wenger et al., 2011). The community aspect of a social learning structure stresses the development of a shared identity framed by a domain of interest towards a collective endeavor (Wenger et al., 2011). In some social structures either network or community elements might dominate, implying that not all networks afford the formation of a community (e.g., a personal network is not a community). On the contrary, most communities involve network elements (i.e., set of relations, interactions), yet the focus might be different (Wenger, 1998). In the study reported in this chapter, Communities of Learning Practice (CoLPs) are approached from a social network perspective in structural terms (i.e., not in terms of an open-ended system conceptualization, see Chapter 2), implying that the focus of interest within and around the examined CoLPs lies in individuals' relations and interactions.

From a social network perspective, learning constitutes a relational process that depends on and involves interactions (e.g., information exchanges, discussions, dialogic feedback, questioning) through an ongoing meaning negotiation process between individuals, who build a

joint social learning experience (Haythornthwaite, 2008). The examination of social network interactions constitutes a prerequisite for comprehending how learners engage with each other towards jointly building a learning community (Haythornthwaite, 2008). By viewing learning as being socially constructed and mediated within learning communities, the embedded social relationships and social dynamics among individuals who participate in any dialogically constructed and socially mediated learning practice constitute important learning components.

Several researchers extensively examined social networks from a social network theory/analysis perspective in educational and/or broader learning settings with predominant interest in computer-supported social networks and communities (e.g., Cho, Gay, Davidson, & Ingraffea, 2007; Dawson, 2008; Haythornthwaite, 2001, 2002). More specifically, researchers examined the relationship between pre-existing social networks (e.g., interpersonal relationships) and student or group performance and found a positive relationship (e.g., Jehn & Shah, 1997; Shah & Jehn, 1993). Haythornthwaite and Wellman (1998) examined the role of strong ties (e.g., friends) and weak ties (e.g., acquaintances) in individuals' frequency of interactions and found that individuals with strong ties interact more frequently than those with weak ties. Others focused on the role of pre-existing social networks in information sharing and learners' actions in computer-supported collaborative learning environments and found a positive relationship as well (Cho et al., 2007; Cho, Stefanone, & Gay, 2002). Finally, Dawson (2008) examined the relationship between students' network positioning and their sense of community and found a positive relationship. Dawson (2008) further claims that the identification of students' positions in pre-existing personal networks may inform students' positioning in the co-construction of knowledge in social learning environments.

A learning practice that is highly associated with the view of learning as being dialogically constructed and socially mediated is that of peer feedback (e.g., Carless, 2013; Nicol, 2010; Strijbos & Müller, 2014; Villamil & De Guerrero, 1996, 2006; Yang & Carless, 2013). Peer feedback, as a branch of feedback that involves peers as information sources on one's performance, has attracted considerable interest due to its perceived contribution to assessment practices and students' learning outcomes and skills (see Evans, 2013). Despite the widespread acknowledgement of the social dimension of peer feedback and its potential contribution to assessment and/or learning practices, the role of peers as social actors in social networks that surround and penetrate peer-feedback interactions and subsequently the role of

these networks in peer-feedback interactions has been overlooked. This gap potentially lies in the predominant association of peer feedback with assessment practices that rarely extend to the socio-structural elements of peer-feedback interactions and interactants. Moving beyond any association of peer feedback with formally designed assessment practices, the study reported in this chapter aims to address this gap by examining the relationship between peer feedback providers' centrality in peer feedback and personal and academic networks.

The following subsections provide a brief overview of the (1) social network paradigm, (2) dominant perspectives on peer feedback in educational contexts, and (3) current peer feedback (re)conceptualizations that move beyond traditional assessment practices and shift the focus to peer feedback as an inherent social learning practice. The last subsection presents (4) how all these ideas are brought together in the study reported in this chapter and the study aim and research questions are formulated.

5.1.1. The social network paradigm: An analytical and theoretical framework

Social network analysis (SNA) originated in the 1930s—with earlier antecedents that can even be traced back to the 1920s (see Freeman, 1996)—and was further systematized in the 1950s-1960s and became a recognizable paradigm in the 1970s (see Carrington, 2014; Freeman, 2004). Yet, only since the 1990s interest has mounted in SNA across disciplines (e.g., mathematics, sociology, physics). In recent years, SNA has progressed dramatically and is vigorously promoted by current theoretical, methodological and technological advancements, constituting SNA highly popular across disciplines (Borgatti & Halgin, 2011; Crossley, Prell, & Scott, 2009; Wölfer, Faber, & Hewstone, 2015) (for a detailed historical review on SNA see Freeman, 2004).

SNA moves beyond a mere methodology or analysis technique to represent a network theory. Although the theoretical principles of SNA are rooted in relations, matrix algebra, and graph theory (i.e., branches in mathematics), they extend to a network theory of its own (e.g., Burt, 1992; Granovetter, 1973), which emphasizes the role of relationships among actors in explaining actors' and network's behavior and moves beyond actors' individual attributes (Borgatti, Brass, & Halgin, 2014; Borgatti & Halgin, 2011).

In general, a social network consists of a set of actors/agents (i.e., nodes or vertices) and their relations (i.e., ties or edges) (Wasserman & Faust, 1994) that is typically visualized as a

sociogram (see Moreno, 1934), graph, or matrix. A social network represents a relational structure, which expresses the linkages between actors/agents (Scott, 2013). Social networks may be asymmetric (i.e., A to B does not by definition equal B to A) represented with a directed graph (i.e., A→B, A←B) or symmetric (i.e., A to B equals B to A) represented with a undirected graph (i.e., A–B) (Carrington, 2014). The nodes in a social network may be individuals, groups, organizations, or societies. The ties may fall within one level of analysis (e.g., individual-to-individual ties) or may cross levels of analysis (e.g., individual-to-group ties). Ties are classified in several ways including communication ties (e.g., who talks to whom), formal ties (e.g., who reports to whom), affective ties (e.g., who likes whom), material or work flows (e.g., who gives resources to whom), proximity ties (e.g., who is spatially closer to whom), and cognitive ties (e.g., who knows who knows whom) (Katz, Lazer, Arrow, & Contractor, 2004). Borgatti and Halgin (2011) classified ties even more inclusively as states and/or events. Examples of state-ties include affective ties and cognitive ties that can be characterized in terms of strength, intensity and duration. Examples of event-ties include communication ties and material or work flows that can be characterized in terms of frequency of occurrence. Yet, networks are multiplex, implying that actors are connected to each other with various tie constellations, which may vary in direction (e.g., unidirectional, reciprocal), content, frequency, medium, and sign (e.g., positive, negative) (Katz et al., 2004). For example, in an educational context, students might be classmates (i.e., role-based ties) and friends (i.e., affective ties) and neighbors (i.e., proximity ties). Ties have been also classified as strong or weak (see Granovetter, 1973, 1983). Strong ties may refer to family and friendship networks, whereas weak ties may refer to acquaintance networks. The issue of tie strength, originating in Granovetter's work (1973), has attracted considerable interest by a vast number of scholars investigating weighted social networks, i.e. networks that involve ties that apart from being present or absent represent some sort of weight (e.g., intensity, duration, exchanges) (Opsahl, Agneessens, & Skvoretz, 2010). By considering the presence or absence of ties as well as the weight of the ties in a social network, the complexity of the network can be represented more concretely (Opsahl et al., 2010).

5.1.2. Peer feedback: An assessment practice in educational contexts

In the field of education, feedback has been substantially associated with assessment practices (e.g., test-feedback, peer assessment, portfolio assessment) and learning practices (e.g.,

collaborative learning, socio-constructivism, peer learning, self-regulated learning) (e.g., Boud, Cohen, & Sampson, 2001; Strijbos, Narciss, & Dünnebier, 2010; Van Gennip, Segers, & Tillema, 2010). Narciss (2008) describes feedback as "all post-response information that is provided to a learner to inform the learner on his or her actual state of learning or performance" (p. 127), which can be either external (from teachers or peers), or internal (from the learners themselves).

A considerable body of research, mainly in higher education, has focused on external feedback by the teacher/expert (e.g., Hattie & Timperley, 2007; Hyland & Hyland, 2006). In a recent review of 195 papers published between 1985 and 2014, Winstone, Nash, Parker, and Rowntree (2017) identified 159 empirical papers out of which 81% focused on expert feedback predominantly in the context of higher education. Expert feedback refers to information provided by an expert as response to students' performance in a task towards reducing the gap between students' current level of performance and desired level of performance (Hattie & Timperley, 2007). However, a shift from summative assessment, evaluating the final product of one's work, to formative assessment, evaluating intermediate products, has called for and opened the way to additional assessment sources, such as peers. According to Wingate (2010), formative assessment aims mainly "to guide and accelerate students' learning by providing them with information about the gap between their current and the desired performance" (p. 520).

Since the 1980s, educational researchers, mainly in the context of higher education and writing instruction in English as a second language/English as a foreign language (ESL/ELF), increasingly investigated "peer-involving" instructional, assessment or learning practices (e.g., DiPardo & Freedman, 1988; Evans, 2013; Hansen & Liu, 2005). Frequently used terms are *peer assessment* (e.g., Topping, 1998), *peer feedback* (e.g., Gielen, Peeters, Dochy, Onghena, & Struyven, 2010; Strijbos et al., 2010), *peer revision* (e.g., Villamil & De Guerrero, 1996), *peer response* (e.g., Berg, 1999; Zhu & Mitchell, 2012), and *peer review* (e.g., Brill & Hodges, 2011; Cho & MacArthur, 2010; Hansen & Liu, 2005); and these are mainly associated with formative assessment (e.g., Nicol & Macfarlane-Dick, 2006; Topping, 1998) and collaborative learning (e.g., Van Gennip et al., 2010). Despite their different implications, all these terms refer to the involvement of peers as sources of information on other peers' performance(s). Notwithstanding the considerable theoretical claims that support the value of involving peers in assessment practices, the involvement of peers as sources of information in educational contexts has yielded

both benefits and challenges for educators and students (e.g., Cho & MacArthur, 2010; Liu & Carless, 2006; Patchan & Schunn, 2015; Poverjuc, Brooks, & Wray, 2012; Zhang, 1995), underlining that peers' involvement in assessment should not be treated as a straightforward assessment practice. Some indicative aspects that both support and question the value of involving peers as information sources on students' performance are outlined in the following sub-sections.

5.1.2.1. Why bother? Supporting the value of peer feedback in educational contexts

Peer students are novices within their disciplines with relatively less elaborated disciplinary knowledge and skills than experts. A vast amount of research has focused on comparisons of reliability of judgments between teachers and peers as assessors and although these judgments are in general reliable (see Falchikov & Goldfinch, 2000; Li et al., 2015), the overemphasis on measurement-focused studies is criticized (Liu & Carless, 2006; Stefani, 1998). Nevertheless, peers may be able to better comprehend peers' comments when compared to expert comments due to their similarities (Cho & MacArthur, 2010; Falchikov, 2005; Topping, 1998). Non-expert peers may develop similar thinking processes and similar cognitive and behavioral attributes, which may in turn help peers share an understanding of their common needs and effectively detect or diagnose problems relevant to their peers and subsequently provide solutions (Cho & MacArthur, 2010). Peer feedback has been also associated with the development of high level cognitive skills, such as critical reflection, argumentation, peer-feedback provision and assessment skills, and self-regulated learning skills (e.g., Ertmer et al., 2007; Liu & Carless, 2006; Liu et al., 2001; Nicol & Macfarlane-Dick, 2006; Patchan & Schunn, 2015). Nevertheless, there are several challenges related to peer feedback in educational contexts to be considered. Some examples are provided in the next subsection.

5.1.2.2. What to consider? Peer-feedback challenges in educational contexts

Students' novice status in their disciplines and their potential lack of subject-matter knowledge may be perceived as a drawback of peer (feedback) assessment associated with questioning students' reliability in evaluating the quality of peers' works (Cho & Schunn, 2007). Peers might struggle to differentiate the quality of peers' works, or not even try to evaluate others' works as intended or desired, providing peers with similar comments without evaluative effort (Cho & Schunn, 2007). Therefore, peer feedback sometimes lacks value, as both students and experts may not perceive it as a valid or reliable source of feedback or assessment (Cho &

Schunn, 2007; Cho, Schunn, & Wilson, 2006; Sluijsmans, Moerkerke, Van Merriënboer, & Dochy, 2001; Topping, 1998). Students tend to respond to and value tutor feedback more than peer feedback because of the instructors' status (Cho & MacArthur, 2010, 2011) or peers' status (Strijbos et al., 2010), without taking into consideration the quality of the feedback provided (Cho & MacArthur, 2010). The lack of respect and value that is sometimes attributed to peer feedback seems to be one of the reasons why peers tend to reject its potential before realizing any benefits on their performance (Cho & MacArthur, 2011). However, if overcome, this challenge may lead to learning benefits because the absence of an absolute knowledge authority may alter the purpose and impact of feedback (Gielen et al., 2010), which in turn might lead to discussions towards effective interpretation, cross-checking, more self-corrections and greater search for information (Yang, Badger, & Zu, 2006). Another challenge refers to students' anxiety while giving and receiving feedback (Ertmer et al., 2007). In terms of anxiety, Topping (1998) and Ertmer et al. (2007) report that both providers and recipients of feedback might experience high anxiety—at least while initially engaging in the process.

5.1.3 Peer feedback beyond traditional assessment: A call for reconceptualization

As outlined in the previous sections, research on feedback in higher education revealed a "bipolar" profile of feedback, on the one hand being troublesome and ineffective for students and on the other hand being generally perceived as beneficial to students' learning (Beaumont, O'Doherty, & Shannon, 2010; Nicol, Thomson, & Breslin, 2013; Yang & Carless, 2013). Despite the "global usage" of feedback on myriads sorts of performance, the notion of feedback in education was mostly associated with one sort of performance, that is performance to be assessed, either in a summative or a formative way. However, summative and formative assessment practices for immediate tasks in the context of higher education have been recently criticized for not contributing to students' lifelong learning. As Boud and Falchikov (2006) highlight, "the discourse of assessment draws strongly on the metaphors of acquisition and judgment" as opposed to the metaphor of learning as participation, for example, in communities of practice (see Lave & Wenger, 1991; Sfard, 1998; Wenger, 1998). Recently, several researchers have called for a rethinking or reconceptualization of feedback as "assessment for learning" or "feedback for learning" in the context of higher education (e.g., Askew & Lodge,

2000; Beaumont et al., 2011; Boud, 2000; Boud et al., 2010; Boud & Falchikov, 2006; Boud & Molloy, 2013a, 2013b; Merry et al., 2013; Nicol, 2013; Sadler, 2010, 2013; Sambell, 2016).

Along the same lines, peer feedback, mostly examined within the framework of assessment feedback in higher education and writing instruction (Nicol, 2013; Strijbos et al., 2010), has been critically approached when tightly related to assessment feedback. Especially, formats in which students scoring of peers' work contributes to grades—utilizing peers as surrogate markers of student work (Boud, 2000; Falchikov, 2001; Nicol, 2013). In fact, in cases of peer grading, students end up working against each other—explicitly or implicitly—as such inhibiting cooperation and peer learning principles (Boud, Cohen, & Sampson, 2001; Nicol, 2013; Topping, 2005). Hence, peers should be used as active constructors of feedback in a knowledge-building process whereby learners take responsibility for their and others' learning—not grading (Nicol, 2013). Along these lines, peer assessment has been also treated more inclusively to refer to "an educational arrangement where students judge a peer's performance quantitatively and/or qualitatively and which stimulates students to reflect, discuss and collaborate" (Strijbos & Sluijsmans, 2010, p. 265). This implies peer assessment is or has the potential to be much more than peer grading—in particular more elaborate formats such as peer feedback (see also Boud, 2000; Falchikov, 2005; Liu & Carless, 2006; Nicol, 2013).

Moving beyond assessment design, peer feedback closely resembles the "feedback reality" in professional settings or other non-educational settings that move beyond ideas of traditional assessment (e.g., measuring, grading, marking) (Nicol, 2013). In other words, peer feedback is or has the potential to be much more than peer grading, when treated as an inherent aspect of social learning processes in social learning environments that eschew the element of assessment design. As Boud and Falchikov (2006) claim, assessment should be reconceptualized to align to the lifetime character of learning "post-graduation" which is socially situated and embeddded in real-life contexts and tasks therein, calling for a sustainable approach to assessment. Boud and Falchikov (2006) argue that sustainable assessment does not constitute a new classification of assessment, it rather builds on summative and formative assessment to promote long-term learning goals. Boud and Falchikov (2006) portray a more "contextualized, participatory and relational assessment regime" (p. 408), which emphasizes the importance of context, involves authentic representations and productions, promotes transparency of

knowledge, builds learner agency and constructs active learners. More recently, Boud and Molloy (2013a) highlighted that

> In the world of work, they [the students] will typically not have structured processes of learning. Continuing learning in work will require individuals, together with others (peers, consumers, various resources) to take their own initiatives to seek and utilize feedback in settings in which the imperative is productive work, not learning. (p. 6)

Along similar lines, Askew and Lodge (2000) also highlight the value of feedback in the so-called "co-constructivist model" in light of which feedback is constantly constructed through dialogical loops and learning responsibilities are shared towards a meta-learning process.

Notwithstanding the urgent call for reconceptualizing peer feedback in educational contexts that moves beyond traditional assessment practices, the empirical investigation of peer feedback practices beyond traditional assessment is still underexplored. According to Hattie and Timperley (2007), "feedback has no effect in a vacuum; to be powerful in its effect, there must be a learning context to which feedback is addressed" (p. 82). What is missing in this statement when considering peer feedback is that apart from a learning context, there is a surrounding social learning context that enables peer feedback to be employed, as a social learning strategy, or as a social sharing mechanism. In other words, the social context(s) within which peer feedback is nested is overlooked as well. Socio-cultural theories of learning, situate cognition, knowledge, and learning in social settings in which they are dialogically constructed through interactions and mutual relations among learners (see Lave & Wenger, 1991). Therefore, from this learning perspective, it is crucial to consider the social setting(s) within which any peer-feedback practice(s) occurs and within which peer relationships and interactions are dynamically co-constructed.

5.1.4. Peer feedback and social networks in the present study

5.1.4.1. Peer feedback in the present study

This study, inspired by reconceptualizations of feedback and building on Boud and Falchikov's (2006) argument that "we must not make the mistake of attributing all benefits of education to those aspects under the direct control of teachers or the curriculum" (p. 404), considers feedback, and in particular peer feedback, as an authentic learning practice inherent in the lived-in experience of learners. The term peer "feedback", as used here, lends itself an expansive and inclusive connotation that moves beyond the traditional idea of assessment (e.g.,

peer assessment), the process approach to writing (e.g., peer response, peer editing, peer review) and/or any other practices that are mainly associated with formal educational contexts.

Peer feedback, in this study, is examined in social learning situations that do not serve any formal assessment purposes. Peer feedback includes, but moves beyond, task-specific feedback related to the surrounding socio-educational contexts to further include global feedback on learning practices, learning styles or even personal attitudes to learning in general or collaborative learning in particular, deriving from and associated with the surrounding socio-educational context(s) and aspects of interpersonal communication within them. Peer feedback is perceived as a sharing mechanism within Communities of Learning Practice (CoLPs) utilized by members to share knowledge, experiences, advice, perceptions, and/or attitudes in relation to learning as a social process. Peer feedback is treated as an interpersonal communication process that aims to contribute to students' learning in the broader sense, that is, learning that moves beyond curricular objectives and derives from and is enabled by participation in learning communities to address learners' own learning and/or others' needs. By adopting a sociocultural perspective on peer feedback, special attention is paid to the social world(s) within which peer-feedback interactions take place (i.e., CoLPs and across-contexts social networks).

5.1.4.2. Social networks in the present study

According to Nardi, Whittaker, and Schwarz (2002), social networks "exhibit aspects of both *emergence*, being called into existence to accomplish some particular work, and *history*, drawing on known relationships and shared experience" (p. 207). This perspective is in line with Granovetter's (1973, 1983) notions of strong and weak ties. From this perspective, peers in peer-feedback interactions are not mere feedback providers for the shake of providing peer feedback (i.e., emergence), but peers who are socially situated in surrounding social networks built on and/or built along interpersonal peer relationships and/or other relationships within which they socially construct their centrality defined in and by the surrounding social networks (i.e., history).

The social network nodes in this study refer only to students. Consequently, they are one-mode or monopartite networks as opposed to two-mode or bipartite nodes (e.g., linking students to groups) (Grunspan, Wiggins, & Goodreau, 2014). Ties reported in the questionnaires are binary (0/1) representing whether a relationship exists or not. The network is directed, implying that if A perceived B as a personal connection it does not mean that B also perceives A as a

personal connection. Although some social network researchers have referred to friendship as represented with an undirected graph (see Wald, 2014), in this study the friendship network is not necessarily represented in an undirected graph, but in a directed one, due to participants' possible different perceptions of who their friends are. Ties observed in the video data are valued, i.e. weighted, representing the frequencies of exchanges from A to B.

The network boundaries in this study were pre-defined/limited to (a) the cohort students, both community and non-community members which constitutes a naturally occurring boundary, and (b) the subgroup of community members which constitutes a research interest-defined boundary. Taking into consideration the pre-defined boundary specifications, the results of the social network analysis apply only to the included population for each analysis (i.e., cohort or community-level).

5.1.4.3. Research aim and research questions

Within this integrative framework and by building on prior research that considered the role of contextual and social variables in social learning processes, this study aims to articulate a more comprehensive understanding of the interplay of personal and academic networks emerging within a socio-educational context(s) and peer-feedback networks nested within those. In particular, it examines peer-feedback provision in communities of learning practice (CoLPs) in relation to community members' personal network centrality. Peer feedback might involve simple network structures with at least two nodes (i.e., dyads –node A giving feedback to node B) or might end up being complex network structures with symmetric and asymmetric ties (i.e., group reciprocal and non-reciprocal peer-feedback exchanges). Therefore, examining peer-feedback interactions with a network perspective has the potential to reveal the otherwise hidden peer-feedback structures, both in terms of inter-actions and their carried "inter-contents" of the provided feedback messages. The interplay of peers' centrality in personal networks and peer-feedback networks is only visible and/or accessible through investigations of the surrounding socio-educational context(s) within which social networks emerge.

Additionally, this study aims to further contribute to the discussion on new ways of thinking about peer feedback through a reconceptualization of the place of peer feedback in learning back to its original place, i.e. students' social learning interactions. This study examines peer feedback as an authentic practice that is socially constructed and situated within dynamic community events, which are in turn situated within broader institutionalized and non-

institutionalized social contexts within which complex social dynamics also emerge, implying a "multi-*in situ*-activity".

To address the aim of this study, social network theory/analysis and peer feedback are brought together. The following research questions are addressed in this study.

RQ1: What is the relationship between peers' centrality in personal and academic networks?

RQ2: What is the relationship between peers' centrality in peer-feedback networks and peers' centrality in personal and academic networks?

RQ3: What are the types and focus of peer-feedback provision episodes in CoLPs?

