Knowledge dating and knowledge sharing in ad-hoc transient communities

4 Knowledge Dating and Knowledge Sharing in Ad-Hoc Transient Communities

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4.1 Introduction

In a Learning Network, the autonomy of the learner, whether professional, hobbyist or amateur is taken as the starting point. This contrasts with other approaches in which a Learning Network is as an element in a design which embodies particular instructional principles (Squires 1999). In accordance with our view, a Learning Network offers learners opportunities to act that are on a par with the opportunities staff have in traditional, less learner-centred educational approaches. Learners are allowed to create their own learning activities, build their own learning plans, and share their learning activities and their learning plans with peers and institutions. Much as these are desirable features that strengthen learner autonomy, an unfortunate side-effect may be that autonomy rapidly degrades into isolation. Learners who do not feel socially embedded in a community will not thrive, to the detriment of their achievements and their appreciation of learning in a Learning Network setting. In general, individual success or failure on a learning activity depends on the extent to which learners perceive themselves as genuinely participating in a community (Wegerif et al. 1998).

In formal learning settings, autonomous learners are likely to make extensive demands on their teachers. After all, autonomous learners do not come in cohorts

or classes, nor do they have uniform learning paths and goals that may be captured in preset curricula. This learner heterogeneity is bound to lead to a great variety of requests for support. Because of the lack of an available social structure, autonomous learners cannot rely on each other's help either, which tends further to increase the educator's workload. What little evidence is available seems to support these arguments (Romiszowski and Ravitz 1997 as cited in Fox and MacKeogh 2003). Rumble (2001, pp. 81, 82) quotes as much as a twofold load increase. Ideally, an online teacher should mainly facilitate student learning processes, while a teacher in a traditional setting should primarily select and share content (Beaudoin 1990; Salmon 2004). So in online learning, the teacher is to provide the students timely with feedback regarding their learning process rather than the subject matter or their learning products (Hardless and Nulden 1999). In practice, however, online teachers are responsible for both the learning process and the learning product. The latter entails activities such as (1) grading, (2) initiating, receiving and responding to messages, (3) collecting and marking assignments, and (4) maintaining and updating course content (Beaudoin 1990). De Vries, et al. (2005) note that teachers in online and blended learning environments find initiating, receiving and answering questions of students time-consuming. In other words, online teachers receive numerous content-related questions that need to be answered. Taken together this pile of responsibilities could easily overload the teacher. In online learning, it is therefore of the utmost importance to provide services that enhance a student's learning process and yet do not increase the work load of teachers (Fox and MacKeogh 2003).

Non-formal learning is as much intentional as is formal learning; however it does not rely on the usual infrastructures that are so characteristic of formal learning: schools, curricula, classes and cohorts. In Learning Networks - that are designed to sustain non-formal learning although bouts of formal learning may occur - learners will have no fewer requests for support than do learners in formal settings; for example, they will have the same kind of content-related questions as learners in formal settings. However, finding people that can help out will be harder precisely because of the lack of a formal learning infrastructure. Therefore, specific services have to be made available that offer them appropriate support.

This chapter will focus on the question of what rules and policies are conducive to the emergence of an adequate support infrastructure in the non-formal settings of a Learning Network. Once such an infrastructure is in place, a variety of ways again embedded in rules and policies may be used to guarantee its *continued existence*. This was the subject of the previous chapter. Here the focus is on the phase of the *emergence* of social interaction and the formation of an incipient social infrastructure. It is in this stage that the lone learner makes acquaintance with his or her online peers. More specifically, since learning through the exchange of knowledge is the ultimate objective of any Learning Network, we will present guidelines for effective and efficient *knowledge dating* in Learning Networks; ultimately, this should lead to *knowledge sharing*. During our discussion, we will introduce the notion of ad-hoc transient communities, temporal online gatherings of people fo-

cused on a particular issue, which precisely because of their focus and transience help build a social infrastructure in a Learning Network. Ad-hoc transient communities may be seen as a knowledge dating and sharing service, offered in the context of a Learning Network. However, before going into this, we will start our story by briefly recapitulating a case begun in Chapter 2.

Remember how Eddy LeDuca, Jannie Barends, Bas Timmer and Jessica Zwart were all motorcycle enthusiasts with a particular craving for vintage motorcycles. Eddy is a policy analyst at the environmental consultancy firm *TsA*. Recently, he bought an old Moto Guzzi V7 from 1972, which he wants to renovate. Jannie is an early-retired expert on the Moto Guzzi V7, about which she owns a whole library of manuals detailing how to maintain, rebuild and repair motorcycles. Bas is a car mechanic who dreams of running his own garage in the near future. And Jessica works for the research and development department of Moto Guzzi at Mandello del Lario, Italy. Eddy, Jannie, Bas and Jessica are really all lifelong learners who - from their various own perspectives - want to expand their knowledge about motorcycles, in particular the Moto Guzzi V7 from 1972. Would there be a better a way to serve their interests than they do currently, by rather haphazardly surfing the Internet and, every so often, engaging in discussion fora?

4.2 Knowledge Dating in Learning Networks

Lifelong learning professionals and amateurs such as Eddy, Jannie, Bas, and Jessica will want to control their own learning activities. They build, for example, their own learning plans (e.g., the renovation plans of Eddy), produce their own reports on assignments (e.g., the business plan of Bas or the research plans of Jessica), and collect their own (scholarly) references and bookmarks (e.g., the library of Jannie). Because of this desire for autonomy, they will oppose any attempt to being put in cohorts or classes or having to submit to a curriculum, as would happen were they to participate in formal learning arrangements. An unfortunate side-effect of their autonomy, however, is that they may easily stay isolated, lacking a focal point for interaction that they can build on and develop. If such learners do not feel they belong to a larger community or network, they will not easily interact with peers; which hampers the emergence of a deeper understanding of what each of them wants to achieve. Lack of peer communication may ultimately negatively affect their success as a lifelong learner and even as a professional. Research shows that individual success on learning activities depends on the extent to which learners perceive themselves to be insiders of a network (Wegerif et al. 1998).

Our answer to this predicament is that these learners should first of all become a member of a Learning Network, for instance one that is devoted to vintage motor cycle aficionados. Second, a mechanism should be in place, which is part of the services offered by the Learning Network, that forges social ties between them. From the description of the case, it appears that Eddy, Jannie, Bas and Jes-

sica would make good conversation partners, even good peer learners. What is missing is a means of building on this potential. Ad-hoc transient communities, we claim, are the way to seed social interactions between them, which, ultimately, lead to knowledge sharing.

Ad-hoc transient communities by definition have a highly specific focus and lack permanence. They serve a particular goal and do so only temporarily. A case in point would be finding an answer to Eddy's question, discussed earlier, on how to clean and repair the carburettor for his Moto Guzzi. The ad-hoc transient community is only about this question, it ceases to exist once it is answered. However, since the participants in this community know each other, this contributes to the social space in the Learning Network. The participants may continue their engagement with each other, or they may not. This is up to them. Thus they maintain maximum autonomy and control. In the next sections we will explain how this could be done. If they decide to stay in touch, this may be the beginning of a community within the vintage motorcycles Learning Network fully devoted to the Moto Guzzi V7 from 1972 only. Over time, others will join in and a community arises with a more or less stable membership and a more or less fixed set of topics. What matters here is that this V7 community then has emerged from user initiated ad-hoc transient communities that discussed issues related to the Guzzi V7. We will discuss in more detail how in our view this should work and what measures need to be taken to make it work.

4.3 Knowledge Dating in Ad-Hoc Transient Communities

Effective knowledge sharing within ad-hoc transient communities is dependent on effective knowledge dating. That is, for effective knowledge sharing to occur group members should be carefully matched with each other because some 'dates' work and some do not. Eddy, for example, should ideally team up with someone who could tell him how to repair the Guzzi carburettor instead of someone who is in the midst of finding out herself. So, first of all, measures are needed to match the right people. This leads to a few guidelines. First, to assure lively knowledge sharing in a community, it should consist of a *heterogeneous* group of people, such as veterans (e.g. Jannie) and newbies (e.g. Eddy), or lurkers (e.g. Bas) and posters (e.g. Jessica) (Preece et al. 2004). Second, specific *roles* should be recognisable to the community members to avoid problems during the knowledge sharing process due to confusion about who is knowledgeable and who is not (Greenwood et al. 1989). Obviously, these roles could change between ad-hoc transient communities. Jannie is knowledgeable about technical issues, but Jessica would probably be better able to advice on business plans. Etc.

4.3.1 Heterogeneity

In lifelong and professional learning, participants in any given domain of knowledge have different levels of competence, varying from novices (e.g. Eddy) to top-experts (e.g. Jannie), from practitioners (e.g. Bas) to researchers and developers (e.g. Jessica). Traditionally, in formal learning settings, the heterogeneity of learners has been reduced as far as possible to allow class-based teaching. This is done by providing clear entry requirements and using cohorts or groups that are considered homogeneous. In lifelong and professional learning, necessarily the door is opened to exploiting the heterogeneity of learners by putting together ad-hoc transient communities in which novices collaborate with more experienced people.