5.2. Method

The study reported in this chapter employed a mixed-methods research (MMR) approach to SNA (i.e., integration of qualitative-quantitative and structural approaches) with an underlying pragmatic stance (i.e., research question as a guiding tool for the selection of methods and tools, Johnson & Onwuegbuzie, 2004). The rationale for the implementation of an MMR approach to SNA lies in (a) understanding more comprehensibly the relationship between social networks and peer-feedback processes and interactions in CoLPs and (b) understanding more insightfully the interwoven social dimensions of peer feedback through a mixture of reframing perspectives (Greene, Kreider, & Mayer, 2011; Teddlie & Tashakkori, 2009). The integration of MMR to SNA is suggested by researchers (e.g., Bellotti, 2015; Bolibar, 2016; Crossley, 2010; Edwards, 2010) not only to foster the "visibility" of the actors in a network, but also the "visibility" of the surrounding context(s) in relation to the network (Bolibar, 2016).

Besides the thus far recognizable dominance of research on quantitative aspects of SNA on large networks, heavily influenced by developments in mathematics, recent efforts into the inclusion of qualitative and mixed-methods in SNA are revitalized to re-direct SNA—ironically—back to its original roots and call for a deeper understanding of social structures (Carrington, 2014; Wald, 2014). This is not to say that quantitative aspects are less valuable, rather the opposite. As Hollstein (2014) underscores, qualitative data alone are not sufficient for making any valid statements about network structures, since structural data are prerequisites for describing social networks. According to Hollstein (2014), quantitative network data refer to "data describing relations, interactions, and structures of networks in formal terms using numbers (p. 9). Qualitative network data refer to data on "aspects of networks (that) are described in text

form" (p. 9). Nevertheless, as Wald (2014) also highlights, a purely qualitative or purely quantitative approach to SNA would not capitalize on the full explanatory potential of SNA by consistently excluding central aspects of the social network phenomenon(a) from examination.

Arguing further for the implementation of an MMR approach to SNA, Edwards (2010) underscores that SNA suits well to mix methods due to its parallel interest in both the structure of a social network and the interactions that form these structures. The understanding of the structures and interactions is enabled with the exploration of the content of the network as well as the actors' perceptions of the network. In line with Edwards' (2010) perspective, Crossley (2010) also argues that emergent properties (e.g., sharing meanings) which can be identified with qualitative strategies to SNA, tend to be overlooked by the quantitative strategies to SNA—but cannot be ignored, if a proper SNA is in place.

5.2.1. Research context

The phenomenon of peer feedback is explored within the framework of Communities of Learning Practice (CoLPs) project (see for more detail Chapter 3). The CoLP project lasted three consecutive academic years exploring three CoLPs (CoLP1: 2011, CoLP2: 2012, CoLP3: 2013). The CoLPs operated in parallel with a two-year international master's program in the Learning Sciences at a university in Germany. The CoLPs differed in their overall lifespan ranging from one semester to three semesters (CoLP1: 3 semesters, CoLP2: 2 semesters, CoLP3: 1 semester). Prior to each CoLP formation, students were briefly introduced to the idea of learning communities and peer feedback processes to orient them towards the nature of the CoLP and were invited to voluntarily initiate a learning community with the support of a researcher/non-peer participatory facilitator, in short referred to as participatory facilitator (see Appendix C/ Appendix D). For consistency purposes in this study, only the first community cycle of CoLP1 and CoLP3 are examined (see Table 5.1). CoLP2 has been excluded due to its structural difference. More precisely, CoLP2 was facilitated and coordinated by senior peers along with the participatory facilitator. Senior peers had an active role as community facilitators and contact people for the community members, likely affecting the community dynamics and resultant influence, positive or negative, on the process of value creation for community members.

Each community cycle involved a number of face-to-face meetings with community members and the participatory facilitator lasting approximately 2.5 hours each. These meetings

are referred to as Community Events (CEs). All CEs took place in a classroom on the university campus to facilitate video-recording of the events and students' mobility (i.e., easy and convenient access in alignment with students' course schedule). To foster the informal and cozy atmosphere of the community setting snacks and refreshments were freely available to the community members at each CE. The classroom layout was adapted in various formats of a round-table layout to foster community members' mutual visibility, possibility for interaction, and overall comfort.

Table 5.1

Overview of CoLPs

CoLP	Entry year	SS parallel with CoLP	CEs	Location	Overall sommunity lifespan	Examined community cycle in this study
CoLP1	2011	2	6	Campus	3 SSs	1st
CoLP3	2013	1	7	Campus	1 SSs	1st

Note. SS = study semester parallel with CoLP. CEs = community events. Community cycle = study semester.

Prior to the formation of each CoLP, a needs analysis survey (see Appendix A/ Appendix B) was conducted for each cohort to gather information about possible students' needs, perceptions of peer feedback, and scheduling preferences to inform structural and practical decisions about the CEs to be negotiated with the participatory facilitator. The students who voluntarily participated in each CoLP were free to withdraw their participation at any time over the course of each CoLP. No ECTS credits were awarded to students for their participation in the CoLP.

Students who expressed interest in participating in the CoLP indicated their preferred thematic foci of the CEs after negotiation with the participatory facilitator. Both CoLPs shared similar thematic foci in their CEs, which were relevant to the members' curricular studies and their surrounding socio-educational contexts (see Table 5.2). In addition to the foci selected by the community members, two CE-foci were proposed and added by the participatory facilitator in negotiation with the community members (i.e., introductory and closing event). More specifically, (a) the first event for each CoLP functioned as an introductory session in which members were presented with the underlying community principles of the community events and the sharing mechanism of peer feedback, and the (b) last event for each CoLP functioned as a

closing session in which members were encouraged to provide specific or overall feedback to each other and to the community as a whole.

Table 5.2

Thematic overview of community events per CoLP

CoLP	CEs	Thematic focus
CoLP1	CE1.1	Introductory session: Peer feedback training
	CE1.2	The power of language
	CE1.3	Design of power point presentations
	CE1.4	Poster design and presentation: Part 1
	CE1.5	Poster design and presentation: Part 2
	CE1.6	Closing feedback session
CoLP3	CE3.1	Introductory session: Peer feedback training
	CE3.2	The power of language: Words, voice and body in academic presentations
	CE3.3	Reviewing literature: Reading theoretical and empirical papers
	CE3.4	Aspects of an article to consider in your presentations: What and how?
	CE3.5	Preparing your cover letters
	CE3.6	Actual performance only
	CE3.7	Closing feedback session

Note. CoLP = Community of Learning Practice. CE1 = community event of CoLP1. CE3 = community event of CoLP3.

5.2.2. Participants

Forty-seven master students of a university in Germany (female 41, male 6; international 26, German 21; age range 21-31, M_{age} = 25.06, *SD* = 2.54) voluntarily participated in this study. Participants who joint the CoLPs in more than one community event were considered community members and subsequently constituted the purposive sample of this study. Any students with missing data that hindered the identification of their SNA centrality in any of the examined networks were excluded from the sample. Informed consent was obtained from all participants on the cohort and CoLP level (see Appendix E/ Appendix F). A detailed overview of the participants in both CoLPs and student cohorts is provided in Table 5.3.

Table 5.3

Overview of participants on the Cohort and CoLP level

Cohort/ CoLP	*N*	M_{age}	Age_{range}	*SD*	Cohort students	Gender	Nationality	Entry year	SS
Cohort 1	23	25.09	21-31	2.84	26	F:19 M:4	German (12) International (11)	2011	2
CoLP1	13	25.15	22-31	2.85	26	F:12 M:1	German (6) International (7)		
Cohort 3	24	25.00	22-30	2.27	29	F:22 M:2	German (9) International (15)	2013	1
CoLP3	19	25.11	22-30	2.49	29	F:18 M:1	German (6) International (13)		

Note. Cohort students refer to the total number of students enrolled in the study program per cohort and constituted the convenience sample. SS refers to study semester parallel to the CoLP. Three participants (non-CoLP members) of Cohort 1 (3/26) and five participants (3 CoLP members and 2 non-CoLP members) of Cohort 3 (5/29) were excluded from the sample due to relevant missing data.

A closer look at each CoLP-member's participation rate in the CEs is also warranted, since this information adds on to their participation profile. Table 5.4 provides an overview of participants' CE participation rate for both CoLPs.

Table 5.4

Overview of participation in CEs per participant

CoLP	Participants	Participation in CEs							**Total (P)**
		CE1	CE2	*CE3	CE4	CE5	*CE6	CE7	
CoLP1	C1.1	0	0	1	1	0	1	NA	**3**
	C1.2	1	1	0	0	1	0	NA	**3**
	C1.3	0	0	0	1	1	0	NA	**2**
	C1.4	1	1	1	1	1	0	NA	**5**
	C1.5	1	1	1	1	1	1	NA	**6**
	C1.6	1	1	1	1	1	1	NA	**6**
	C1.7	0	1	0	0	1	0	NA	**2**
	C1.8	1	0	1	0	1	1	NA	**4**
	C1.9	0	1	1	1	1	1	NA	**5**
	C1.10	1	0	1	1	1	1	NA	**5**
	C1.11	1	1	0	1	0	0	NA	**3**
	C1.12	1	1	1	0	1	1	NA	**5**
	C1.13	1	0	0	1	0	1	NA	**3**
CoLP3	C3.1	1	0	1	1	0	0	1	**4**
	C3.2	1	1	1	1	0	0	1	**5**
	C3.3	1	1	1	0	0	0	0	**3**
	C3.4	1	1	1	0	0	0	1	**4**
	C3.5	1	1	1	0	0	0	1	**4**
	C3.6	1	1	1	1	0	1	1	**6**
	C3.7	1	1	0	0	0	0	0	**2**
	C3.8	1	1	1	0	1	0	0	**4**
	C3.9	1	1	1	0	1	0	1	**5**
	C3.10	1	1	1	1	1	0	0	**5**
	C3.11	1	1	1	1	0	0	0	**4**
	C3.12	1	0	1	1	0	0	1	**4**
	C3.13	0	0	1	0	0	0	1	**2**
	C3.14	1	1	1	1	1	1	0	**6**
	C3.15	1	0	0	0	0	0	1	**2**
	C3.16	1	1	1	0	0	0	1	**4**
	C3.17	1	1	1	1	0	0	1	**5**
	C3.18	1	1	0	1	1	0	0	**4**
	C3.19	1	1	0	0	0	0	0	**2**

Note. NA = non-applicable (i.e., CoLP1 had only 6 CEs). *CE3 and *CE6 in CoLP3 were not included in the video data analysis.

As shown in Table 5.4, participation rates vary in both CoLPs, with a minimum participation rate of two CEs and a maximum of six CEs. The average participation rate across participants was four CEs for both CoLPs. Participant C3.19 dropped out, but was still included in the sample since the participation rate was more than one CE and the SNA centrality in all social networks could be identified.

5.2.3. Instruments

5.2.3.1 Self-reported questionnaires

Self-reported questionnaires were used to collect data on complete networks, involving a roster of actors with whom the respondents were asked to recognize relationships—as opposed to ego network data collection instruments (e.g., name generators that involve recalling of relationships) (Carrington, Scott, & Wasserman, 2005; Crossley et al., 2015; Wasserman & Faust, 1994). Responses were in the format of binary judgments (0/1), termed sociometric choices, that revealed the presence or absence of relationships with actors on the roster (Carrington et al., 2005). All network relations were conceptually asymmetric without excluding empirical reciprocity or symmetry among some nodes (see Carrington, 2014).

The self-reported questionnaires were distributed once at the end of the targeted semester to reveal students' (a) personal networks and (b) academic networks. Personal networks were defined by the relationships students have with any of their classmates at a personal level and with whom they meet regularly within and outside the course context and university environment (e.g., visit social events together such as parties, go for lunch/dinner or coffee, go together for a walk at the park). Academic networks were defined by the relationships students have with any of their classmates at an academic level and with whom they meet and interact regularly only within the course context and university environment (e.g., study together at the library, work together on presentations, collaborative writing, share academic discussions during seminars/lectures or breaks). The aforementioned descriptions were provided to the participants as well prior to filling out the questionnaires to foster homogeneity in terms of what the personal and academic networks represent. Figure 5.1 shows an extract of the template used to gather personal and academic networks. Students filled out separate social network questionnaires for the personal and academic network. The complete version of the questionnaire is available in Appendix J.

Figure 5.1

Extract of template used to gather personal and academic networks

Social network at **[personal // academic]** level* of … [First Name, Last Name]	I have been **[personally // academically]** connected* with this person during the (semester).	
	Yes	**No**
Student 1	□	□
Student 2	□	□
Student X	□	□

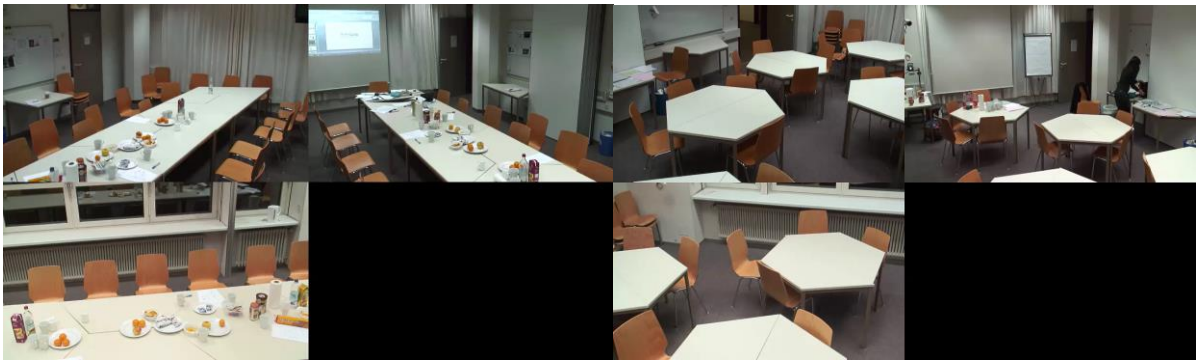
Self-reported questionnaire network data are informative in revealing social structures and patterns, but they are not sufficient for understanding how the self-reported ties relate to any other processes. To address this, data from video recordings were also collected and included in this study.

5.2.3.2. Video recordings

Three video cameras capturing three different angles (see Figure 5.2)—fixed on the wall, but with the possibility to control (e.g., move, zoom in/out) them from the video recording room—were used to record of audiovisual conduct of members participating in peer-feedback interactions in the CoLPs (see also Hmelo-Silver et al., 2006). The obtained data were not experimental, but "natural" since participants' behavior was not scripted. According to Knoblauch, Schnettler, and Raab (2012), natural data refer to "data collected when the people studied act, behave and go about their business as they would if there were no social scientists observing or taping them" (p. 11). It should be highlighted though that some of the peer-feedback activities were initiated by the by the participatory facilitator to foster members' peer-feedback interactions and members' were randomly selected to contribute either as peer-feedback seekers or peer-feedback providers. Nevertheless, the participatory facilitator's initiation of activities and random selection for contribution was not based on any experimental conditions or purposefully designed interventions.

Figure 5.2

Video camera angles in the community events



(a) **(b)**

(c) **(d)**

Note. Three perspectives of video cameras with a synchronous emphasis on the presenter, the whole CoLP and a sub-group of interest. Four CEs with different classroom layouts are included.

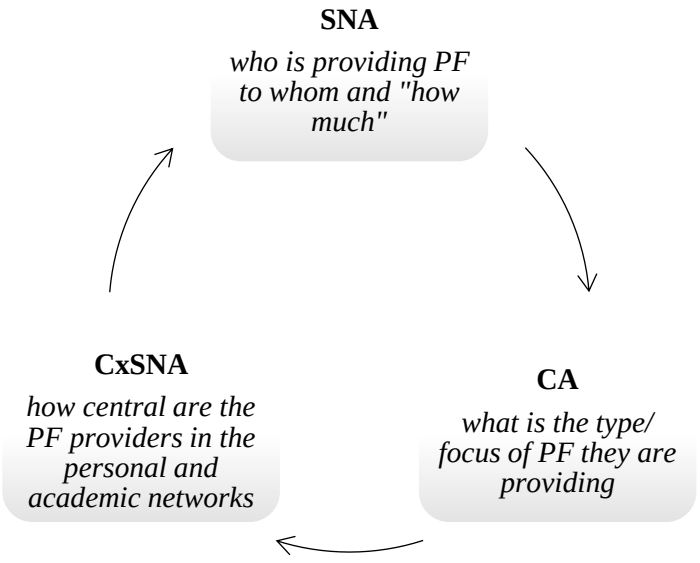
The video data corpus consisted of approximately 13 hrs. of video recordings for CoLP1 (CoLP1: 6/6 CEs; and 15hrs. of video recordings for CoLP3 (CoLP3: 5/7 CEs). The minimum CE duration was approximately 2hrs. (CE1.1) and the maximum CE duration was 3.5hrs. (CE3.7). Since this study focuses on peer-feedback interactions and practices, the complete video data set was initially segmented into peer-feedback episodes, namely any meaningful episodes that involved verbal or non-verbal (i.e., peer-feedback cards) peer-feedback exchanges The segmented peer-feedback provision episodes were further analyzed by two individual coders both structurally, with social network analysis, and content-wise with content analysis. These data analysis approaches were used complementarily.

5.2.4. Data analysis

In close alignment with De Laat, Lally, Lipponen and Simon's (2007) multi-method approach to SNA, this study implemented (a) SNA to reveal who is providing peer feedback to whom while taking into consideration relevant weights, (b) content analysis (CA) to reveal the type and focus of the provided peer feedback, and (c) contextual SNA (CxSNA) to identify the personal and academic networks that surround and penetrate the peer-feedback interactions (i.e., peer-feedback provision) (see Figure 5.3).

Figure 5.3

An MMR framework for studying peer-feedback provision in CoLPs (adapted from De Laat et al., 2007)



Note. PF = peer feedback. The original framework is referred to as multi-method framework and it involves context analysis (CxA) as opposed to Contextual Social Network Analysis (CxSNA).

The CxSNA adds the provision of contextual information in terms of the surrounding networks and whether and how they are transferred and relate to processes within the specific peer-feedback situation under examination. In this study, CxSNA is still considered contextual analysis, but from a SNA perspective. More details on SNA and CA, as implemented in this study, will be given in the next subsections.

5.2.4.1. Social network analysis

Two frequently used descriptive SNA measures were conducted in this study, that is (a) centrality measures on the actor/agent level and (b) the density measure on the whole network level. After considering the representation of the nodes and ties in the networks included in this study, as suggested by Borgatti (2005) for selecting which centrality measures are applicable, Freeman's (1979) degree centrality and Bonacich's (1972) eigenvector centrality were used. Centrality is one of the most frequently used concepts in social network analysis and degree centrality and eigenvector centrality are among the best known centrality measures (Borgatti, 2005; Opsahl et al., 2010).

Degree centrality refers to the number of ties falling upon and departing from a node (i.e., direct influence) and it is considered a suitable measure for situated knowledge construction (Borgatti, 2005). The degree centrality measure was used to identify central and peripheral participants within (a) the peer-feedback network on the CoLP level (e.g., A provides feedback to B) as observed in the video data, (b) the personal network on the cohort level (e.g., A is personally connected to B) as self-reported in the questionnaires, and (c) the academic network on the cohort level (e.g., A is academically connected to B) as self-reported in the questionnaires. The eigenvector centrality is defined as the principal eigenvector of the adjacency matrix defining the network. The eigenvector centrality of an eigenvector v is given by: $\boldsymbol{\lambda v = \mathbf{A} v,}$ where $\mathbf{A}$ is the adjacency matrix of the graph, $\boldsymbol{\lambda}$ is the eigenvalue, and $\boldsymbol{v}$ is the eigenvector. A node with high eigenvector centrality is adjacent to nodes that have high eigenvector centrality themselves.

Three types of degree centrality were used. In the analyses of the personal and academic social networks on the cohort level the overall degree centrality was used (i.e., the sum of in degree and out degree centrality for each member), which indicated the sum of both the number of nodes falling upon one node and the number of nodes departing from one node. The ties were directed and represented in an asymmetrical graph, implying no immediate reciprocity. In the analyses of the peer-feedback networks extracted from the video data, two types of degree centrality were considered, namely (a) overall weighted degree centrality (i.e., the sum of weighted in-degree centrality and weighted out-degree centrality) and (b) weighted out-degree centrality. The overall weight of each tie represents the number of peer-feedback provision episodes falling upon and departing from each node, whereas the weighted out-degree refers only

to the number of peer-feedback episodes departing from one node. For example, A provided peer feedback to B ten times (10 is the weighted out-degree for A) and B provided peer feedback to A five times (5 is the weighted in-degree for A), resulting into an overall weight of 15 for A.

The whole network-level measure was that of density. Density is defined as the ratio of the total number of edges present in a graph to the total possible edges in the graph (Carrington, 2014; Khokhar, 2015). Density constitutes a measure that indicates the connectedness within a network (De Laat et al., 2007). The density was calculated on the basis of the potential complete network per situation, i.e. all potential cohort members for the personal and academic network, and/or all potential CoLP members for the personal-CoLP, academic-CoLP, and peer feedback-network.

The Gephi (Version 0.9.1) software (Bastian, Heymann, & Jacomy, 2009) was used for the social network analysis. Gephi is an open source interactive graph visualization, exploration and manipulation software used to identify, represent, analyze and visualize nodes (i.e., students) and edges (i.e., relationships, peer-feedback exchanges) from relational data (i.e., questionnaires, video data) and communicative data (i.e., video data). The generated visual representations are considered vital for the understanding of network data and for conveying the results of the analysis.

5.2.4.2. Content analysis of video data

Content analysis (CA) was conducted on the video data with a pre-defined, but still contextually situated, peer-feedback coding scheme. CA refers to a technique that allows replicable and valid inferences to be extracted from data sources that are meaningful to their framing contexts (Krippendorff, 2013). Although CA is considered to be a powerful technique to uncover learning processes, it is still labor intensive and time-demanding (De Laat et al., 2007). Nevertheless, the complete corpus of the collected video data was analyzed. Only 2 out of 7 CEs of CoLP3 were excluded due to their inappropriateness for inclusion (i.e., information session with no peer-feedback episodes and one CE with only two-participants).

To avoid the pitfall of treating the results of CA as data themselves – a practice that can distantiate the reader from the real data and the phenomena being studied – fundamental standards for reporting the employed methods have been taken into consideration (Hammer & Berland, 2014; Schoenfeld, 1992). From a socio-cultural perspective with a predominantly ethnographic orientation, Angelillo, Rogoff, and Chavajay (2006) explicitly point to the

challenge—but still a necessity—of developing coding schemes to examine "between-person engagement *explicitly*" (p. 189) in social learning contexts. To capture the between-person engagement in CoLPs and in line with Angelillo et al.'s (2006) perspective, the content analysis in this study aimed not to simply capture "what" (i.e., peer-feedback focus) individuals contributed in the CoLP, but also "to whom" individuals contributed and "how" (i.e., what type of peer feedback) individuals contributed to each other. In other words, CA aimed to unravel emerging social interaction patterns (i.e., peer-feedback patterns) from a socio-cultural perspective, supporting the value of integrating MMR to SNA to uncover emerging properties of a network (Crossley, 2010). Therefore, CA and detection of peer-feedback actors (i.e., peer-feedback providers and peer-feedback recipients) was employed in parallel.

The coding scheme consisted of twelve codes (see Table 5.5). Eight codes addressed the peer-feedback provision aspect of peer-feedback episodes (Level 1) and four codes addressed the peer-feedback focus reflected in the peer-feedback provision episodes (Level 2). The coding scheme was developed in such a way to enable the identification both of the type of the peer feedback provided (i.e., the "how" of the peer feedback) and the focus of the peer feedback provided (i.e., the "what" of the peer feedback).

Table 5.5

Peer-feedback coding scheme used in content analysis of video data

Level 1: Peer-feedback provision				
Id	**Code name**	**Label**	**Description**	**Example**
1.	Verification-positive	**VP**	All statements, comments and reactions that contain a positive evaluation of the performance. Focus on the actions that were done correctly.	"Your presentation was very well structured,"
2.	Verification-negative	**VN**	All statements, comments and reactions that contain a negative evaluation of the performance. Focus on actions that were done incorrectly (i.e. problems, mistakes, gaps, etc.).	"but you speak too fast!"
3.	Question	**Q**	All questions that prompt reflection. They do not contain an alternative or implicit suggestion for improvement or concrete action by the recipient.	"How would you improve your presentation?"
4.	Suggestion	**SU**	All statements and comments that follow a positive or negative verification. The offered suggestion provides an alternative or alternatives for performed activities or choices made and prompts concrete action by the recipient.	"I would suggest to change the font size…"
5.	Argumentation	**AR**	All statements, comments that follow and/or proceed a positive or negative verification, question, or suggestion. Argumentation provides a ground/ reason/ argument/ elaboration/ exemplification on a previous or following statement, for example on a negative evaluation or the alternative suggested by the provider. Argumentation can be offered in the form of additional information, examples, use of criteria.	"…because it's too small."
6.	Affect: Effort acknowledgement	**EA**	All statements and comments acknowledging the effort of the recipient.	"It's obvious that you have worked hard on this!"
7.	Affect: Interest	**IN**	All statements, comments, questions and reactions that express interest and curiosity towards the performance.	"After your presentation I would like to know more about the topic."
8.	Affect: Support/ encouragement	**SE**	All statements, comments and actions that are intended to encourage or support the recipient.	"I'm sure that you will be great tomorrow!"

Level 2: Feedback focus				
9.	Skill/task performance related	**SK**	All statements and comments that act as feedback to participants' skills/task performance/overall performance within or outside the setting of the community events.	"During your presentation I noticed that you were moving your hands quite nervously."
10.	Study program related	**ST**	All statements and comments that act as feedback to participants referring to study program situations (e.g., class situations, group work situations) beyond the community events.	"I like our collaboration in our group assignments."
11.	Personal	**PE**	All statements and comments that act as feedback to participants personality/personal attitudes (e.g., personality, attitudes to specific situations).	"You are very reliable."
12.	Social	**SO**	All statements and comments that act as feedback to participants social engagement/ social contribution/ organization of and/ or participation in social activities.	"You organize very well social activities that bring us together."

The MAXQDA Plus 12 software (Release 12.3.1) was used for the analysis of the video data. The complete set of video data was analyzed for the identification of peer-feedback provision episodes and the involved actors. Two independent coders segmented the video data of CoLP3 with 70% agreement and one coder independently proceeded with the segmentation of peer-feedback provision episodes in CoLP1. A peer-feedback provision episode refers to any statement, comment or expressed reaction (i.e., card with feedback comments shown to the recipient without being verbalized) on one's skills/task performance, study program situations, personality and/or general attitude to specific situations, and/or social engagement/social contribution without considering the recipient's response(s). Consequently, responses by peer-feedback recipients were not considered for further analysis.

By considering the Level 1 categories of the coding scheme, two independent coders proceeded with the coding of 84 out of 1024. The selected 84 episodes were of community event CE1.6 (CoLP1). This event was selected due to the large number of identified segments and its potential variability in codes. Cohen's kappa was used to calculate inter-rater reliability. Cohen's kappa was .57 in trial 1, which was considered insufficient. After trial 1, the coders modified the code Justification to Argumentation after negotiation, as the Justification code was too restrictive (i.e., reason for a statement that aimed to convince the recipient). After implementing this change the two independent coders proceeded with trial 2 on 93 out of 1024 additional segments of the same CE (i.e., CE1.6 in CoLP1) and achieved a Cohen's kappa of .86, which was considered satisfactory. One coder proceeded with the coding of the remaining segments. No non-codable segments were identified since the criterion for the segmentation of the episodes was to be a peer-feedback provision episode that could fit in one of the codes.

By considering the Level 2 categories of the coding scheme, two independent coders proceeded with the coding of 101 out of 1024 segments. The selected 101 episodes to be coded were also episodes of the community event CE1.6. Cohen's kappa was .70 in trial 1 which was considered satisfactory. Afterwards one coder proceeded with the coding of the remaining segments for both CoLPs.

5.3. Results

5.3.1. RQ1: What is the relationship between peers' centrality in personal and academic networks?

The personal and academic networks on the cohort level were initially investigated as whole-network structures. The density of the directed personal and academic networks varied within and across cohorts. In Cohort 1 the academic network showed higher density than the personal network, whereas the opposite was observed in Cohort 3 (see Table 5.6).

Table 5.6

Graph density: Personal and academic networks on the cohort level

	Cohort 1	Cohort 3
CoLP members %	56.52%	79.17%
Density personal	0.340	0.527
Density academic	0.423	0.467

Following the density measure (i.e., whole-network measure), (a) degree centrality (i.e., actor measure; the sum of both the in-degree and out-degree centrality of actors) was computed to identify the central and peripheral nodes, and (b) eigenvector centrality was computed to identify important nodes in the personal and academic networks on the cohort level. An overview of the centrality measures for all nodes in the personal and academic network for Cohort 1 is provided in Table 5.7 and visualized in Figure 5.5 and for Cohort 3 in Table 5.8 and visualized in Figure 5.6. Cohort students' (i.e., CoLP and non-CoLP members) centrality in Figure 5.5 and Figure 5.6 is displayed with a size ranking of the nodes (i.e., larger nodes represent higher centrality ranking). The nodes are also displayed with a color partition that implies CoLP membership or not. The color green in both figures indicates the nodes that were not CoLP members. The ties in all network visualizations are not weighted and directed, representing the personal and academic connections from one node to another. Nevertheless, Cohort students' centrality is defined by different criteria in each visualization (i.e., overall degree centrality and eigenvector centrality) for each cohort.

Table 5.7

Cohort 1: Centrality measures in personal and academic networks

Label	In-degree PE	Out-degree PE	Degree PE	EV-PE centrality	In-degree AC	Out-degree AC	Degree AC	EV-AC centrality
C1.4	10	16	26	0.956	7	18	25	0.525
NC1.23	8	18	26	0.677	13	16	29	0.977
C1.12	11	13	24	0.974	13	8	21	0.946
C1.3	10	10	20	0.937	8	3	11	0.616
C1.8	8	12	20	0.637	4	12	16	0.242
C1.13	9	11	20	0.909	10	6	16	0.700
C1.9	10	9	19	0.993	11	6	17	0.835
C1.2	7	11	18	0.551	9	13	22	0.649
C1.7	10	7	17	0.919	10	9	19	0.724
NC1.19	5	12	17	0.464	9	22	31	0.646
C1.5	12	4	16	1	14	5	19	1
C1.11	10	6	16	0.994	11	15	26	0.853
C1.10	9	5	14	0.774	11	8	19	0.857
NC1.21	8	6	14	0.599	10	5	15	0.688
C1.1	8	3	11	0.728	9	2	11	0.621
NC1.14	6	5	11	0.413	14	10	24	0.980
NC1.20	5	6	11	0.441	9	13	22	0.613
NC1.17	6	3	9	0.484	7	9	16	0.628
NC1.22	5	4	9	0.530	6	16	22	0.490
C1.6	7	0	7	0.625	9	4	13	0.662
NC1.18	3	4	7	0.288	6	4	10	0.386
NC1.15	5	1	6	0.281	9	5	14	0.589
NC1.16	0	6	6	0.000	5	5	10	0.283

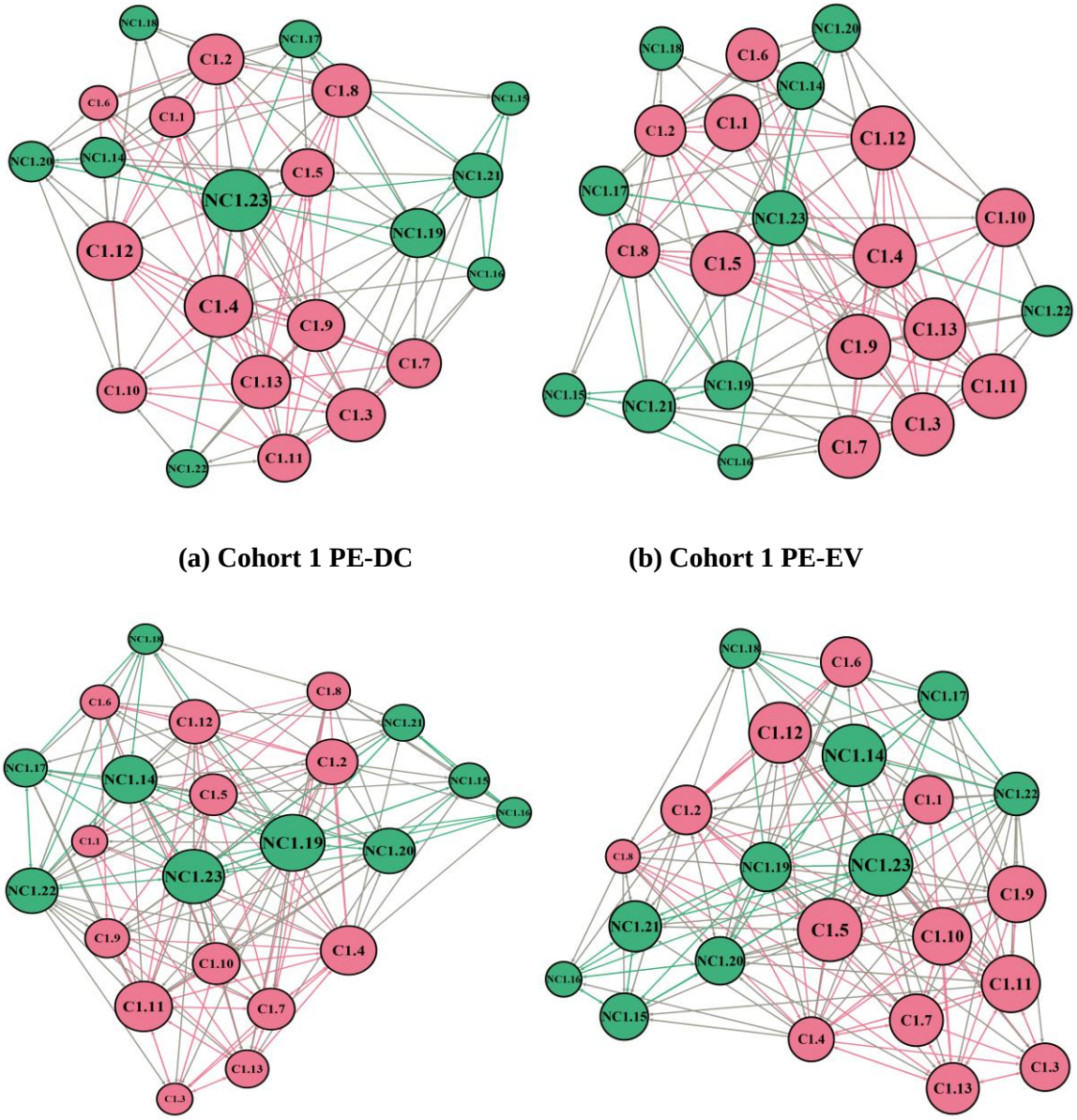
Note. C1 = CoLP1 members, NC1 = non-CoLP1 members. PE = personal network. AC = academic network. EV-PE = eigenvector centrality in personal network. EV-AC = eigenvector centrality in academic network. Nodes are sorted from highest degree centrality in the personal network to lowest degree centrality in the personal network.

Table 5.7 shows the centrality measures (i.e., in-degree, out-degree, overall degree and eigenvector) centrality for Cohort 1 students in personal and academic networks. It can be observed that there is a variation in degree centralities within and across networks. The personal and academic centrality pattern as represented in the personal and academic network of Cohort 1 is illustrated in Figure 5.5. As is evident in Figure 5.5, all Cohort 1 students appear in the network, implying that all Cohort students were connected with other students to some extent in the personal and academic networks. The same observation applies to Table 5.8 and Figure 5.6 for Cohort 3.

Figure 5.5 reveals that CoLP1 members seem to have higher degree and eigenvector centrality than non-CoLP1 members in the personal network. Whereas no such pattern is indicated in the academic network of Cohort 1. Spearman correlation was also computed to confirm or reject this visual indication and a moderate positive correlation between degree centrality in the personal network and CoLP membership was found, $r(23) = 518$, $p = .011$, as well as a strong positive correlation between eigenvector centrality and CoLP membership $r(23) = 807$, $p = .000$.

Figure 5.5

Cohort 1: Degree centrality (DC) and eigenvector centrality (EV) in personal(PE) and academic (AC) networks



(a) Cohort 1 PE-DC **(b) Cohort 1 PE-EV**

(c) Cohort 1 AC-DC **(d) Cohort 1 AC-EV**

Note. NC1 stands for non-CoLP1 members. C1 stands for CoLP1 members. PE-DC = degree centrality in the personal network. PE-EV = eigenvector centrality in the personal network. AC-DC = degree centrality in the academic network. AC-EV = eigenvector centrality in the academic network. The preview and layout settings on Gephi were identical for all network visualizations to avoid any visual misrepresentation of nodes' centrality.

Table 5.8

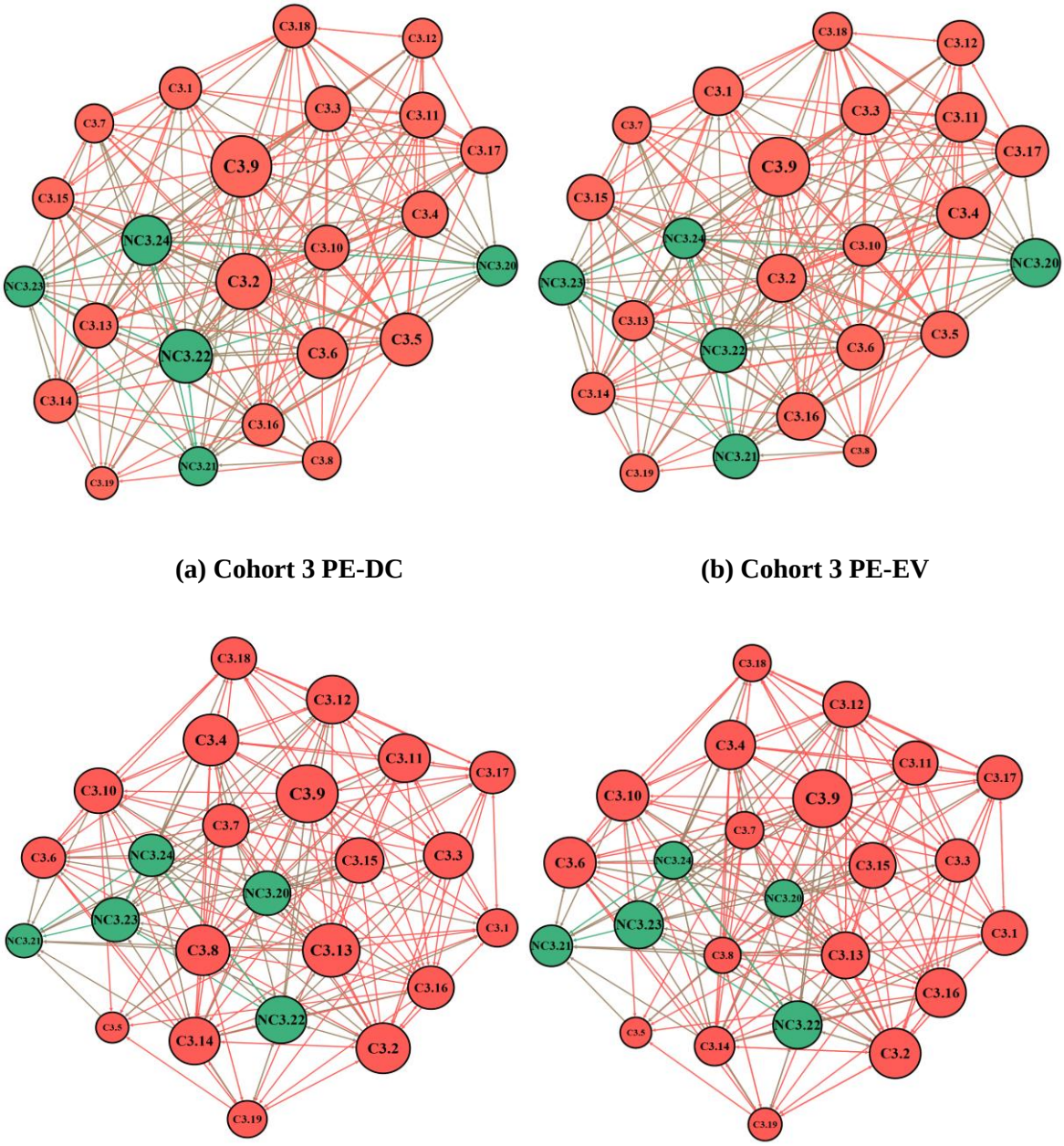
Cohort 3: Centrality measures in personal and academic networks

Label	In-degree PE	Out-degree PE	Degree PE	EV-PE centrality	In-degree AC	Out-degree AC	Degree AC	EV-AC centrality
C3.9	20	23	43	1	16	18	34	1
C3.2	14	23	37	0.706	13	14	27	0.829
NC3.22	12	22	34	0.624	12	12	24	0.779
C3.5	13	20	33	0.662	7	1	8	0.399
C3.6	12	19	31	0.651	14	4	18	0.845
NC3.24	10	20	30	0.515	8	11	19	0.546
C3.4	16	10	26	0.810	13	15	28	0.809
C3.17	15	11	26	0.795	11	8	19	0.691
C3.3	13	12	25	0.695	10	13	23	0.671
C3.11	14	11	25	0.744	11	14	25	0.693
C3.10	10	14	24	0.548	13	9	22	0.845
C3.13	10	14	24	0.502	12	18	30	0.756
C3.14	11	12	23	0.550	10	14	24	0.589
C3.18	8	14	22	0.453	8	11	19	0.535
C3.1	14	7	21	0.715	11	4	15	0.710
C3.16	14	7	21	0.690	13	7	20	0.810
C3.15	13	7	20	0.648	11	11	22	0.729
NC3.20	13	6	19	0.716	8	13	21	0.542
NC3.23	13	6	19	0.610	12	9	21	0.777
C3.12	12	6	18	0.630	12	13	25	0.736
C3.7	8	9	17	0.426	8	12	20	0.548
C3.8	5	12	17	0.284	8	19	27	0.515
NC3.21	12	5	17	0.615	10	1	11	0.635
C3.19	9	1	10	0.439	7	7	14	0.445

Note. C3 stands for members in CoLP3 and NC3 stands for non-members in CoLP3. PE = personal network. AC = academic network; EV-PE = eigenvector centrality in the personal network. EV-AC = eigenvector centrality in the academic network. Nodes are sorted from highest to lowest overall degree centrality on the personal network.

Figure 5.6

Cohort 3: Degree centrality (DC) and eigenvector centrality (EV) in personal (PE) and academic (AC) networks



(a) Cohort 3 PE-DC

(b) Cohort 3 PE-EV

(c) Cohort 3 AC-DC

(d) Cohort 3 AC-EV

Note. NC3 stands for non-CoLP3 members. C3 stands for CoLP3-members. PE-DC = degree centrality in the personal network. PE-EV = eigenvector centrality in the personal network. AC-DC = degree centrality in the academic network. AC-EV = eigenvector centrality in the academic network. The preview and layout settings on Gephi were identical for all network visualizations to avoid any visual misrepresentation of nodes' centrality.

In Figure 5.6 no pattern of centrality in terms of CoLP membership or not is evident since the majority of the Cohort students were also members of CoLP3. Spearman correlation was also computed to assess any relationship between degree and eigenvector centrality and CoLP membership and no correlation was found. Nevertheless, what stands out in the figure is that cohort student C3.9 retains a highly central position across networks, whereas other cohort students' centralities vary across the network visualizations.

Spearman correlation was computed to assess the relationship between participants' overall degree centrality and eigenvector centrality in personal networks and academic networks. A positive correlation was found between overall degree centrality in the personal and academic network for Cohort 1, $r(23) = .46$, $p = .026$, whereas no correlation was found for Cohort 3, $r(24) = .25$, $p = .239$. As expected, degree centrality in the personal network was positively correlated with eigenvector centrality in the personal network for Cohort 1, $r(23) = .68$, $p = .000$, and Cohort 3, $r(24) = .52$, $p = .009$. Degree centrality in the academic network was also positively correlated with eigenvector centrality in the academic network for Cohort 1, $r(23) = .43$, $p = .042$, and Cohort 3, $r(24) = .45$, $p = .026$. Eigenvector centrality in the personal network was positively correlated with eigenvector centrality in the academic network for Cohort 1, $r(23) = .52$, , $p = .012$, and Cohort 3, $r(24) = .42$, $p = .042$.

5.3.2. RQ2: What is the relationship between peers' centrality in peer-feedback networks and peers' centrality in personal and academic networks?

To identify peers' centrality in peer-feedback provision networks, SNA was conducted on the basis of the video data (i.e., peer-feedback provision episodes in CEs). The peer-feedback provision networks were initially identified per CE in each CoLP and were subsequently added-up to build the peer-feedback provision network on the CoLP level, i.e. including all analyzed CEs (for an overview on the peer-feedback networks per CE in each CoLP see Appendix K). Four centrality measures were computed: (a) overall degree centrality, (2) out-degree centrality, (3) overall weighted degree centrality, and (4) weighted out-degree centrality. Overall degree centrality identifies peers' centrality in terms of the total number of peer-feedback connections (i.e., overall degree centrality considering both peer-feedback provision and peer-feedback reception). Out-degree centrality represents the number of the peer-feedback provision connections (i.e., out-degree centrality considering only peer-feedback provision). Overall

weighted degree centrality refers to both weighted peer-feedback provision and weighted peer-feedback reception. Finally, weighted out-degree centrality refers to the weight of peer-feedback provision connections (i.e., weighted out-degree centrality). Eigenvector centrality was also computed to identify the importance of the nodes. An overview of the centrality measures for all nodes in the personal, academic and peer-feedback network for CoLP1 is provided in Table 5.9 and for CoLP3 in Table 5.10. The centrality measures in peer-feedback provision are visualized for CoLP1 in Figure 5.7 and for CoLP3 in Figure 5.8. CoLP members' centrality in Figure 5.7 and Figure 5.8 display a size ranking of the nodes (i.e., larger nodes represent higher centrality ranking) and with color ranking from green to pink (i.e., green nodes represent highest centrality, pink nodes lowest centrality). The ties in all network visualizations are weighted, representing the peer-feedback provision episodes from one node to another; or in other words, the weighted out-degree. Nevertheless, CoLP members' centrality is defined by different criteria in each visualization (e.g., overall degree, out-degree, etc.).