The prosperity of any community crucially depends on the characteristics of the people in it. First of all, people differ with regard to their experiences with working in an online community. Often learners are divided in veterans and newbies. Brown (2001) found that veterans showed good community behaviour. They were supporting and encouraging peers, sharing knowledge and experiences, reflecting on past learning, and sustaining friendships and/or acquaintanceships begun earlier. Newbies, however, depended much less on other group members and were reluctant to call for tutor help. They preferred a tight class structure with frequent interaction and helpful assessment from the tutor. It seems therefore wise to populate an ad-hoc transient community with both veterans and newbies. Because of their experience, veterans model good community behaviour to the newbies. Newbies can turn to veterans for support and encouragement instead of to the tutor. Although this helps to create an online community, veterans need an incentive to continue to interact with newbies. Veterans are inclined to do their 'duty' in the beginning but after a while tend to restrict their communication to veterans only, which hinders the expansion of the social structure in the Learning Network (Brown, 2001). In our case, for Eddy, it would seem wise to team up with Jannie, the Guzzi-Godmother. She not only has a lot of knowledge about the Moto Guzzi V7, but she also knows how the Learning Network works. She can answer his question about how to repair and clean the Guzzi-part. For Jannie on the other hand it might be less interesting to team up with newbies as Eddy because their questions may not be very challenging for her.

Second, most people are trend-followers, but it is the trendsetter how makes the difference. (Nichani 2001) describes three types of trendsetters, each of whom could significantly influence the thriving of any community: connectors, mavens and salesmen. *Connectors* form the 'social glue' of a community; they are very sociable and attentive and have a talent for making friends. *Mavens* are the information experts that have a talent for collecting information and are willing to tell others about it. *Salesmen* are persuaders, they have a tendency to reach out to the unconvinced and persuade them to join the community. The absence of trendsetters in a community, which then consists of trend-followers only, will negatively

influence elementary features such as belonging, trust and social interaction (see also Chap. 3). So, an ad-hoc transient community populated with Jannie (connector), Jessica (maven) and Eddy (salesman) would work very well. Adding Jessica to the group in order to try and solve Eddy's question might be a win-win situation for all. Eddy finds an answer to his question; Jessica gathers information on Moto Guzzi parts that need to be redesigned and Jannie learns from Jessica about new developments for the Moto Guzzi.

Third and related to the issue of trendsetting, participants of online newsgroups differ in their inclination to either lurk or post in a community. A *lurker*, by definition, belongs to a community but never posts in it. The percentage of lurkers in established communities is very variable (i.e., ranging from 0% to 99%; (Preece et al. 2004)). For example, lurkers appear to make up 45.5% of health support communities while the lurker population in software support communities could be as high as 82% (for an overview, see Preece et al. 2004). Reasons for not posting range from 'didn't need to post', 'needed to find out about the group', "couldn't make the software work", "didn't like the group" to 'had nothing to offer' (Preece et al. 2004). Posters and lurkers are attracted to a community and join it for the same reasons. However, *posters* feel their needs are better met, perceive more benefit and feel a greater sense of membership than lurkers. Partly because posters do not regard lurkers as inferior members, lurking is not necessarily a problem in existing, active communities. Without a critical mass of posters, however, a community will never thrive (Preece et al. 2004). In our example, it may not be wise to involve a lurker such as Bas in an ad-hoc transient community set up to resolve the carburettor question. He would be of no use as his impact would be negligible. On the other hand, he might change his behaviour if personally invited. In the communities of practice Wenger describes, newcomers become 'socialised' through a process of peripheral participation which gradually evolves into full-fledged participation (Lave and Wenger 2002; Wenger 1999).

Finally, heterogeneity in levels of knowledge can have different effects on learning. Although for example, King and colleagues (1998) found that *peer-tutors* do not necessarily have to be more competent or more knowledgeable than their tutee counterparts, a study of Hinds et al. (2001) indicates that tutors equal in competence convey qualitatively different knowledge than more distant tutors. The near tutors - those who are similar to their tutees in knowledge level - use more concrete statements during their interactions with the tutee. In contrast, the distant tutors - those with a higher level of knowledge - convey more abstract and advanced concepts. Heterogeneity in level of knowledge between learners thus leads to a wide spectrum of knowledge shared in the community. To what extent the composition of an ad-hoc transient community needs to be heterogeneous in this respect depends on the goal of the community. It may well be that certain types of knowledge sharing or certain occasions or objectives maximally benefit from heterogeneity while others definitely do not. As discussed earlier, it may be sensible for veterans as Jannie and newbies as Eddy to team up, but there is a fair chance that in the long term the veterans do not find these interactions challenging

any longer. In this case, it might be better for Eddy to team up with a knowledgeable peer, that is, someone whose level of knowledge is similar to his but yet knows the answer to his question.