Table 5.9

CoLP1: Overview of all centrality measures in personal, academic, and peer-feedback networks

Label	P	PE degree	AC degree	PF out-degree	PF degree	PF w-out-degree	PF w-degree	EV-PF
C1.8	4	20	16	8	18	196	328	0.962
C1.9	5	19	17	8	17	169	266	0.927
C1.12	5	24	21	9	16	162	309	0.870
C1.1	3	11	11	8	15	102	194	0.870
C1.5	6	16	19	8	15	100	189	0.870
C1.6	6	7	13	10	19	97	275	1
C1.10	5	14	19	8	16	86	239	0.926
C1.13	3	20	16	7	14	69	164	0.870
C1.11	3	16	26	2	7	23	37	0.621
C1.2	3	18	22	2	4	10	13	0.253
C1.4	5	26	25	4	8	5	28	0.468
C1.7	2	17	19	1	2	3	4	0.035
C1.3	2	20	11	1	1	2	2	0.000

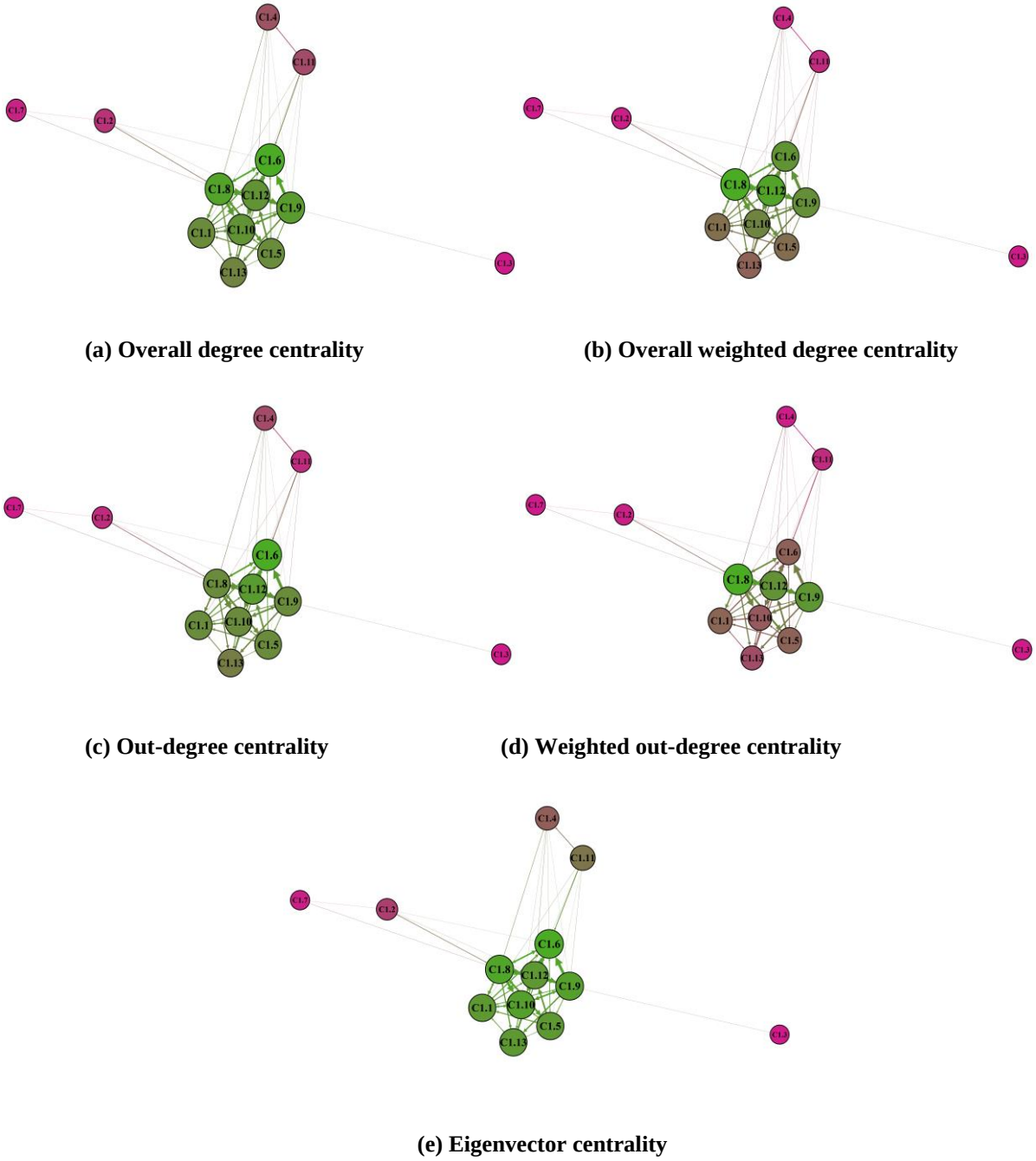
Note. C1 = member in CoLP1. P = participation in CEs. PE = personal network. AC = academic network. PF = peer feedback network. EV = eigenvector centrality. EV-PF = eigenvector centrality in peer-feedback network. Nodes are ordered from highest peer-feedback weighted out-degree to lowest peer-feedback weighted out-degree.

Table 5.9 shows the centrality measures for CoLP1 members in personal, academic and peer-feedback networks along with CoLP members' participation rate in CEs. A substantial variation in degree centralities can be observed within and across networks, especially in the centrality measures in the peer-feedback networks. The peer-feedback centrality pattern as represented in the peer-feedback network of CoLP1—based on CoLP members' degree

centralities across all CEs of CoLP1—is illustrated in Figure 5.7. As evident in Table 5.9 and Figure 5.7, all CoLP1 members appear in the network, implying that all CoLP members provided peer feedback—at least once.

Figure 5.7

CoLP1: Centrality measures in peer-feedback provision networks across CEs



(a) Overall degree centrality

(b) Overall weighted degree centrality

(c) Out-degree centrality

(d) Weighted out-degree centrality

(e) Eigenvector centrality

Note. C1 = CoLP1 members. Network density: 0.487.

Figure 5.7 reveals that CoLP1 members with the highest degree centrality (i.e., C1.8, C1.9, C1.12) and the lowest centrality (i.e., C1.3, C1.7) retain their positioning across centrality measures, whereas all other CoLP1 members slightly change positioning across these measures (i.e., moving from core to periphery and from periphery to core).

Table 5.10

CoLP3: Overview of centrality measures in personal, academic, and peer-feedback networks

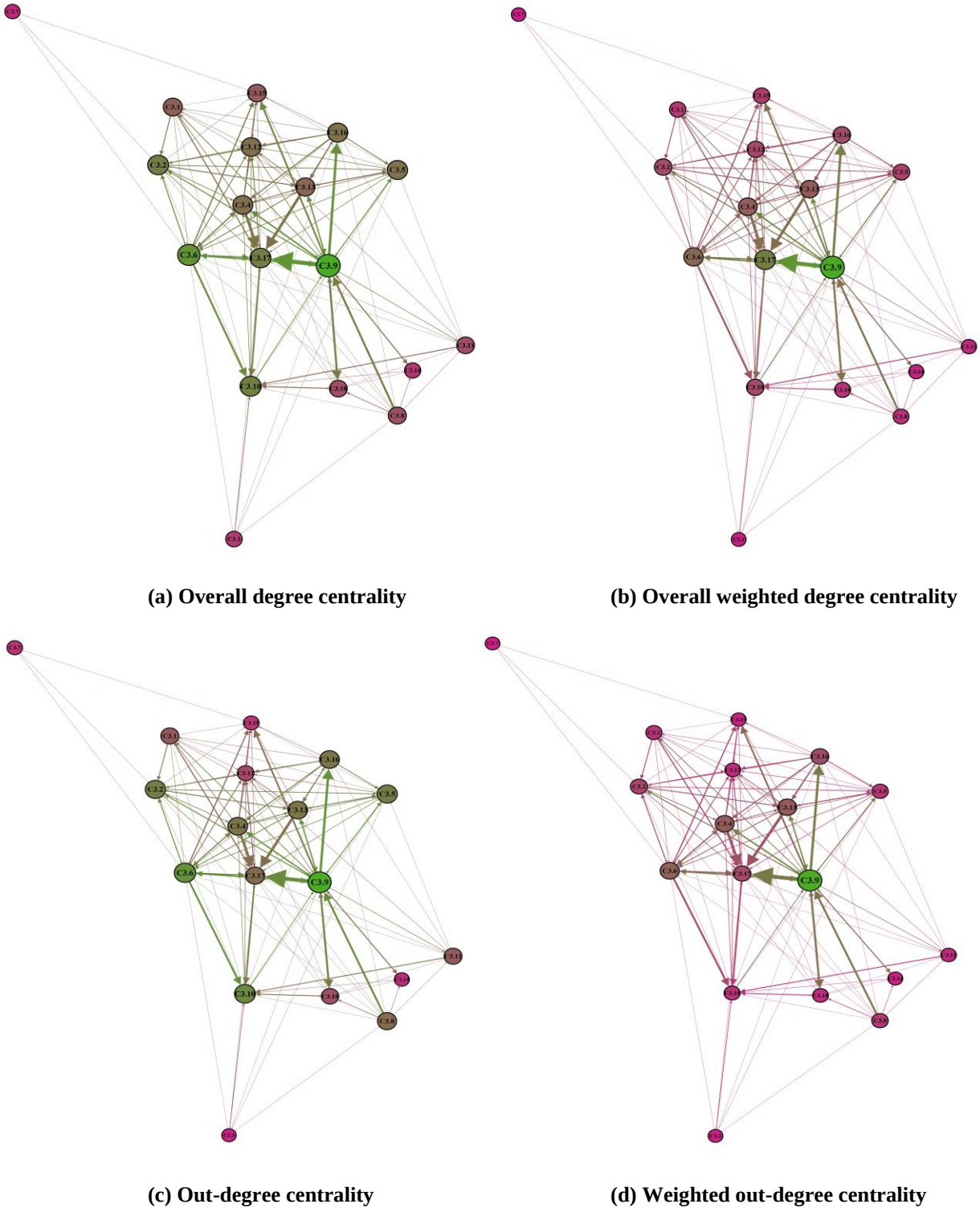
Label	P	PE degree	AC degree	PF out-degree	PF degree	PF-w out-degree	PF-w	EV-PF
C3.9	5	43	34	16	31	270	431	1
C3.6	6	31	18	13	26	134	232	0.907
C3.17	5	26	19	9	21	86	299	0.857
C3.4	4	26	28	10	18	120	202	0.581
C3.13	2	24	30	10	16	123	193	0.486
C3.16	4	21	20	10	19	92	154	0.613
C3.2	5	37	27	11	21	75	147	0.671
C3.10	5	24	22	12	22	46	142	0.715
C3.12	4	18	25	5	18	35	136	0.950
C3.5	4	33	8	11	19	53	118	0.590
C3.15	2	20	22	3	14	20	104	0.812
C3.1	4	21	15	7	15	48	95	0.635
C3.18	4	22	19	6	11	37	81	0.348
C3.8	4	17	27	9	12	56	69	0.230
C3.11	4	25	25	7	11	31	44	0.318
C3.14	6	23	24	2	6	14	37	0.256
C3.3	3	25	23	1	7	8	20	0.478
C3.7	2	17	20	3	3	8	8	0.000
C3.19	2	10	14	0	0	0	0	0.000

Note. P = participation in CEs. PE = personal network. AC = academic network. PF = peer feedback. w- = weighted. EV = eigenvector centrality.

Table 5.10 shows the centrality measures for CoLP3 members in personal, academic and peer-feedback networks along with CoLP members' participation rate in CEs. It can be observed that there is substantial variation in degree centralities within and across networks, and especially in the centrality measures in the peer-feedback networks, as also observed in CoLP1. The peer-feedback centrality pattern as represented in the peer-feedback network of CoLP3—based on CoLP members' degree centralities across all CEs of CoLP3—is illustrated in Figure 5.8. As evident in Figure 5.8, 18 out of 19 CoLP3 members appear in the network, since C3.19 did not engage into a peer-feedback provision episode in CoLP3. CoLP3 members' centrality in Figure 5.8 is represented with the same ranking attributes as CoLP1 members' centrality in Figure 5.7.

Figure 5.8

CoLP3: Centrality measures in peer-feedback provision networks across CEs

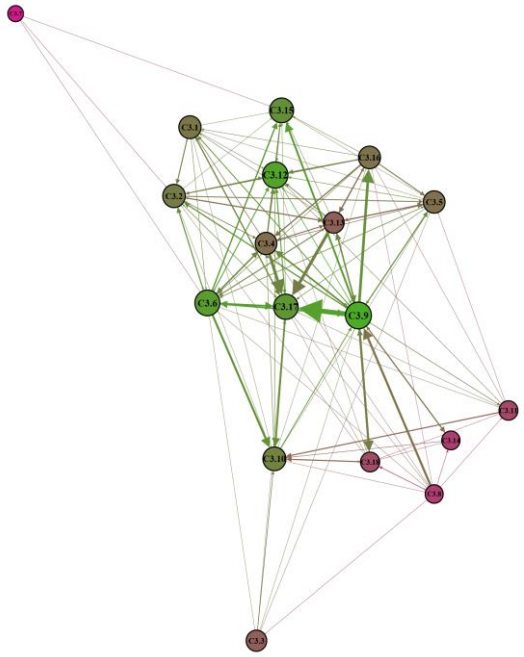


(a) Overall degree centrality

(b) Overall weighted degree centrality

(c) Out-degree centrality

(d) Weighted out-degree centrality



(e) Eigenvector centrality

Note. C3 = CoLP3 members. Network density: 0.424.

Figure 5.8 reveals a greater variability in CoLP3 members' centrality positioning across measures, with only C3.9 (i.e., highest degree centrality) and C3.7 (i.e., lowest degree centrality) to retain the same positioning across centrality measures. All other CoLP3 members seem to change centrality positioning across centrality measures with high variability.

A further exploration into CoLP members' centrality across measures and networks from a quantitative perspective was considered relevant to address the RQ2 of this study. Spearman correlations were calculated to assess the relationships between peers' centrality in peer-feedback networks—i.e., (a) overall degree centrality in peer-feedback networks, (b) out-degree centrality in peer-feedback networks, (c) overall weighted degree centrality in peer-feedback networks, (d) weighted out-degree centrality, and (e) eigenvector centrality—and personal and academic networks—i.e., (a) overall degree centrality and (b) eigenvector centrality. Table 5.11 reports the correlations for Cohort 1/Colp1 and Cohort 3/CoLP3.

Table 5.11

Correlations between peers' centrality in peer-feedback, personal and academic networks

Cohort 1/CoLP1 (N = 13)					
	PF degree	PF out-degree	PF w-degree	PF w-out-degree	PF-EV
PE degree	-.22	-.25	-.11	-.10	-.31
PE-EV	-.17	-.10	-.12	.01	-.20
AC degree	-.26	-.23	-.19	-.22	-.31
AC-EV	.13	.27	.18	.19	.13
Participation in CEs	.75**	.80**	.65*	.55	.69**
Cohort 3/CoLP3 (N = 19)					
PE degree	.67**	.68**	.63**	.59**	.48**
PE-EV	.50**	.38	.54*	.44	.54*
AC degree	.14	.21	.27	.31	.09
AC-EV	.74**	.65**	.74**	62**	.72**
Participation in CEs	.61**	.55*	.49*	.45	.47*

Note. * $p < .05$, ** $p < .01$. PE = personal network. AC = academic network. PF = peer feedback. EV = eigenvector centrality. PE-EV = eigenvector centrality in personal network. AC-EV = eigenvector centrality in academic network. w- = weighted, PF-EV = eigenvector centrality in peer feedback network.

Table 5.11 is revealing in several ways. First, it shows the correlational pattern of CoLP members centrality on the Cohort/CoLP level, and second enables a comparative view across Cohorts/CoLPs. For Cohort1/CoLP1, multiple strong positive correlations were found between peer-feedback degree centrality, peer-feedback out-degree centrality, peer-feedback eigenvector centrality, and participation in CEs. A moderate positive correlation was found between peer-feedback weighted degree and participation in CEs. Although not significant, the direction of the correlation of all peer-feedback centrality measures with degree centrality in the personal network and eigenvector centrality in the academic network, is negative. A different correlational pattern is observed for Cohort3/CoLP3. Peer-feedback degree, peer-feedback out-degree, peer-feedback weighted degree, peer-feedback weighted out-degree and eigenvector centrality were all strongly and positively correlated with degree centrality in the personal network and eigenvector centrality in the academic network.

5.3.3. RQ3. What are the types and focus of peer-feedback provision episodes in CoLPs?

The content analysis revealed a similar pattern of provided peer-feedback types and foci across CoLPs (see Table 5.12 and Table 5.13). The findings showed that – across CEs in both CoLPs – *Verification positive* was the most frequently provided type of peer feedback (CoLP1: 40.63%; CoLP3: 42.28%), followed by *Argumentation* (CoLP1: 26.27%; 28.42%) and *Suggestion* (CoLP1: 13.28%; CoLP3: 15.84%). In terms of the peer-feedback focus, the majority of the peer-feedback provision segments addressed skill-, task-, or performance-related aspects (CoLP1: 72.27%; CoLP3: 70.46%) followed by personal aspects (CoLP1: 17.77%; CoLP3: 18.71%) and study-related aspects (CoLP1: 9.47%; CoLP3: 7.80%). Peer-feedback focused on social engagement and contribution to social activities was rarely observed (CoLP1: 0.49%; CoLP3: 3.03%), although this aspect was more evident in CoLP3.

Table 5.12

CoLP1: Peer-feedback scenery

CE	Feedback seekers	Initiative/ Intervention	PF activity	PF Eps.	% PF Eps.	Content analysis					
						Level 1: Type			Level 2: Focus		
						Code	*F*	%	Code	*f*	%
CE1.1	C1.4, C1.8	Random selection by facilitator	Spontaneous/ unprepared presentation (Pecha Kucha)/ Discussion about presentation skills	36	3.52%	Verification positive Argumentation Verification negative Suggestion Affect: Effort acknowledgement	15 15 3 2 1	41.67% 41.67% 8.33% 5.56% 2.78%	SK	36	100%
CE1.2	C1.9, C1.11, C1.7, C1.6, C1.2, C1.12	Random selection by facilitator	Spontaneous/ unprepared presentation with instant feedback cards	23	2.25%	Suggestion Affect: Support/ encouragement Argumentation Verification negative	11 8 3 1	47.83% 34.78% 13.04% 4.35%	SK PE ST	14 5 4	60.87% 21.74% 17.39%
CE1.3	C1.12, C1.9, C1.10	Members' self-initiated exposure	Members' presentations/ Discussion about presentation design	114	11.13%	Suggestion Verification positive Argumentation Verification negative Question	47 30 16 15 6	41.23% 26.32% 14.04% 13.16% 5.26%	SK	114	100%
CE1.4	C1.9, C1.11	Members' self-initiated exposure	Members' presentations/ Discussion about presentation styles/design	34	3.32%	Verification positive Argumentation Suggestion Verification negative Affect: Support/ encouragement	10 10 9 3 2	29.41% 29.41% 26.47% 8.82% 5.88%	SK	34	100%
CE1.5	C1.9, C1.8	Members' self-initiated exposure	In-community created posters/ Discussion about poster presentation styles	24	2.34%	Verification positive Argumentation Suggestion Verification negative	7 7 6 4	29.17% 29.17% 25.00% 16.67%	SK	24	100%

CE1.6	C1.1, C1.5, C1.6, C1.8, C1.9, C1.10, C1.12, C1.13	Facilitator's initiative on members' self-reflection/ spontaneously switch to a global PF session	Self-reflection/ Global PF session	793	77.44%	Verification positive Argumentation Verification negative Suggestion Affect: Effort acknowledgement Affect: Support/ encouragement Question	354 218 67 61 54 29 10	44.64% 27.49% 8.45% 7.69% 6.81% 3.66% 1.26%	SK PE ST SO	518 177 93 5	65.32% 22.32% 11.73% 0.63%
CE1.1-CE1.6				1024	100%	Verification positive Argumentation Suggestion Verification negative Affect: Effort acknowledgement Affect: Support/ encouragement Question	416 269 136 93 55 39 16	40.63% 26.27% 13.28% 9.08% 5.37% 3.81% 1.56%	SK PE ST SO	740 182 97 5	72.27% 17.77% 9.47% 0.49%

Note. CE1 = community event in CoLP1. PF = peer feedback. Eps = episodes. SK = skill. PE = personal. ST = study. SO = social. The identified types and foci in the content analysis section of the table are presented in rank-order position from the most frequently occurring one to the least frequently occurring.

Table 5.13

CoLP3: Peer-feedback scenery

CE	Feedback seekers	Initiative/ Intervention	Main PF activity	PF Eps.	% PF Eps	Content analysis					
						Level 1: Type			Level 2: Focus		
						Code	*f*	%	Code	*f*	%
CE3.1	C3.2, C3.10, C3.15	Random facilitator's selection/ Members gave feedback only to same-group members	Spontaneous/ unprepared presentation (Pecha Kucha)/ Discussion about presentation skills	64	5.10%	Argumentation Verification positive Affect: Effort acknowledgement Verification negative Suggestion Affect: Support/encouragement	19 18 14 7 4 2	29.69% 28.13% 21.88% 10.94% 6.25% 3.13%	SK	64	100%
CE3.2	C3.3, C3.5, C3.8, C3.4, C3.11, C3.16, C3.9, C3.6	Random facilitator's selection/ Feedback seeker initiated feedback discussion at the end of the CE with only with two other members	Spontaneous/ unprepared presentation/ Discussion about presentation skills	123	9.79%	Verification positive Argumentation Suggestion Affect: Support/ encouragement Affect: Effort acknowledgement Verification negative Question	56 31 21 6 4 4 1	45.53% 25.20% 17.07% 4.88% 3.25% 3.25% 0.81%	SK PE ST	116 5 2	94.31% 4.07% 1.63%
CE3.4	C3.12, C3.18, C3.10	Members' self-initiated exposure/ Feedback session focused on C3.10's presentation as discussion springboard	Self-initiated past and in-progress presentations	125	9.95%	Argumentation Suggestion Verification positive Affect: Support/ encouragement Verification negative Question	47 31 22 11 11 3	37.60% 24.80% 17.60% 8.80% 8.80% 2.40%	SK ST	99 26	79.20% 20.80%
CE3.5	C3.9, C3.18, C3.14	Members' self-initiated exposure	Self-initiated in-progress motivation letters and CVs	124	9.87%	Suggestion Argumentation Verification positive Question Affect: Support/ encouragement Affect: Interest Verification negative Affect: Effort acknowledgement	53 37 17 6 3 3 3 2	42.74% 29.84% 13.71% 4.84% 2.42% 2.42% 2.42% 1.61%	SK PE	122 2	98.39% 1.61%

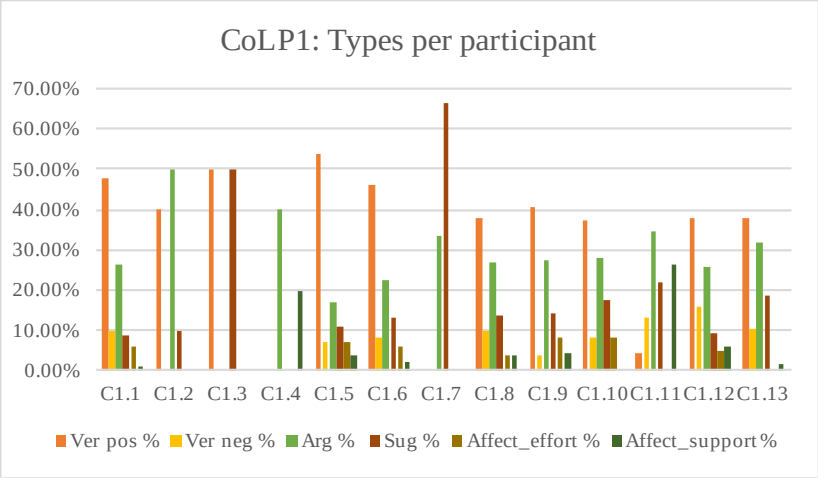
CE3.7	C3.1, C3.2, C3.4, C3.5, C3.6, C3.9, C3.12, C3.13, C3.15, C3.16, C3.17	Facilitator's invitation for peer-feedback exchange (feedback focus: open to members' interests)	Global feedback session	820	65.29%	Verification positive	418	50.98%	SK	484	59.02%
						Argumentation	223	27.20%	PE	228	27.80%
						Suggestion	90	10.98%	ST	70	8.54%
						Affect: Support/ encouragement	43	5.24%	SO	38	4.63%
						Verification negative	33	4.02%			
						Affect: Effort acknowledgement	11	1.34%			
						Question	2	0.24%			
CE3.1-C3.7				1256	100%	Verification positive	531	42.28%	SK	885	70.46%
						Argumentation	357	28.42%	PE	235	18.71%
						Suggestion	199	15.84%	ST	98	7.80%
						Affect: Support/ encouragement	65	5.18%	SO	38	3.03%
						Verification negative	58	4.62%			
						Affect: Effort acknowledgement	31	2.47%			
						Question	12	0.96%			
						Affect: Interest	3	0.24%			

Note. CE3 = community event in CoLP3. PF = peer feedback. Eps = episodes. SK = skill. PE = personal. ST = study. SO = social. The identified types and foci in the content analysis section of the table are presented in rank-order position from the most frequently occurring one to the least frequently occurring.

Turning now to how the types and foci of peer-feedback provision statements were distributed across participants, it is apparent from Figures 5.11 through 5.14 that the distribution varied substantially, although the type *Verification positive* and the focus *Skill* were dominant across the majority of participants in both CoLPs. As observed in the figures, CoLP3 members seem to have used a larger variety of feedback types and foci compared to CoLP1.

Figure 5.11

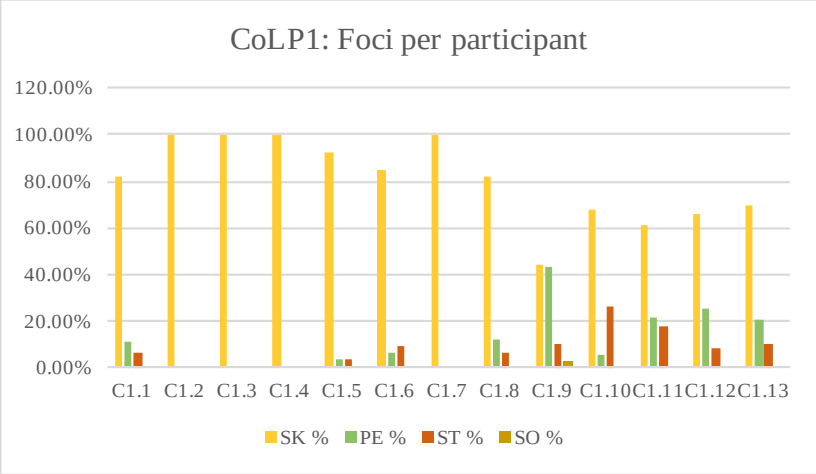
CoLP1: Peer feedback provision types per participant



Note. CoLP1 = community of learning practice 1. Ver pos = verification positive. Ver neg = verification negative. Arg = argumentation. Sug = suggestion. Affect_effort = affect: effort acknowledgement. Affect_support = affect: support/ encouragement. Que = question.

Figure 5.12

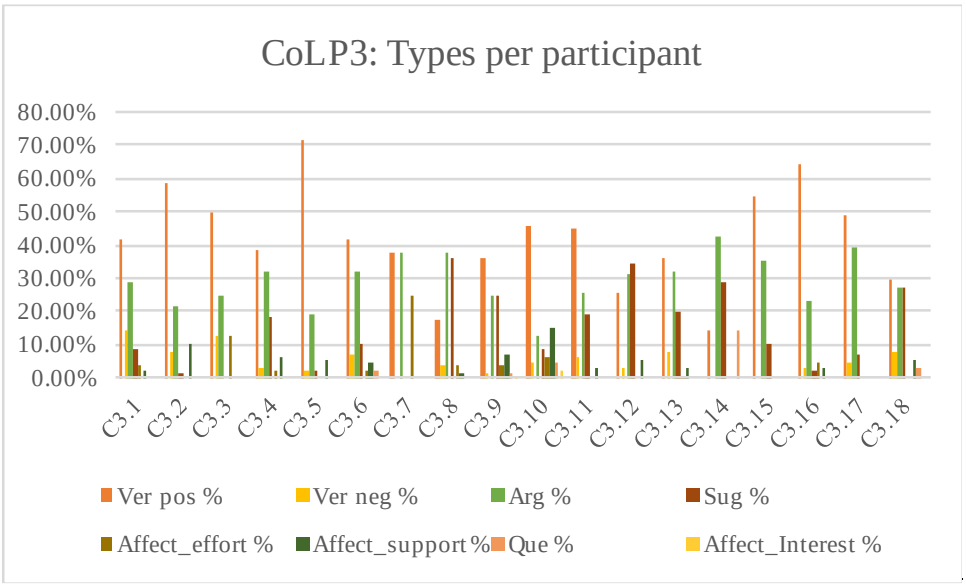
CoLP1: Peer feedback provision foci per participant



Note. CoLP1 = community of learning practice 1. SK = skill. PE = personal. ST = study. SO = social.

Figure 5.13

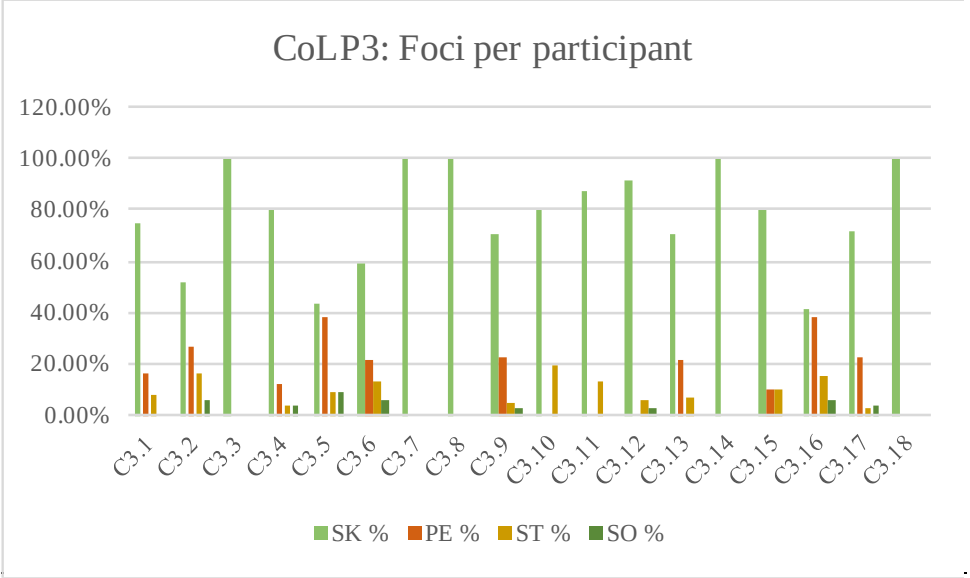
CoLP3: Peer feedback provision types per participant



Note. CoLP3 = community of learning practice 3. Ver pos = verification positive. Ver neg = verification negative. Arg = argumentation. Sug = suggestion. Affect_effort = affect: effort acknowledgement. Affect_support = affect: support/ encouragement. Que = question.

Figure 5.14

CoLP3: Peer feedback provision foci per participant



Note. CoLP1 = community of learning practice 1. SK = skill. PE = personal. ST = study. SO = social.

5.4. Discussion

The present study investigated peers' centrality across social networks, i.e. peer-feedback provision networks enabled by CoLP participation, and personal and academic networks, along with the type and focus of the provided peer feedback. Social networks were investigated on the cohort level (i.e., personal and academic networks) and on the CoLP level (i.e., peer-feedback provision networks).

5.4.1. RQ1: What is the relationship between peers' centrality in personal and academic networks?

Personal and academic networks imply a history of relationships among individuals (Nardi et al., 2002), which is reflected in the findings for RQ1. In Cohort 1, personal and academic networks were correlated, whereas no correlation was found between personal and academic networks in Cohort 3. Nevertheless, the network density in both the personal and academic network was higher in Cohort 3 compared to Cohort 1.

These findings can be related with the history of these networks. In Cohort 1, there was a history of relationships that had developed over a period of two semesters (i.e., SNA data

collection was conducted at the end of the second semester). In Cohort 3, the history that enabled the development of personal and academic networks was only one semester (i.e., SNA data collection was conducted at the end of the first semester). In terms of the density for first semester students, the short history of their networks may not have enabled the development of clusters of personal and academic relationships, as opposed to second semester students who may have had more opportunity to first explore the whole-network and subsequently develop their own clusters within personal and academic networks. This might have contributed to the difference between Cohort 1 and Cohort 3. In terms of the relationship between personal and academic networks, a difference across cohorts was anticipated taking into consideration this historical difference. In particular, after a history of two semesters, it is highly likely that individuals in Cohort 1 who became personally connected among themselves also formed academic relationships with each other. Likewise, after a history of one semester it is is highly likely that individuals in Cohort 3 were still in a network exploratory phase forming different types of relationships with different individuals.

5.4.2. RQ2: What is the relationship between peers' centrality in peer-feedback networks and peers' centrality in personal and academic networks?

Findings on the CoLP level underscore that peer-feedback provision constitutes a relational learning practice and that peer-feedback providers' centrality in personal networks is to some degree reflected in their centrality in the peer-feedback provision networks, whereas peers' centrality in academic networks is less reflected in their centrality in the peer-feedback provision networks. In addition, it can be argued that the examined CoLPs served indeed as peer support mechanisms for CoLP members (e.g., social support, academic support, personal development support) and provided the social infrastructure that afforded the active engagement of CoLP members—to a different extent—in peer interactions in general (e.g., information sharing, experience sharing) and in peer-feedback interactions in particular in response to their and others' common and/or individual needs framed within their personal and academic networks. As also indicated by the peer-feedback scenery of each CoLP the social structures of peer-feedback interactions—in terms of peer-feedback provision—were re-recombinant social structures, sometimes monitored by the participatory facilitator, especially at the early stages of CoLP development to foster and establish a peer-feedback culture, and sometimes emergent by CoLP members' own initiatives for feedback seeking and feedback provision. Therefore,

interpretations based solely on the peer-feedback centrality of CoLP members should be treated with caution.

5.4.3. RQ3: What are the types and focus of peer-feedback provision episodes in CoLPs?

The variety of the commented aspects (i.e., skill, personal, social, study) highlights the multidimensionality of the peer-feedback interactants' relationships (e.g., classmates, presenter's audience, friends, work group collaborators) and reveals all interwoven aspects of these relationships. This observation is in line with the mutliplexity of ties (Katz et al., 2004), which is reflected in the focus of the provided peer feedback. CoLP members may simultaneously be connected with state-ties and event-ties, or in Granovetter's terminology with strong and weak ties, which can in turn affect the content of the peer-feedback provision episodes.

5.5. Methodological limitations

To begin with, the variability in members' participation rate in CEs, which was to be expected within a real life non-controlled research context, resulted into missing data that may have contributed to misrepresentation of network data that were extracted from the video recordings. CoLP members who did not frequently attend the CEs may have been exposed to fewer opportunities to engage in peer-feedback provision processes. Additionally, both random and self-initiated exposure to peer-feedback seeking resulted to a limited number of peer-feedback recipients, which may have affected the peer-feedback provision process as well.

In terms of missing data in the SNA, students who did not fill out the network questionnaire – regardless whether they were community members or not – were eliminated from the network sample to avoid any (a) ethical concerns (i.e., students cannot be included as a node if they did not complete the questionnaire) and (b) structural problems caused by nodes appearing as nominees, but missing as nominators. Therefore, missing data were not imputed. In Cohort 1 data was missing exclusively for non-community members (3 non-community members), whereas in Cohort 3 data was missing for bot community (3 members) and non-community members (2 members). However, irrespective of these arguments the elimination of nodes from the network sample has its own deficiencies, including possible data distortion and a smaller network (see Borgatti & Molina, 2003; Kossinets, 2006).

Another possible source of error is the dominance of peer-feedback episodes evident in the last CEs of both CoLPs, which may have affected the centrality measures in peer-feedback networks based on the analysis of the video recordings. CoLP members who did not attend the last CEs (i.e., CE1.6 and CE3.7; Global peer-feedback sessions) may have been ranked lower in the degree centrality measures of the peer-feedback networks. Furthermore, reactivity might have influenced the peer-feedback interactions. As argued by Knoblauch et al. (2012), the presence of video cameras in the CoLP setting may have influenced the peer-feedback provision types or other aspects of the peer-feedback interactions in unforeseeable ways.

The complexity of conducting SNA within an MMR analysis framework resulted into a remarkably labor intensive analysis and high complexity in reporting and visualizing the findings, constituting this approach a challenging and ambitious endeavor. Adding to this complexity, the use of video data, irrespective of being one of the richest forms of data in the social sciences, are still highly complex when it comes to their analysis (Knoblauch et al., 2012), in particular from an SNA perspective. More systematic methodological advancements are required to simplify the integration of MMR into SNA-oriented studies.

Last but not least, considering the researcher's role as the participatory facilitator in the CEs of both CoLPs, an unintended bias cannot be ruled out. Additionally, the activities initiated by the participatory facilitator might have affected the actions and behavior of the CoLP members towards different and unpredictable directions. Nevertheless, the systematic analysis that involved coders that were external to both CoLPs, addressed this issue and decreased (maybe even eliminated) bias to the extent possible.

5.6. Implications

This section presents the theoretical, methodological, and practical implications of this study. Suggestions for future research are included in each subsection since this study serves as a springboard for further investigation on social network aspects of peers (e.g., centrality across social networks), who engage in peer-feedback interactions in learning communities and/or other social learning structures that enable them.

5.6.1. Theoretical implications

This study has strengthened the argument that peer feedback has the potential to escape mere traditional assessment practices towards authentic learning experiences which utilize peer feedback as a sharing mechanism and learning practice. More specifically, based on the findings reported in this chapter, peer feedback (if properly implemented) has its own place not just in students' learning, but also in students' multidimensional social experiences of learning with peers. Whether this sharing mechanism succeeded in developing into a learning mechanism (i.e., way in which learning comes about) (see Lave, 1996) should not and was not taken for granted. In other words, whether learning came about through the mechanism of peer feedback was not validated in this study.

Additionally, this study has highlighted the multiplexity and complexity of peer-feedback interactions, considering that peer-feedback providers are connected or not to each other with multiple types of relationships/ties (i.e., personal, academic), which may in turn enable or hinder peer-feedback provision differently (i.e., types, foci of peer feedback). Future research on nested peer-feedback interactions needs to be undertaken to determine more precisely the ways in which centrality in surrounding networks affects the peer-feedback interactions, also by taking into consideration the peer-feedback response aspect (i.e., acceptance or rejection by the recipient and resulting (in)actions).

5.6.2. Methodological implications

A mixed-methods approach to SNA has the potential to capture the complexity of multiplex networks across levels (i.e., cohort and CoLP level), at least to an extent that provides not merely structural information about the networks of interest, but also the content and context of the formed ties within these structures—in line with Crossley's (2010) and De Laat and Strijbos' (2014) suggestion to consider the content of ties in social networks and De Laat et al.'s (2007) multi-method framework for examining social learning networks. CoLP members may engage in peer-feedback interactions and thus forming peer-feedback networks. Examining only the network structure does not tell much about the content that these interactions carry along. Nevertheless, the content is an inherent element of these social interactions, and its investigation is vital for understanding them (Crossley, 2010).

This study further contributes to research efforts that argue for the consideration of degree centrality as well as weighted degree centrality when examining centrality of nodes in social networks (Opsahl et al., 2010). Future work that examines the relationship between weighted event ties (e.g., peer-feedback networks) and multiplexity of state ties – while considering the content of the ties – is recommended to establish whether a relationship exists on the tie level. Nevertheless, it should be highlighted that an investigation of this kind is highly complex when approached from a MMR perspective.

5.6.3. Practical implications

The present findings have demonstrated that peer feedback is an inherent element of CoLPs, and potentially in other similar social learning support structures. Furthermore, peers engaged in peer-feedback interactions on various feedback types and foci while being free from any expertise or assessment expectations or comparisons to expert's feedback. Educators and community facilitators should take into consideration the multiplex nature of peer feedback and acknowledge and foster students' engagement in peer feedback as an inherent element of any social learning situation, within which students can be friends, classmates, locals or foreigners, members of the same presentation group, or simply social interactants in an interpersonal communication situation.

5.7. Conclusion

From a social network perspective on learning and while moving beyond the association of peer feedback with traditional assessment practices (e.g., Boud, 2000; Falchikov, 2005; Nicol, 2013), this study approached and investigated peer feedback as a communicative network nested in personal and academic social networks, and as a relational and dialogical process that is socially mediated and inherent in social learning situations (Haythornthwaite, 2008; Strijbos & Müller, 2014). Peer-feedback provision networks were enabled by participation in CoLPs on the micro-level and in the broader socio-educational context(s) on the macro-level. This perspective on peer feedback closely resembles the "feedback reality" in any professional or other learning settings that moves beyond traditional assessment. Participants' centrality measures were considered in the peer-feedback networks (on the CoLP level) and in the surrounding social networks (on the cohort level) to address the research gap in the role of peers as social actors in

social networks that surround and transcend peer-feedback interactions and subsequently the role of these networks in peer-feedback interactions. In closing, the study reported in this chapter supports the argument that the examination of social network structures is prerequisite for comprehending how learners engage with each other in peer-feedback provision interactions inherent in an ongoing process of community building (e.g., Haythornthwaite, 2008).

5.8. References

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6. General discussion and reflections

I hope you will abandon the urge to simplify everything, to look for formulas and easy answers, and begin to think multi-dimensionally, to glory in the mystery and paradoxes of life, not to be dismayed by the multitude of causes and consequences that are inherent in each experience – to appreciate the fact that life is complex (Peck, 1993, ⁋ Introduction).

Thus even supposedly unadulterated facts of observation already are interfused with all sorts of conceptual pictures, model concepts, theories or whatever expression you choose. The choice is not whether to remain in the field of data or to theorize; the choice is only between models that are more or less abstract, generalized, near or more remote from direct observation, more or less suitable to represent observed phenomena (Bertalanffy, 1964, p. 6).

This dissertation aimed to explore the potentiality of Communities of Learning Practice, which are situated within a net of socio-educational setting(s), to enable both (a) value creation for the community members, (b) through the sharing mechanism of peer feedback, and (c) dynamic re-constructions of community members' network centrality through an interplay between history and emergence of relational and communicative networks. The first theoretical contribution unraveled a multitude of the community construct in learning contexts with a critical synthesis through sociological and community psychology perspectives (Chapter 2). The second theoretical contribution introduced the recombinant learning community notion of *Communities of Learning Practice* (CoLPs) that represented the conceptual learning community framework of this dissertation as well as the emergent research context within which phenomena of interest were examined in the empirical contributions. The first empirical contribution (Chapter 4) focused on the phenomenon of value creation enabled by participation in CoLPs and the second empirical contribution (Chapter 5) focused on the phenomenon of peer feedback interactions—with a predominant focus on peer feedback provision—and the interplay between peers' positioning (i.e., centrality) across peer networks that surrounded and penetrated the peer feedback interactions within the CoLPs. This brief summary already signals the interconnectedness of all components of this dissertation towards addressing the overall aim. The current chapter represents an epitome of the theoretical and empirical "forest" of this dissertation

across all contributing "trees" in an integrative discussion that brings together concepts and findings through a multiplex of interwoven meta-inferences.

6.1. Summary of theoretical and empirical contributions

6.1.1. Chapter 2: Community representations in learning communities

This theoretical contribution revisited a set of prominent learning community notions filtered through sociological and community psychology perspectives to unravel how the community construct is represented in these notions. An overview of sociological and community psychology perspectives towards the community construct was initially presented and revealed an amalgam of community representations. These representations subsequently acted as lenses for a critical synthesis of the community construct in learning community notions—as originally described by their pioneers. This critical synthesis unwrapped the ways in which the community construct is represented within learning contexts. Furthermore, it suggested that the selected learning community notions share some common sociological representations, but in some cases they are differently represented or at least presented. The understanding of community representations in learning communities from sociological and community psychology perspectives is a useful aid for educational researchers and practitioners in terms of design decisions and facilitation strategies in relation to each community representation in learning contexts.

6.1.2. Chapter 3: A recombinant notion of learning community: Communities of Learning Practice

This theoretical contribution introduced a learning community notion that recombines aspects of emergence and design towards an equilibrium between the two to characterize non-formal learning communities situated within a formal learning setting. The recombinant learning community notion, termed Communities of Learning Practice (CoLP), is not fully congruent with either the notion of Communities of Practice (CoP) or the notion of Communities of Learners (CoL) and their implied perspectives on emergence and design. Nevertheless, CoLPs are based on a recombination of constituent elements of CoPs and CoLs. This recombination constitutes an integrative framework, or a set of vocabulary, that moves beyond its precursors to portray non-formal learning communities in a formal learning setting without distorting the

original conceptualizations of the CoP and CoL notions and terms associated with their conceptualizations. The theoretical grounding of this recombinant notion – in itself and by example – can stimulate researchers and practitioners to systematically consider the aspects of emergence and design when "orchestrating" and/or supporting learning communities in educational settings.

6.1.3. Chapter 4: Value creation in Communities of Learning Practice

This empirical contribution examined value creation enabled by peers' participation in Communities of Learning Practice (CoLPs). The participants were 27 international master students enrolled in a Learning Sciences study program in Germany who voluntarily participated in two CoLPs (N_{colp1} = 9, N_{colp3} = 18). Data were collected from CoLP members' post-participation written narratives; so-called value creation stories (VCSs). An integrated mixed-methods research approach was employed at the analysis and interpretation level. A theory-driven content analysis of VCSs was initially conducted to classify members' attributed values. The results demonstrated that CoLP members most frequently attributed values to CoLPs as contexts. This striking result called for a further exploration of the context-related values. An emergent data-driven thematic analysis was employed to extrapolate the specific aspects of CoLPs as contexts that were deemed valuable by participants. Overall, the findings illustrate that each participant and each CoLP weaves a unique constellation of values enabled by CoLP participation. Nevertheless, some common value-patterns across participants and CoLPs were observed. For example, the opportunity for peer feedback and practice were reported as valuable by participants in both CoLPs. These findings provide novel insights into what constitutes valuable experiences of participation in CoLPs—as considered by community members themselves—and call for an overall re-thinking of the notion of "outcomes" of participation in learning communities.

6.1.4. Chapter 5: Just Plain Peers across social networks: Peer feedback networks nested in personal and academic networks

This empirical contribution examined peers' centrality across peer-feedback networks—as captured in Communities of Learning Practice (CoLPs)—and personal networks and academic networks within which CoLPs are nested. Additionally, the content of the peer-feedback networks (i.e., peer-feedback types and foci) was examined. In this study, peer feedback

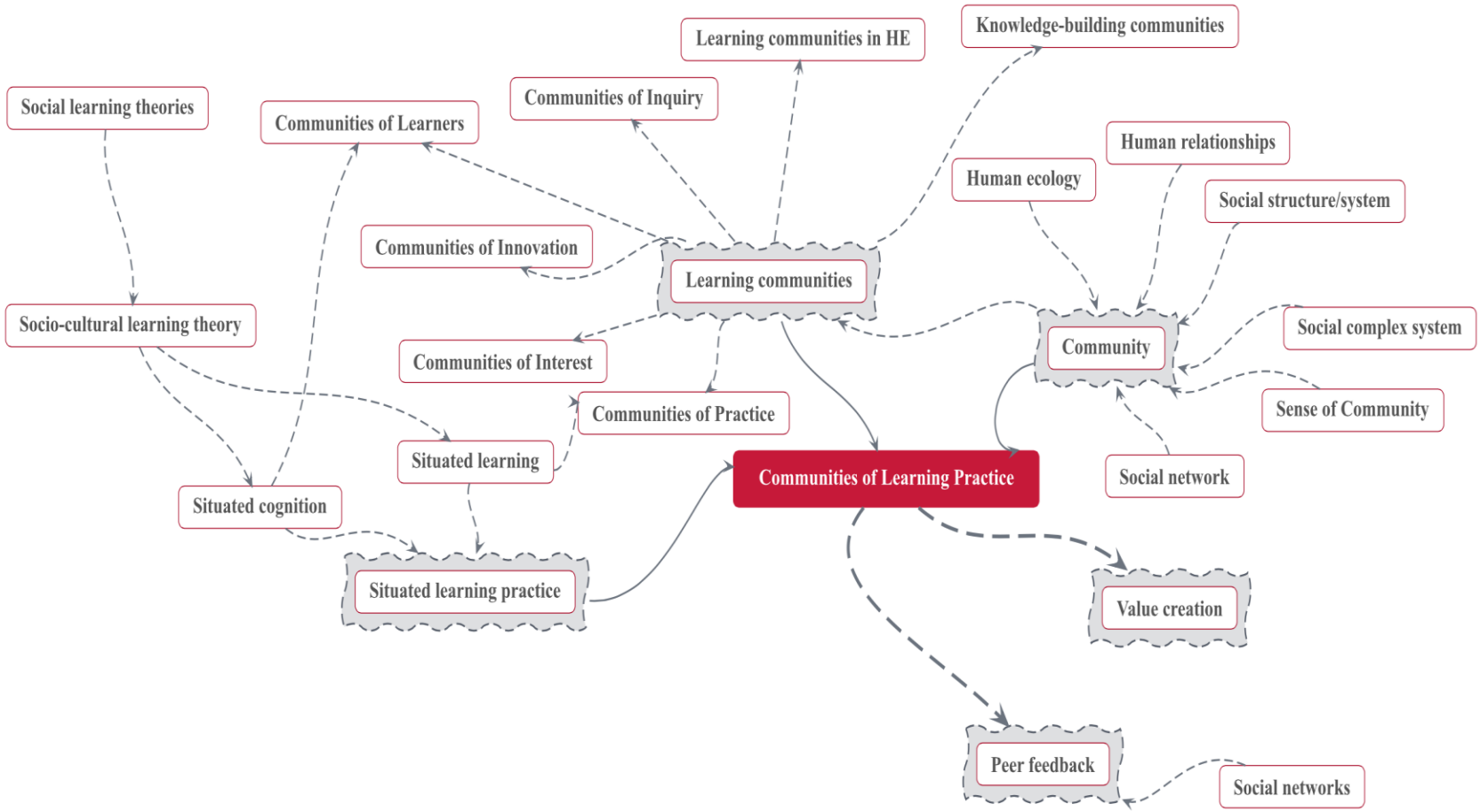
represents an authentic learning practice and sharing mechanism among peers. Participants were 47 students enrolled in a Learning Sciences study program in Germany. Some of these participants voluntarily participated in two CoLPs (N_{CoLP1} = 13; N_{CoLP3} = 19), which constitute the main analytical focus of this study. A mixed-methods research approach to Social Network Analysis (SNA) was employed on the data collection, analysis, and interpretation level. Data were collected from self-reported social network questionnaires (cohort level) and video recordings of community events (CoLP level). Data analysis involved (a) contextual SNA (CxSNA) of questionnaire data to identify participants' centrality in personal and academic networks (cohort level), (b) SNA of video data to identify CoLP members' centrality in peer-feedback networks (CoLP level), and (c) content analysis of video data to identify the types and the foci of peer-feedback provision episodes (CoLP level). Findings on the cohort level indicate that peers' centrality varies across personal and academic networks. Findings on the CoLP level underscore that peer-feedback provision constitutes a relational learning practice and that peer-feedback providers' centrality in personal networks is to some degree reflected in their centrality in the peer-feedback provision networks, whereas peers' centrality in academic networks is less reflected in their centrality in the peer-feedback provision networks. Peer-feedback providers used a combination of peer-feedback types (i.e., mainly verification positive, argumentation and suggestions) focused predominantly on skill/ performance aspects, but also personal, study and socially related aspects—which underscores the multiplexity of peer-feedback interactions. This study contributes to the understanding of peer-feedback interactions, as relational phenomena nested within multiplex networks.

6.2. Integrative discussion and reflections across contributions

This sections aims to bring together all concepts that framed and formed the conceptual line of this dissertation in a single story. Figure 6.1 serves as a visual aid for this story to be told.

Figure 6.1.

Concept map across contributions in the dissertation



Naturally the first chapter of this story is to filter the recombinant notion of Communities of Learning Practice (CoLP) as presented in Chapter 3 through the sociological and community psychology perspectives introduced in Chapter 2. Table 6.1 provides a summary of the main community perspectives that are in line with the constituent elements of CoLPs.

Table 6.1

CoLPs: Sociological and community psychology perspectives, representations, and key elements

Learning community notion	**Domain**	**Perspective**	**Representation**	**Key elements**
Communities of Learning Practice (CoLP)	Sociology	Relational	Human relationships	a. Relationships b. Interactions c. Goal achievement quest
		Functionalist	Social structures/ system	a. Structure/ pattern b. Functions c. Interdependence
	Community psychology	Sense of community	Sense of community	a. Membership b. Influence c. Integration and fulfilment of needs d. Shared emotional connection

In terms of the relational perspective, CoLPs were formed within pre-existing personal and academic networks nested in a socio-educational setting(s), which enabled the potential of the CoLPs' formation. What enabled the CoLPs' sustainability over the course of a semester, however, were the mutual relationships—on several levels (i.e., personal, academic, and other)—among peers who voluntarily participated in the CoLPs. In terms of the functionalist perspective, CoLPs had a patterned structure within boundaries restricted by the immediate and broader socio-educational settings within which the CoLPs were nested. Central functions within the CoLPs were mutual engagement, mutual accountability, and constant negotiation of a joint enterprise towards value creation for the members and potentially for the CoLPs as a whole. CoLP members mutually interdepended as they acted as resources to each other (i.e., peer feedback, information sharing, experience sharing). In terms of the sense of community perspective, the element of membership was highly associated with members' identification to each other and to the group and feelings of belonging in a CoLP. However, the element of mutli-membership in other learning communities and networks that surrounded the CoLPs should also be taken into consideration, when referring to CoLP membership. The element of influence was prominent in the CoLP notion, in terms of reciprocal influence and strong ties among peers

reflected through their peer feedback interactions (i.e., aimed to influence each other's performance, attitudes, etc.) and personal relationships. The element of integration and fulfillment of needs was reflected through the process of value creation, which exemplifies the extent to which needs were integrated and fulfilled for each participant. The element of shared emotional connection was not so evidently represented in the CoLP notion, but the presence of mutual engagement into shared learning practices, such as peer feedback, reflected indirect links to shared emotional connections—but still the focus is different. Shared emotional connections may have been brought along into, emerged within and potentially fostered the functionality of the CoLPs, but it was not a prerequisite for CoLP formation or its development.

Apart from the fact that these key elements were evident in the CoLP notion, the sociological perspective of social complexity also heavily influenced the conceptualization of CoLPs, since they provided the social learning space for emergence, self-organization, and decentralization to occur. However, the fact of "providing" a social learning space to some extent interferes with the elements of emergence and self-organization, as represented in social complex theory, and subsequently conceptual aspects of social complex systems can only be partially attributed to the CoLP notion.

If we now turn to the empirical chapter of this story, i.e. the integration of the empirical findings as reported in Chapter 4 and Chapter 5, it is evident that there was substantial interplay between value creation, peer feedback and social networks. Spearman correlations on a subset of the combined data from Chapters 4 and 5 (Table 6.2 and Table 6.3) – which includes the number of reported values as part of the value creation phenomenon, personal degree centrality, academic degree centrality, peer feedback degree centrality, and peer feedback weighted degree centrality – revealed a positive correlation between the number of reported values and the personal degree centrality for CoLP1, $r(9) = .79$, $p = .012$, but not for CoLP3. Although no correlation was found between values and any of the peer feedback centrality measures, the thematic analysis of the Immediate Context-Related values (IV-CO) in the value creation stories (see Chapter 4), demonstrated that peer feedback was a vital component of the immediate context-related values (CoLP1: 22 out of 94 segments; CoLP3: 30 out of 107 segments). This signified the central role of peer feedback as a sharing mechanism in the CoLPs as well as in contributing to community members' social learning experiences. Peer feedback in the context of CoLPs did not simply serve as an authentic learning practice, but as a meaningful and valuable

experience in itself as well. Nevertheless, it would be misleading to assume that peer feedback was the only sharing mechanism and authentic learning practice in the CoLPs that enabled value creation with influences from and implications to the surrounding social networks. As shown from the content analysis and thematic analysis of CoLP members' value creation stories, an amalgam of activities, experiences, interactions and other elements inherent in CoLPs enabled value creation.

Three cases per CoLP are commented to exemplify the interplay of some of the phenomena addressed in this dissertation and how this could be interpreted. As shown in Table 6.2, central members in the personal network. In terms of CoLP1 (see Table 6.2), three CoLP members with the highest rank-order position in reporting values enabled by CoLP participation (i.e., C1.8, C1.9, and C1.12) seemed to also be relatively central across the personal, academic and peer-feedback networks, which might be associated with Hmelo-Silver, Kati, Nagarajan, and Chernobilsky's (2006) view on the role of soft leaders in facilitating peer learning processes with their contributions and engagement and beyond them. Naturally, a further examination on the soft leaders' actions and attitudes within and around the CoLP, may yield interesting insights on their role(s). In terms of CoLP3 (see Table 6.3), a diverse pattern is observed. Three CoLP members with the highest rank-order position in reporting values enabled by CoLP participation (i.e., C3.3, C3.14, C3.17), were relatively central and in the personal, academic, and peer-feedback network, but not necessarily in the peer feedback network, since two out of three were among the most peripheral members in the peer-feedback networks, considering their degree and out-degree as well as their weighted degree and weighted out-degree centrality. Nevertheless, C3.17 seemed to have been in a different category of centrality across networks compared to the other interesting cases, since the degree centrality and weighted degree centrality was high for this member. An interesting observation though, may help in the interpretation of this interplay across phenomena for CoLP member C3.17. Although, C3.17 appears to be central in the overall-degree level, has received more feedback rather than provided, implying a potential link between peer-feedback reception and value creation than needs to be further explored on the case and across-cases level.

Table 6.2

CoLP1: Overview across phenomena per CoLP member

Label	P	Values N	Personal degree	Academic degree	PF out-degree	PF degree	PF w- out-degree	PF w-degree
C1.1	3	16	11	11	8	15	102	194
C1.2	3	NA	18	22	2	4	10	13
C1.3	2	NA	20	11	1	1	2	2
C1.4	5	48	26	25	4	8	5	28
C1.5	6	43	16	19	8	15	100	189
C1.6	6	NA	7	13	10	19	97	275
C1.7	2	33	17	19	1	2	3	4
C1.8	4	76	20	16	8	18	196	327
C1.9	5	67	19	17	8	17	169	265
C1.10	5	26	14	19	8	16	86	239
C1.11	3	NA	16	26	2	7	23	37
C1.12	5	96	24	21	9	16	162	309
C1.13	3	50	20	16	7	14	69	164

Note. P = participation in community events. PF = peer feedback. NA = non-available. The highlighted CoLP members are included as cases in the discussion.

Table 6.3

CoLP3: Overview across phenomena per CoLP member

Label	P	Values N	Personal degree	Academic degree	PF out-degree	PF degree	PF w- out-degree	PF w- degree
C3.1	4	23	21	15	7	15	48	95
C3.2	5	22	37	27	11	21	75	147
C3.3	3	68	25	23	1	7	8	20
C3.4	4	21	26	28	10	18	120	202
C3.5	4	22	33	8	11	19	53	118
C3.6	6	57	31	18	13	26	134	232
C3.7	2	14	17	20	3	3	8	8
C3.8	4	21	17	27	9	12	56	69
C3.9	5	37	43	34	16	31	270	431
C3.10	5	20	24	22	12	22	46	142
C3.11	4	30	25	25	7	11	31	44
C3.12	4	28	18	25	5	18	35	136
C3.13	2	26	24	30	10	16	123	193
C3.14	6	73	23	24	2	6	14	37
C3.15	2	20	20	22	3	14	20	104
C3.16	4	33	21	20	10	19	92	154
C3.17	5	68	26	19	9	21	86	299
C3.18	4	19	22	19	6	11	37	81
C3.19	2	NA	10	14	0	0	0	0

Note. P = participation in community events. PF = peer feedback. NA = non-available. C3 = CoLP3 member. The highlighted CoLP members are included as cases in the discussion.

6.3. Methodological limitations

Two general limitations need to be considered. First, the findings cannot be representative of every potential CoLP that is formed even within the same socio-educational context due to the dynamic nature of CoLPs, their surrounding contexts, as well as the learning and social situations, values, experiences and opportunities enabled with peers' participation in the CoLPs. Although representativeness was not among the aims of this dissertation, the picture is thus still incomplete as to the phenomena of value creation and peer feedback provision networks in CoLPs and social networks across settings. Nevertheless, this dissertation can serve as a starting point for future studies that could either replicate and/or extend the research approach and methods employed in this dissertation to further investigate the phenomena of value creation, peer feedback provision networks as well as social networks of CoLPs members either in isolation or in relation to each other.

Second, missing data of some participants across studies did not allow for a complete integration of findings across participants (for an overview of the sample across phenomena see Appendix L). However, complementary data were collected with the use of interviews and their analysis is already underway to address this limitation. In addition to this type of missing data, participants' non-consistent participation in the CEs also resulted into missing data for participants' peer feedback provision networks in the CoLPs, which could have partially misrepresented participants' centrality in these networks. Therefore, caution must be taken in terms of the definiteness of participants' centrality in peer feedback provision networks.

6.4. Implications

6.4.1. Theoretical implications

This dissertation supported the argument that learning does not constitute a mere outcome of formal instruction, but rather that it is an integral aspect of any social situation that enables it (i.e., formally instructed or informally formed) and of the social systems within which these learning situations are embedded (Wenger, 2011). Based on this view on learning, this dissertation investigated the phenomenon of value creation enabled by participation in CoLPs and not phenomena related to performance outcomes, as formal instruction would be mostly associated with.

In line with this view on learning, this dissertation also supported the argument that peer feedback does not constitute a mere assessment practice, but rather an integral aspect of any social situation that enables it and of the social systems within which peer feedback is embedded (Boud & Falchikov, 2006; Nicol, 2013). Based on this view on peer feedback, this dissertation investigated the social embeddedness of peer feedback, as communicative networks enabled by participation in the CoLP settings, in the surrounding personal and academic networks enabled by joint participation in the broader socio-educational context(s).

In terms of social networks, this dissertation supported the view of social networks as living entities that are dynamically constructed through individuals' involvement and relational mechanisms with the potential to generate learning and social capital, which may in turn contribute the sustainability and meaningfulness of the social network (Haythornthwaite, 2008). Nevertheless, this dissertation moves a step further from what is enabled within the networks, to highlight the importance of considering what is enabled or hindered by individuals' participation in a multiplex of nested social networks—overlapping or not—in terms of social and learning capital. This dissertation adds to a growing body of research which contributes to theoretical re-conceptualizations of learning, learning outcomes, peer feedback and social networks and encourages a new way to approach and treat these phenomena within the context of learning communities.

6.4.2. Methodological implications

Mixed-methods research (MMR) provides a powerful toolkit for the investigation of complex social learning phenomena within and around CoLPs in higher education. Mixing on the data collection, analysis, and interpretation level represents MMR to a satisfactory extent in this dissertation. The combination of content analysis and thematic analysis addressed the examination of the phenomenon of value creation in CoLPs to an extent that both pre-defined theoretical elements and emergent situated elements were brought together towards a deeper understanding of this complex and agent-centered phenomenon. This integrative MMR approach seemed to have been appropriate to its investigation—although there is still room for integrating both more quantitative and qualitative approaches to the employed MMR design. An MMR approach to social network analysis that was also employed in this dissertation seems to have been a small step towards understanding the messy interplay of context, structure, and content in social networks. Therefore, an MMR approach to the investigation of learning communities can

yield multi-dimensional perspectives to the phenomena of study within and around the context of learning communities.

6.4.3. Practical implications

It might be more convenient and straightforward for educators, researchers and stakeholders to think of and treat learning in general and peer feedback in particular within their traditional boxes, but considering that the world cannot be considered as the sum of an aggregate of independent elements (Bellotti, 2015), this would distantiate them from real-life learning and real-life peer feedback. Researchers should further investigate and educators should consider the interplay of context, structure, and content in any social learning situation as well as what this interplay enables for individuals, who socially co-construct these three living elements, to create value. A deeper understanding of this complex interplay can afford a shift in mindsets about learning and experiencing in learning communities and even in more formal institutionalized social structures.

6.5. Outlook for future research

The range of mechanisms in Communities of Learning Practice that enable its sustainability and value creation should be further investigated to add on the current state of knowledge about how CoLPs function. This investigation can further inform CoLP facilitators so that they can seed in opportunities for deeper engagement and greater potentialities for value creation within CoLPs. Furthermore, the extent to which personal and/or academic networks support or hinder peer-feedback interactions should be further investigated from a longitudinal perspective. As Rockett and Okhuysen (2002) underscore “the depth of knowledge one has about another and the positive or negative feelings one develops influence behavior” (p. 200). In line with this argumentation, personal and/or academic networks may enable peer familiarization, in terms of personal and/or academic aspects respectively, which may in turn influence peer-feedback provision, reception or other related processes (e.g., reflection, implementation). Future research should also examine the transformation of content in peer-feedback networks in relation to the surrounding social networks over time to further investigate peer feedback and social networks through dynamic constantly evolving lenses. Finally, future work that investigates the relationship between the weight of ties in personal and/or academic networks and weight of ties

in peer-feedback networks can foster our understanding between personal and academic networks from a weighted perspective.

6.6. Author's final remarks and reflections

Communities of Learning Practice (CoLPs) served as social learning spaces for Just Plain Peers to mutually engage in social learning experiences nested in social networks that were in turn framed in the surrounding socio-educational setting(s). Each CoLP was a unique social constellation that produced social and learning capital and created value for its members. The phenomenon of value creation studied through the reported experiences of individuals within CoLPs enabled a deeper understanding—not merely of the individuals' experiences of participation *per se*—but also of the CoLP as a social structure (Rockett & Okhuysen, 2002) and of the potentiality(ies) of such a structure to generate value for the individual members and the CoLP as a whole. CoLPs enabled, supported and fostered peer-feedback interactions among Just Plain Peers constituting peer feedback an authentic learning practice and sharing mechanism inherent in CoLPs—i.e. enabled by and within the CoLP structure as well as enabling value creation therein. Peer feedback functioned as a relational learning experience embedded within the history of the relationships among Just Plain Peers and its emergent social structure and social dynamics. Besides a relationship that was personally and socially constructed, it was also a social learning practice or practice of learning with and through others, who were actors in the same set of surrounding and transcending social networks (i.e., personal and academic networks), which were socio-culturally constituted communicative structures embedded in individuals' overlapping identities (Edwards, 2010) and the surrounding socio-educational setting(s).

6.7. References

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Appendices

Appendix A. Needs analysis survey – Cohort 1

Important note: esurveyspro.com was the online platform used for this needs analysis survey.

Background information

This set of questions aims to obtain some information about your educational profile.

1. Have you identified any differences in the academic conventions between your previous educational institution or faculty and your current one? *

Yes

No

2. If yes to Q1, could you outline a number of differences that you consider as the most challenging?

3. Have you ever participated in extracurricular groups designed by the university or other higher education institutions to support you with your studies? *

Yes

No

4. If yes to Q3, could you provide a brief description of the nature and purpose of the group(s)?

5. If yes to Q3, how would you describe your experience?

Very Dissatisfying

Not Satisfying

Neutral

Satisfying

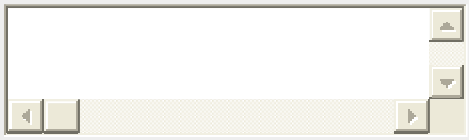
Very Satisfying

6. Have you received any support from the university or other institutions in particular with respect to Academic English?
*

Yes

No

7. If yes to Q6, what kind of support have you received?



8. How often do you seek help with respect to your studies from peers, students in the same course, or friends? *

Never

Hardly ever

Occasionally

Often

Always

9. To what extent have you used a discussion forum, wiki, blog, chat or other online environment(s) for interactive discussions or creative artifcats with your peers? *

Never

Hardly ever

Occasionally

Often

Always

10. If any, could you name the environment(s) and briefly describe how you have used it?

11. Have you ever been aware of any improvements in your performance after receiving feedback from your peers? *

Yes

No

Sometimes

12. If yes to Q11, what kind of improvements have you experienced?

2. Needs realization questions

This set of questions intends to extract information about your current academic needs.

13. I am satisfied with the existing academic support provided by the Learning Sciences program in terms of... *

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Presentation Skills					
Academic Writing Skills					
Research Planning Skills					
Poster design and Presentation Skills					

14. I feel I need additional support to my academic studies in terms of... *

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Presentation Skills					
Academic Writing Skills					
Research Planning Skills					
Poster Design and Presentation Skills					

15. Is there another academic domain to which you would like to receive additional support? *

No

Yes (please specify)

16. I feel I have difficulties with Academic English.*

Yes

No

17. If yes to Q16, please specify the kind of difficulties you face.

18. If offered, I would be willing to participate in additional support groups... *

Twice a week

Every week

Every two weeks

Every three weeks

Once a month

Not at all

Other (Please Specify)

19. In particular, I would like to participate in... *

	Twice a week	Every week	Every two weeks	Every three weeks	Once a month	Not at all
Presentation development group	☐	☐	☐	☐	☐	☐
Academic writing development group	☐	☐	☐	☐	☐	☐
Research planning development group	☐	☐	☐	☐	☐	☐
Poster design and presentation development group	☐	☐	☐	☐	☐	☐

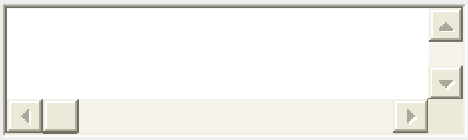
3. Feedback preferences questions

This set of questions aims to obtain some key information about your feedback preferences.

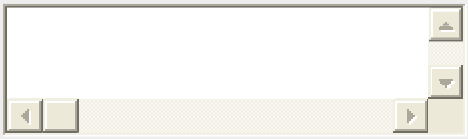
20. I think that a valuable feedback source for my academic development will be... *

- ○ Peers
- ○ Lecturers/ Instructors
- ○ Other experts not instructors in that course
- ○ Computer-supported tutoring systems
- ○ Combination of sources

21. If combination of sources, please briefly specify.



22. Please briefly justify your choice. *



23. If tutors are not available as feedback source, I would like to receive feedback from... *

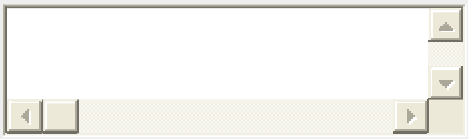
Peers

Other experts not instructors in that course

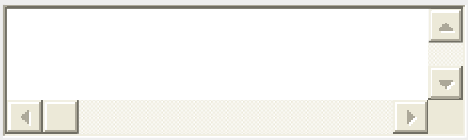
Computer-supported tutoring systems

Combination of sources

24. If combination of resources, please briefly specify.



25. Please briefly justify your choice. *



26. I think that I share common difficulties with my peers with reference to the academic requirements within the Learning Sciences program. *

Strongly Disagree

Disagree

Undecided

Agree

Strongly Agree

27. I appreciate my peers' opinions with respect to my academic work (presentations, reports, essays etc.).*

Strongly Disagree

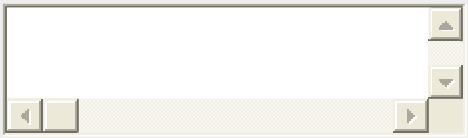
Disagree

Undecided

Agree

Strongly Agree

28. Please justify your answer.*



29. I use online environments to collaborate with my peers for academic purposes.*

Never

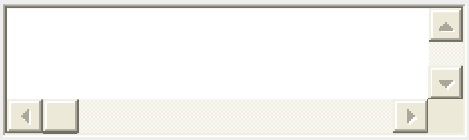
Hardly ever

Occasionally

Often

Always

30. If any, briefly name and describe the online environments that you tend to use for academic purposes.



31. In order to develop my academic skills in collaboration with my peers, I would prefer to meet... *

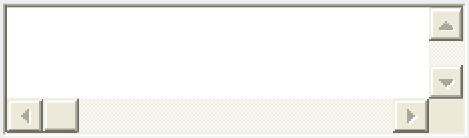
Face-to-face

Online

Face-to-face and online (blended setting)

Other (Please Specify)

32. Please briefly justify your choice. *



Appendix B. Needs analysis questionnaire – Cohort 3

Needs Analysis

Name: _____

Background Information

This set of questions aims to obtain some information about your educational profile.

Please indicate your gender:

Male ☐

Female ☐

Please indicate your previous field of study (e.g., Psychology, Educational Sciences, etc.).

_____

Have you ever participated in extracurricular groups designed by the university or other higher education institutions to support you with your studies?

Yes ☐

No ☐

If yes to Q3, could you provide a brief description of the nature and purpose of the group(s)?

_____

_____

If yes to Q3, how would you describe your experience?

Very Dissatisfying

Not Satisfying

Neutral

Satisfying

Very Satisfying

How often do you seek help with respect to your studies from peers, students in the same course, or friends?

Never

Hardy ever

Occasionally

Often

Always

Have you ever been aware of any improvements in your performance after receiving feedback from your peers? Please briefly specify.

_____

_____

Needs realization

This set of questions intends to extract information about your current academic needs.

I feel I need additional support to my academic studies in terms of...

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Presentation Skills	☐	☐	☐	☐	☐
Academic Poster Design	☐	☐	☐	☐	☐

Research Planning Skills	☐	☐	☐	☐	☐
Academic Writing Skills	☐	☐	☐	☐	☐

I am interested in practicing the following skills…

	Twice a week	Every week	Every two weeks	Every three weeks	Once a month	Not at all
Presentation	☐	☐	☐	☐	☐	☐
Poster design	☐	☐	☐	☐	☐	☐
Research planning	☐	☐	☐	☐	☐	☐
Academic writing	☐	☐	☐	☐	☐	☐

Is there another academic domain(s) to which you would like to receive additional support?

Yes ☐

No ☐

If yes, please specify:

_____

_____

I feel I have difficulties with Academic English.

Yes ☐

No ☐

If yes, please specify:

_____

_____

Feedback preferences

This set of questions aims to obtain some key information about your feedback preferences.

I think that a valuable feedback source for my academic development will be...

Peers

Lecturers/Instructors

Other experts not instructors in that course

Computer-supported tutoring systems

Combination of sources

If combination of sources, please briefly specify:

_____

_____

Justify your choice:

_____

_____

_____

If lecturers/instructors are not available as feedback source, I would like to receive feedback from...

Peers

Other experts not instructors in that course

Computer-supported tutoring systems

Combination of sources

If combination of sources, please briefly specify:

_____

_____

Justify your choice:

_____

_____

_____

I think that I share common difficulties with my peers regarding the academic requirements within the Master of the Learning Sciences program.

Strongly Disagree

Disagree

Undecided

Agree

Strongly Agree

I appreciate my peers' opinions with respect to my academic work (presentations, reports, essays etc.).

Strongly Disagree

Disagree

Undecided

Agree

Strongly Agree

Please justify your answer:

_____

_____

_____

In order to develop my academic skills in collaboration with my peers, I would prefer to meet...

Face-to-face

Online

Blended setting (face-to-face and online)

Other (Please specify)

_____

Please briefly justify your choice:

_____

_____

_____

Students' perceptions

Please briefly describe your ideas about peer feedback.

_____

_____

_____

_____

Please briefly describe your ideas about communities of learners.

_____

What could be the added value of your participation in a community of learners, which aims to support you with your academic skills, within the Psychology Master's programme in the Learning Sciences?

Appendix C. Invitation for CoLP formation – Cohort 1

Why a Community?

During the first semester students of the LS have expressed their need for additional support with respect to academic skills, and in particular with respect to presentation and academic writing skills. In response to these needs, we believe that a community of practice approach might be worthwhile. The purpose of the community is to support you in building connections that will be of benefit to you as international students and future researchers. By international students we mean, all students of the international LS program who use English as their main language of instruction, thus, including native German students and Native English speakers.

Community profile

The community will be developed by its members, that is, YOU. Participation to the community will be voluntary and community members decide on the regularity/ intensity of the meetings, the mode of communication and the purpose and content of meetings. The community does not intend to constitute formal workshops, lectures or training sessions, but rather an informal setting for you to develop academic skills (depending on your needs). Within this community you can collaborate with each other, bring in your own problems and challenges that you face as international students and future researchers. In addition to support from community members you have the opportunity to receive support from tutors, including me and other colleagues.

Community Events

The content of meetings will be clustered in so-called "community events". Each event will be a series of meetings with exercises designed to support the community members in one of their expressed needs (for example presentation skills). The events are quite flexible and community members are free to suggest any (set of) event(s) that they would like to develop. Based on informal discussions in- and outside of class and with staff the following community events are foreseen:

Presentation Skills

Academic Writing Skills

Other events depending on your needs for which an inventory will be posted on the facebook page as well as distributed via email

Research

First and foremost, we are interested in the potential benefits of such a community. The research part will include observations of the ways that you participate, communicate, collaborate and share or construct knowledge with each other. Apart from observations, social network analyses of those deciding to participate in one or more community events and those not willing to participate in one or more community events, is one of the research objectives as well. Your academic performance will be also evaluated throughout the whole community development in order to record your progress in academic skills and provide you with insights on your development.

Appendix D. Invitation for CoLP participation – Cohort 3

Why a Community of Learners?

During the first semester of studies (2011-2012) students of the international Master of the Learning Sciences expressed their need for additional support with respect to academic skills, and in particular with respect to presentation and academic writing skills. In response to these needs, we believed that a community of learners approach might be worthwhile. The purpose of the community was to support students in building connections that will be of benefit to them as students and future researchers. Thus, we continue to believe that a community of learners for your cohort will also be valuable and helpful, supporting your studies, as reported by previous participants.

Community profile

The community will be developed by its members, that is, YOU. Participation to the community will be voluntary and community members decide on the regularity/ intensity of the meetings, the mode of communication and the purpose and content of meetings. The community does not intend to constitute formal workshops, lectures or training sessions, but rather an informal setting for you to develop academic skills (depending on your needs). Within this community you can collaborate with each other, bring in your own problems and challenges that you face as international students and future researchers. In addition to support from the community members, you have the opportunity to receive support from tutors, including me and other colleagues.

Community Events

The content of meetings will be clustered in so-called “community events”. Each event will be a series of meetings with exercises designed to support the community members in one of their expressed needs (for example presentation skills). The events are quite flexible and community members are free to suggest any (set of) event(s) that they would like to develop. Based on informal discussions in- and outside of class and with staff the following community events are foreseen:

Academic Presentation Skills

Academic Poster Design Skills

Academic Writing Skills

Other events depending on your needs for which an inventory will be distributed

Dates and duration

The community events will be taking place **every Monday or every second Monday (depending on the inventory) and will last two hours.**

Appendix E. Informed consent for cohort students

INFORMED CONSENT

You are invited to voluntarily participate in a study which aims to explore the way in which a community of learners, who are interested in developing their academic skills relevant to the LS program, develops over time. It takes into consideration the peer-feedback practices, learners' social networks, value attribution to the community and effectiveness of the community design.

Data collection

Questionnaires will be distributed at the beginning and end of each semester during the two-year LS program. The questionnaires intend to explore students' needs, attitudes towards research, study processes, classroom community sense and social networks.

Interviews and/or focus groups aim at extracting detailed information related to observed data. All interviews or focus groups will be audio-recorded.

Anonymity and Confidentiality

We guarantee that all data will be made anonymous directly after the collection process and your names will not be released during or after the research study to anyone rather than the researchers involved. However, your names should be initially provided for the researchers to associate different data sources, which otherwise is not possible.

Your participation in this research study is confidential. The data will be stored and secured in a locked file. Your signed consent will be stored in a file separate from the data.

Your identity will be kept confidential. If the results of this study are written in a scientific journal or presented at a scientific meeting, your name will not be used.

It is possible that research assistants may view the data for recording and editing purposes. A research assistant will be operating the video-recording system. The researchers are responsible for the oversight of protection of those involved in research. Master students will not be involved in data analysis of their own cohort.

Voluntary Participation/Withdrawal

Your decision to take part in this study is entirely voluntary.

You may refuse to take part in or you may withdraw from the study at any time and for any reason.

Your decision not to continue participating will not influence your relationship with the researchers or with staff of the university either now or in the future.

Statement of consent

I have read the above description of the research study. I have been informed about the data collection and treatment processes involved and all my questions have been answered to my satisfaction. I voluntarily agree to take part in this study.

_____	_____	_____
Name of Participant	Signature	Date

Contact Information

Project Leader: Filitsa Dingyloudi, M.A., Faculty of Psychology and Educational Sciences, LMU

Project Supervisor: Prof. Dr. Jan-Willem Strijbos, Faculty of Psychology and Educational Sciences, LMU

Appendix F. Informed consent for CoLP participation

INFORMED CONSENT

You are invited to voluntarily participate in a study which aims to explore the way in which a community of learners, who are interested in developing their academic skills relevant to the LS program, develops over time. It takes into consideration the peer-feedback practices, learners' social networks, value attribution to the community and effectiveness of the community design.

Data collection

Face-to-face meetings which involve peer-feedback practices on academic skills **will be video-recorded.**

Questionnaires will be distributed at the beginning and end of each semester during the two-year LS program. The questionnaires intend to explore students' needs, attitudes towards research, study processes, classroom community sense and social networks. All questionnaires will have your first and last name in order for the researchers to connect all the different data sources.

Interviews and/or focus groups aim at extracting detailed information related to observed data. All interviews or focus groups will be audio-recorded.

Special conditions for audio and video-recording

The study will involve audio and video-recording of face-to-face meetings, interviews and focus groups.

Your records will be kept private and at no time will the project leader release them to anyone other than the researchers working on the project. International collaboration partners may be also involved in data analysis and interpretation for future research purposes.

It is possible that research assistants may view the data for recording and editing purposes. A research assistant will be operating the video-recording system. The researchers are responsible for the oversight of protection of those involved in research. Master students will not be involved in data analysis of their own cohort.

Video-recording extracts may be used in presentations related to this study. If your video recordings are used for presentations of any kind, names or other identifying information will not be associated with.

A snapshot of video may be used in presentations related to this study. If your video recordings are used in presentations of any kind, portraits will be blurred as well as any other identifying information.

Your last name _____ indicates your permission to be audio- and video-recorded.

Anonymity and Confidentiality

We guarantee that all data will be made anonymous directly after the collection process and your names will not be released during or after the research study to anyone rather than the researchers involved. However, your names should be initially provided for the researchers to associate different data sources, which otherwise is not possible.

Your participation in this research study is confidential. The data will be stored and secured in a locked file. Your signed consent will be stored in a file separate from the data.

Your identity will be kept confidential. If the results of this study are written in a scientific journal or presented at a scientific meeting, your name will not be used.

Voluntary Participation/Withdrawal

Your decision to take part in this study is entirely voluntary.

You may refuse to take part in or you may withdraw from the study at any time and for any reason.

Your decision not to continue participating will not influence your relationship with the researchers or with staff of the university either now or in the future.

Statement of consent

I have read the above description of the research study. I have been informed about the data collection and treatment processes involved and all my questions have been answered to my satisfaction. I voluntarily agree to take part in this study.

_____	_____	_____
Name of Participant	Signature	Date

Contact Information

Project Leader: Filitsa Dingyloudi, M.A., Faculty of Psychology and Educational Sciences, LMU

Project Supervisor: Prof. Dr. Jan-Willem Strijbos, Faculty of Psychology and Educational Sciences, LMU

Appendix G. Value creation stories – Template

The overall value narrative

Use this template first for describing your overall experience of participation. This template is in the form of a table that shows the various ways in which you can talk about the value of your community.

Columns: aspects of your student-presenter profile

The columns refer to areas of your student-presenter profile where the community was useful

The first column is about you personally. How does the community affect your experience as a student-presenter, your presentation skills, your feelings, your inspiration and your student-presenter identity?

The second column is about your relationship with your peers-community members. Did your general level of interaction change? Have you made new friends? Do you have a better sense of who knows what and who could help you with that? Do you think that the level of trust and mutual commitment has changed?

The third column is about your presentation practice. Do you do things differently in your presentations? Do you deal with your peers differently with respect to their presentations?

The fourth column is about your relationship with the Master's program more generally. Have you gained a new voice in the seminars? Do you feel that you can influence what presentation should include? Again if you were not expecting this or if it did not happen just skip this column.

Rows: how your story unfolded

The rows describe the stages of your experience of participation.

The first row is about your reasons for participating. Why did you decide to participate? What were you hoping to achieve? What were your motivations and expectations?

The second row is about what happened in the community. What are significant events, moments of participation, and experiences?

The third row is about what you gained from participating. How did this make a difference to you? How did it affect your participation in the seminars?

Note: This is merely a guide for telling your story. You do not have to fill in every cell, only the ones where you have something to say. For instance, if you did not have any expectation that your community would change your relationship with your peers, just skip cell two of row one.

Personal value narrative

Name: **Community of peer feedback on presentation skills**	How participation is changing **me as a presenter** (e.g., skills, attitude, identity, self-confidence, feelings, etc.)	How participation is affecting **my social connections** (e.g., number, quality, frequency, emotions, etc.)	How participation is helping **my presentation practice** (e.g., ideas, insights, presentation products and procedures, etc.)	How participation is changing **my ability to influence** the seminars in which I present (voice, contribution, recognition, etc.)
Reasons for participation (e.g., challenges, aspirations, academic developmental goals, meeting people, etc.) +/ -				
Activities, outputs, events, networking (presentation products, discussions, etc.) + /-				
Value to me (e.g., being a better presenter, handling difficult questions, improving my presentation products, improving my seminars, etc.) +/-				

Note: +/- indicates that you can provide positive/ negative experiences

Specific value-creation stories

Use this template for telling specific examples of how your participation has created value. You can use this storytelling guide for as many specific value creation stories as you want to share.

Specific value-creation stories

A typical value-creation story has a sequence of four main steps, and sometimes five: (1) the activity you participated in, (2) what you gained out of it, (3) how you applied it, and (4) what the outcome was.

Sometimes, there is a step (5). This is when an event or innovation changes the way that you define what matters, what consists success, and therefore what "value creation" is. For instance, if you are a presenter, a successful activity may redefine what grades should be about. This type of fundamental reconsideration does not happen very often, but if it does happened to you because of your participation in a community, do include it in your story, because these moments tend to be quite significant in our lives.

Use of the template: five steps

Use this template for concrete examples of value creation. For instance, if in the first template you said that your community helped you become a better presenter, then this second template can be used to provide some concrete examples of how the community did that. As an example you might want to describe how someone shared a good idea for presentation preparation, delivery or evaluation which you used in your presentation and which ended up making your presentation more engaging:

In the first row you would describe the moment at a meeting when someone shared that idea. When and what happened?

In the second row you would describe the idea itself. What was it about? Why did you find it potentially useful?

In the third row, describe how you used that idea in your own presentation. How did you apply it and to what purpose? Did you need to adapt it? What happened during the application of that idea?

In the fourth row, describe what the outcome was (a) for your own success and/or (b) for the success of the seminar? Did it improve your presentation performance? Was the audience affected?

Use row 5 if the event made you reconsider what counts as success.

Value-creation story

Name	**Community of peer feedback on presentation skills**
Typical cycles	**Your story:**
Activity: Describe a meaningful activity you participated in and your experience within your community.	
Output: Describe a specific resource this activity produced for you (e.g., an idea, criteria etc.) and why you thought it might be useful.	
Application: Tell how you used this resource in your practice and what it enabled that would not have happened otherwise.	
Outcome: **Personal:** Explain how it affected your success (e.g., being a better presenter, presentation satisfaction, presentation quality) **Educational:** Has your participation contributed to the success of your seminars (e.g., higher quality of the seminars, greater engagement of other students)	
New definition of success: Sometimes, such a story changes your understanding of what success is. If it happened this time, then include this here.	

Appendix H: Value creation coding scheme

Nr.	Category	Code	Description	Example
	Pre-cycle: Expected value Reasons for participation	EV	Reasons for participation in the CoLP or expectations (e.g., skills development, building network, personal improvement, sharing information)	
1	Personal value	EV-PE	Retrospectively stating the expected personal value of participation in the community. Personal values refer to one's expected development as a person/self/identity.	"I joined to feel more self-confidence"
2	Social value	EV-SO	Retrospectively stating the expected social value of participation in the community. Social values refer to one's expected network/social relationships/membership development.	"I joined to understand the viewpoints of my peers"
3	Skill-related value	EV-SK	Retrospectively stating the expected skill-related value of participation in the community. Skill-related values refer to one's expected development of academic skills.	"I joined to improve my presentation skills"
4	Study-related value	EV-ST	Retrospectively stating the expected positive, neutral or negative study-related value of participation in the community. Study-related values refer to one's expected understanding of or contribution to their studies.	"I joined to get more information about the program"
5	Context-related value	EV-CO	Retrospectively stating the expected context-related value of participation in the community. Context-related values refer to the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools.	"I joined to be in a nice, informal setting"
	Cycle 1: Immediate value: Activities-Interactions	IV	Value produced in and of community activities and interactions themselves (e.g., helping a member with a problem, useful conversation or advice).	
6	Personal value	IV-PE	Retrospectively stating the personal value of participation in the community. Personal values refer to one's retrospectively identified development as a person/self/identity.	"This activity helps me build my confidence"
7	Social value	IV-SO	Retrospectively stating the social value of participation in the community. Social values refer to one's retrospectively identified network/social relationships/membership development.	"It is great to be here and get closer to my peers"
8	Skill-related value	IV-SK	Retrospectively stating the skill-related positive, neutral or negative value of participation in the community. Skill-related values refer to one's retrospectively identified development of academic skills.	"This presentation practice is very useful"
9	Study-related value	IV-ST	Retrospectively stating any study-related value of participation in the community. Study-related values refer to one's retrospectively identified understanding of or contribution to their studies.	"This activity was very important for my later performance in the course"
10	Context-related value	IV-CO	Retrospectively stating the context-related value of participation in the community. Context-related values refer to the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools.	"It was a very safe and comfortable setting for sharing ideas"

	Cycle 2: Potential value: Knowledge capital	PV	Activities and interactions that produce knowledge capital (i.e., personal assets, relationships and connections, resources, collective intangible assets, transformed ability to learn) whose values have positive, neutral or negative potential to be useful in the future.	
11	Personal value	PV-PV	Retrospectively stating the potential contribution of participation in the community to one's personal development. Personal values refer to one's development as a person/self/identity.	"This could be very useful for my personality development"
12	Social value	PV-SO	Retrospectively stating the potential contribution of participation in the community to one's social development. Social values refer to one's network/social relationships/membership development.	"This can a great opportunity to further build my network"
13	Skill-related value	PV-SK	Retrospectively stating the potential contribution of participation in the community to one's development of academic skills. Skill-related values refer to one's expected development of academic skills.	"This tip can help me improve my skills"
14	Study-related value	PV-ST	Retrospectively stating the potential of participation in the community to the understanding of or contribution to the study program. Study-related values refer to one's understanding of or contribution to their studies.	"This practice can be easily applied to the seminars and make them better"
15	Context-related value	PV-CO	Retrospectively stating the potential of participation in the community relevant to the context-related value of participation in the community. Context-related values refer to the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools.	"This event could help us improve the seminar"
	Cycle 3: Applied value: Changes in practice	AV	Adapting or applying knowledge capital into a specific situation (e.g., applications in actions, practice, tools, approaches).	
16	Personal value	AV-PE	Retrospectively stating the applied personal value of participation in the community. Personal values refer to one's applied practices associated with his/her development as a person/self/identity.	"I tried to be more relaxed after this comment"
17	Social value	AV-SO	Retrospectively stating the applied social value of participation in the community. Social values refer to one's applied practices associated with his/her network/social relationships/membership development.	"I tried to give more implicit feedback to my peers"
18	Skill-related value	AV-SK	Retrospectively stating the applied skill-related value of participation in the community. Skill-related values refer to one's applied practices associated with his/her development of academic skills.	"I made some changes based on the feedback I got on my presentation"
19	Study-related value	AV-ST	Retrospectively stating the applied study-related value of participation in the community. Study-related values refer to one's applied practices associated with the understanding of or contribution to their studies.	"I made an interesting task at the class after this suggestion"
20	Context-related value	AV-CO	Retrospectively stating the applied context-related value of participation in the community. Context-related values refer to the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools.	"We applied a collaborative pattern of communication due to our experience in the events"

	Cycle 4: Realized value: Awareness of improvement	RV	Realization of impact on performance by oneself or an external source resulting from the application of ideas/practices/approaches/resources from the community.	
21	Personal value	RV-PE	Realizing the personal value of participation in the community. Realized personal values refer to one's realized development as a person/self/identity.	"I have definitely improved as a person"
22	Social value	RV-SO	Realizing the social value of participation in the community. Realized social values refer to one's realized network/social relationships/membership development.	"I have extended my network and made more friends"
23	Skill-related value	RV-SK	Realizing the skill-related value of participation in the community. Realized skill-related values refer to one's realized development of academic skills.	"I have improved my presentation skills"
24	Study-related value	RV-ST	Realizing the study-related value of participation in the community. Study-related values refer to one's realized understanding of or contribution to their studies.	"I have contributed to the improvement of the seminars"
25	Context-related value	RV-CO	Realizing the context-related value of participation in the community. Context-related values refer to the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools.	"The community helped me improve"
	Cycle 5: Reframing value: Reconsideration of ideas/concepts/practices	RfV	Any reconsideration of learning ideas/concepts/approaches/strategies/goals/values/relationships after participation in the community. Initial perceptions change after participation in the community.	
26	Personal value	RfV-PE	Any reconsideration of ideas/concepts/approaches/strategies/goals/values associated with the participant as a person/self/identity.	"I can now expose myself with no hesitance"
27	Social value	RfV-SO	Any reconsideration of ideas/concepts/approaches/strategies/goals/values associated with one's network/social relationships/membership.	"I now think that other can be valuable resources"
28	Skill-related value	RfV-SK	Any reconsideration of ideas/concepts/approaches/strategies/goals/values associated with one's academic skills.	"I now think presentations are more than reading out the slides"
29	Study-related value	RfV-ST	Any reconsideration of ideas/concepts/approaches/strategies/goals/values associated with their studies.	"I now think of the program as an opportunity to learn from others"
30	Context-related value	RfV-CO	Any reconsideration of ideas/concepts/approaches/strategies/goals/values associated with the usefulness/importance of atmosphere, facilitation, setting, activities, tasks, tools within the community setting.	"I now think a community is more than a workshop"

Appendix I. Community Barometer – CoLP3

Original Community Barometer (Smith & Coenders, 2002)

Domain	Discussing the right topics
	Sharing perspectives and ways of thinking
	Finding new concepts and frameworks
Community	Being together with each other
	Developing enough trust for deep discussion
	Building collaborative relationships
Practice	Participating in setting direction and tone
	Evolving communication practices along the way
	Working towards useful outcomes

Adapted Community Barometer

Domain	Discussing the relevant topics
	Sharing knowledge, perspectives and ways of thinking
	Finding new techniques and ways to improve our academic skills
Community	Feeling members of a community of learners
	Developing enough trust for honest feedback
	Building collaborative relationships
Practice	Participating in feedback practices
	Evolving communication and feedback practices along the way
	Working towards useful outcomes
Facilitator	Supported by the facilitator
	Negotiating content and practices
	Encouraged to provide and receive peer feedback

Community Barometer

Name: **Date:** **Community Event:**

The community barometer acts as a useful instrument to reflect on your experiences and help us improve the community events for you. Circle one of the numbers under each of the statements that follow. Use the third column in the table to provide brief examples that illustrate your experience.

During the current community event, it was my experience that we were:

Domain	Discussing the relevant topics 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Sharing knowledge, perspectives and ways of thinking 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Finding new techniques and ways to improve our academic skills 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
Community	Feeling members of a community of learners 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Developing enough trust for honest feedback 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Building collaborative relationships 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	

Practice	Participating in feedback practices 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Evolving communication and feedback practices along the way 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Working towards useful outcomes 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agre	
Facilitator	Supported by the facilitator 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Negotiating content and practices 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	
	Encouraged to provide and receive peer feedback 1 2 3 4 5 Strongly Disagree ⟶ Strongly Agree	

Additional comments:

Appendix J. Social network analysis questionnaire

Questionnaire for the Evaluation of Networks

Dear student,

Academic social network analysis is used in academic settings and intends for the most sophisticated types of social network analysis. The present social network analysis aims to provide a greater insight into the social world that exists within the programme in a relational way. Within this framework, this questionnaire is, on the one hand, an instrument to evaluate students' social networking associated with peer-feedback activities, and personal and academic connections. The results gathered from this survey will help the students to improve these networking activities and relations to their benefit. On the other hand, the questionnaire is part of the PhD project by Filitsa Dingyloudi, entitled *Peer-Feedback Practices on Academic Skills within a community of Learners*, which among others aims at examining the development of international postgraduate students' social networks over time and its impact on community peer-feedback practices, development and interactions.

We therefore ask you to fill out this questionnaire and are very grateful for your support.

In the following pages you will see that this questionnaire is, in contrast to typical questionnaires, not anonymous. Unfortunately, this is indispensable, as it is the only way to collect data for a social network analysis. **We guarantee that all data will be made anonymous directly after the collection process and from this point onward, it will be processed and published only in an anonymous form. Confidentiality is a high priority within this study. The data will be stored and secured in a locked file.**

Should you have any questions, please get in contact with Filitsa Dingyloudi (Filitsa.Dingyloudi@psy.lmu.de).

We really appreciate your participation. Thank you in advance.

Filitsa Dingyloudi (for the evaluation team)

Please check the box that seems most appropriate to describe your former and future social networks at a personal level with each student in the MA-LS programme. Please check one box for each participant and ignore the line with your own name.

***Personally connected:** Here we mean the relationship you have with any of your classmates at a personal level with whom you meet regularly **within and outside the course context and university environment** (e.g., go together at social events like parties, go for lunch/dinner or coffee, go together for a walk at the park, ...)

Social network at personal level* of First Name Last Name	I **have been personally connected* with** this person **during the WS2013-2014**.		**I wish to be personally connected* with** this person **in the future**.	
	Yes	**No**	**Yes**	**No**
Student 1	□	□	□	□
Student 2	□	□	□	□
Student …	□	□	□	□

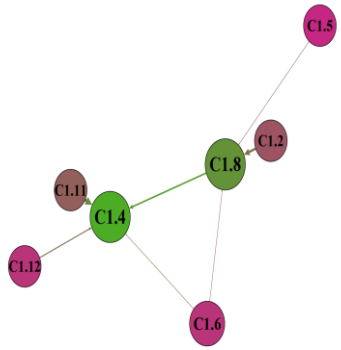
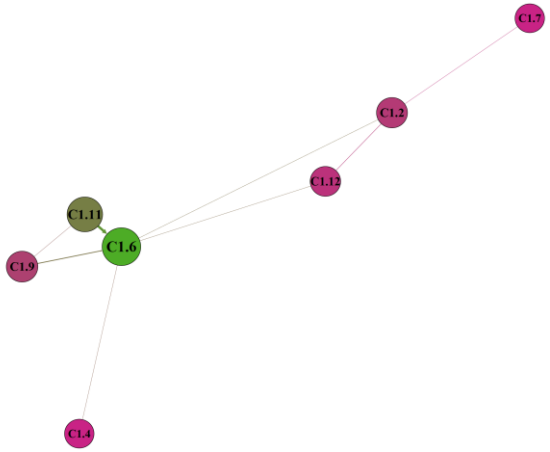
Please check the box that seems most appropriate to describe your former and future social networks at an academic level with each student in the MA-LS programme. Please check one box for each participant and ignore the line with your own name.

***Academically connected:** Here we mean the relationship you have with any of your classmates at an academic level with whom you meet and interact regularly **only within the course context and university environment** (e.g., study together at the library, work together on presentation, collaborative writing, share academic discussion during seminars/lectures or breaks, …).

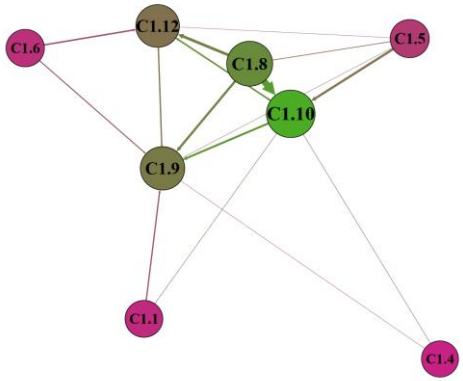
Social network at academic level* of First Name Last Name	I **have been academically connected* with** this person **during the WS2013-2014.**		**I wish to be academically connected* with** this person **in the future.**	
	Yes	**No**	**Yes**	**No**
Student 1	□	□	□	□
Student 2	□	□	□	□
Student …	□	□	□	□

Appendix K: Peer-feedback networks per CE in both CoLPs

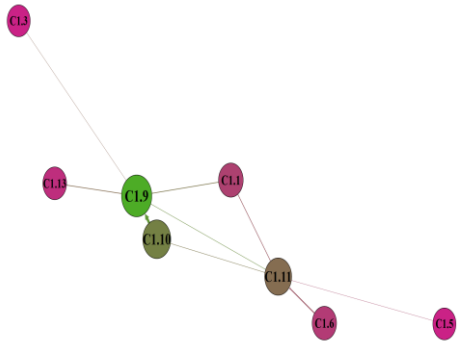
CoLP1: Weighted peer-feedback networks per CE

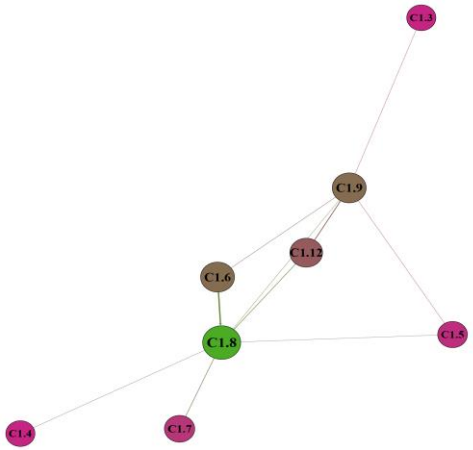
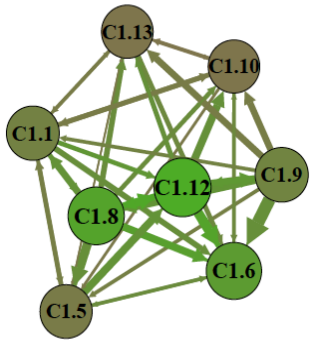
CE	CEPs	Members non-CE$_x$Ps	Potential complete network	Density	Peer-feedback network (Overall weighted degree)
CE1.1	9/13	C1.1, C1.3, C1.7, C1.9	$P_{G1.1}$ = (C1.2, C1.4, C1.5, C1.6, C1.8, C1.10, C1.11, C1.12, C1.13)	0.045	
CE1.2	8/13	C1.1, C1.3, C1.8, C1.10, C1.13	$P_{G1.2}$ = (C1.2, C1.4, C1.5, C1.6, C1.7, C1.9, C1.11, C1.12)	0.051	

CE1.3	8	C1.2, C1.3, C1.7, C1.11, C1.13	$P_{G1.3}$ = (C1.1, C1.4, C1.5, C1.6, C1.8, C1.9, C1.10, C1.12)	0.122



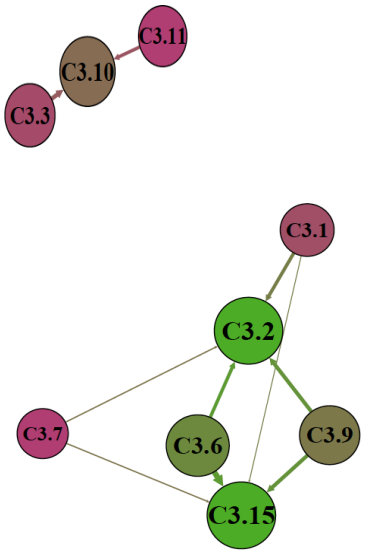
CE1.4	9	C1.2, C1.7, C1.8, C1.12	$P_{G1.4}$ = (C1.1, C1.3, C1.4, C1.5, C1.6, C1.9, C1.10, C1.11, C1.13)	0.058



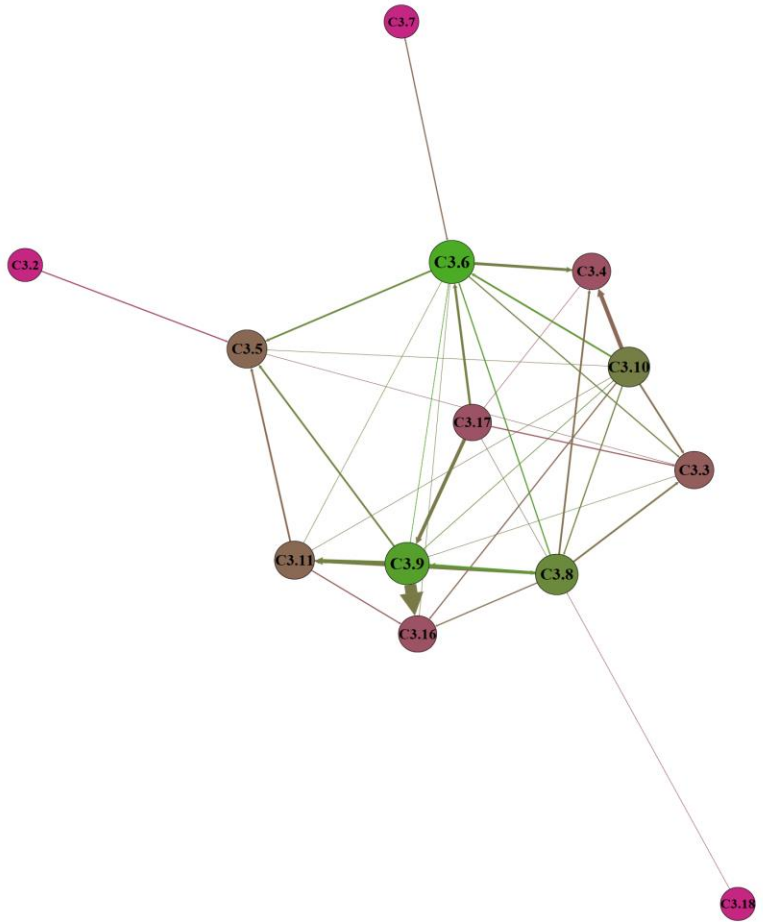
CE1.5	10	C1.1, C1.11, C1.13	$P_{G1.5}$ = (C1.2, C1.3, C1.4, C1.5, C1.6, C1.7, C1.8, C1.9, C1.10, C1.12)	0.064	
CE1.6	8	C1.2, C1.3, C1.4, C1.7, C.11	$P_{G1.6}$ = (C1.1, C1.5, C1.6, C1.8, C1.9, C1.10, C1.12, C1.13)	0.327	

Note. CE1 = community event of CoLP1. C1 = community member in CoLP1. CEPs = actual participants in each community event. P_G *= potential complete graph.*

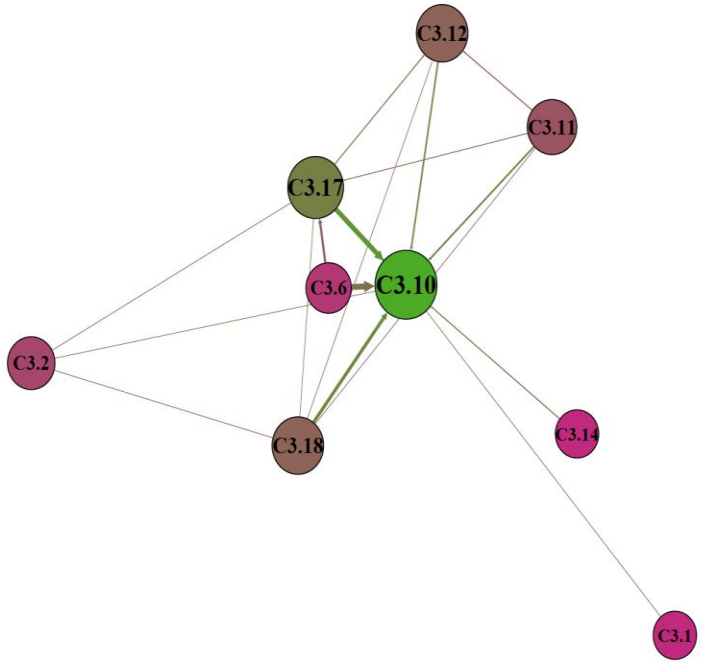
CoLP3: Weighted peer-feedback networks per CE

CE	CEPs	Potential complete network	Density	Actual weighted network
CE3.1	18/19	$P_{G3.1}$ = (C3.1, C3.2, C3.3, C3.4, C3.5, C3.6, C3.7, C3.8, C3.9, C3.10, C3.11, C3.12, C3.14, C3.15, C3.16, C3.17, C3.18, C3.19)	0.029	

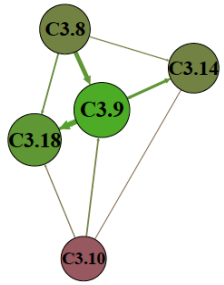
CE3.2	15/19	$P_{G3.2}$ = (C3.2, C3.3, C3.4, C3.5, C3.6, C3.7, C3.8, C3.9, C3.10, C3.11, C3.14, C3.16, C3.17, C3.18, C3.19)	0.120



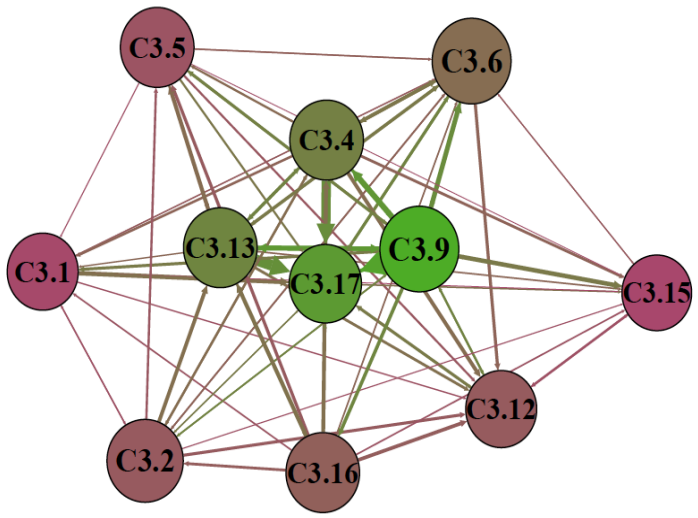
CE3.4	9/19	$P_{G3.4}$ = C3.1., C3.2, C3.4, C3.6, C3.10, C3.11, C3.12, C3.14, C3.17, C3.18	0.056



CE3.5	5/19	$P_{G3.5}$ = C3.8, C3.9, C3.10, C3.14, C3.18	0.038



CE3.7	11/19	$P_{G3.7}$ = C3.1, C3.2, C3.4, C3.5, , C3.6, C3.9, C3.12, C3.13, C3.15, C3.16, C3.17	0.260



Note. CE3 = community event in CoLP3. C3 = community member in CoLP3. CEPs = actual participants in each community event. P_G = potential complete graph. CE3.3 and CE3.6 are excluded from analysis. CE3.3 is excluded because it was an information sharing event that did not involve peer feedback interactions. CE3.6 is excluded because only two members participated $P_{G3.6}$ = (C3.6, C3.14) and their peer feedback interactions if included in the analysis would distort the representativeness of the weight of these members' peer feedback interactions since there is only one possible target for each respective source.

Appendix L: Sample overview across phenomena

Sample overview: Cohort/CoLP members and participants included/excluded

			Cohort							*CoLP*							
C	Theme	Instr	CN_{pot}	CN	Excl. Ps	M_{age}	Age_{range}	*SD*	G	CoLP N_{pot}	CoLP N	Excl. Ps	M_{age}	Age_{range}	*SD*	G	Exclusion reason
C11	VC	VCSs	-	-	-	-	-	-	-	13/26	9/13	4	26.33	24-31	2.65	F:9 M:0	Missing VCS
	SN	SN Qs	26	23/26	3	25.09	22-31	2.84	F:19 M:4		13/13	-	25.15	22-31	2.85	F:12 M:1	Missing SN Q
	PF	Video	-	-	-	-	-	-	-		13/13	-	25.15	22-31	2.85	F:12 M:1	-
C13	VC	VCSs	-	-	-	-	-	-	-	22/29	18/22	4	24.89	22-30	2.37	F:17 M:1	Missing VCS
	SN	SN Qs	29	24/29	5	25.04	22-30	2.27	F:22 M:2		19/22	3	25.11	22-30	2.49	F:18 M:1	Missing SN Q
	PF	Video	-	-	-	-	-	-	-		19/22	3	25.11	22-30	2.49	F:18 M:1	Exclusion due to missing SN data

Note. C = cohort. RQ = research question. VC = value creation. SN = social networks. PF = peer feedback. VCSs = value creation stories. SN Qs = social network questionnaires. N_{pot} = potential complete sample given the complete number of students who consented to participate in the study. Excl. = excluded. Ps = participants. G = gender. F = female. M = male.