4.3.2 Roles

Almost by definition, a Learning Network lacks the structure of the traditional class. Since no or few teachers are available to share and transmit knowledge, learners have to take up this role themselves. This change of role between learner and teacher could generate a lot of 'noise' in a Learning Network. That is, it could cost Learning Network participants much effort without contributing to and even interfering with the knowledge sharing process. In our case, for example, imagine Eddy in his garage with his Guzzi V7 parts spread out over the floor, trying to find out how to reassemble the fuel system. Finally, he turns to his computer to visit an ordinary forum on vintage motorcycles to look for an answer. In it, Eddy has to go through threads that touch upon his problem. Failing to find an answer, he has to post his question in the hope that somebody answers it. Or he could in some other way try to find someone who is able to answer his question and directly approach this person. These processes are referred to as noise – or transaction costs, depending on your disciplinary background - since they do not themselves contribute to the knowledge sharing process; the more effort they cost, the less effort can be spent on the knowledge sharing process itself. Hence, in Learning Networks measures need to be taken, in the form of appropriate services that maximally reduce the noise or transaction costs so that the cooperative process of knowledge sharing can take off.

Improvements can be made by 'filtering the noise'. That is, learners should not have to invest effort in activities that are not relevant for knowledge sharing. Learners who carry out complex cognitive task - such as for the first time in your life reassembling the fuel system of a Guzzi V7 - are expected to profit from a filtered network. These learners, as compared to learners that solve less cognitively demanding tasks, need all their cognitive capacity to solve the problem at hand, so, all effort that has to be invested in activities not relevant for problem solving is wasted and will hamper learning. It is surmised that providing Learning Network members with an identity based on their experience in the domain (i.e. novices and experts) or in the Learning Network (i.e. veterans and newbies) could enable them to take up roles. As a consequence, a structure for knowledge sharing could arise. For instance, domain experts can take up the role of tutor and domain novices will adopt the role of tutee while they all use a peer-tutoring format for knowledge sharing. In our example, if the Learning Network holds data about its members on their expertise and experience, it could bring suitable people together given a certain goal (the exact way in which this service operates will be discussed in Chapter 5). In this way, Jannie, Jessica or Bas could have joined Eddy in an ad-

hoc transient community addressing his question. This would save him the trouble of searching through forum threads, seeking for someone able to answer his question, et cetera.

Greenwood et al. (1989), who carried out a longitudinal study on peer-tutoring in a formal learning setting (i.e. a classroom), found that students in peer-tutoring classes were more engaged in learning activities and knowledge sharing and less engaged in structuring these activities. Therefore, the students who learned within a peer-tutoring structure achieved higher learning outcomes than students who learned without it. Interestingly and importantly, the peer-tutoring structure seems to help both the peer-tutor and the tutee to achieve higher learning outcomes (Gyanani and Pahuja 1995). Effective peer-tutoring structures provide the tutors with support (e.g. probing/review questions, hints) that helps them effectively to guide the tutee's learning process. King et al. (1998) state that such tutor-support raises the knowledge sharing between tutor and tutee to a high cognitive level that includes mutual exchange of ideas, explanations, justifications, speculations, inferences, hypotheses, and conclusions. *Mutatis mutandis*, such effects should also pertain to tutor-tutee relations in ad-hoc transient communities, but certainly in the communities that emerge out of them.

4.4 Knowledge Sharing through Ad-Hoc Transient Communities

Knowledge dating is but a stepping stone towards knowledge sharing, which is what Learning Networks are about. Ad-hoc transient communities, again, are the prime mechanism we propose to set knowledge sharing in motion. What conditions should be met for knowledge sharing in ad-hoc transient communities to occur? A survey of the literature (see Kester et al. 2007) yields two important conditions. First, to achieve and maintain social interaction, one should establish their recognisability, a historical record of their actions, and continuity of contact (Kollock 1998). This is the *accountability* condition. Second, ad-hoc transient communities should have a clear *goal* for knowledge sharing to occur.

4.4.1 Accountability

A sound social space is characterised by affective work relationships, strong group cohesiveness, trust (i.e., perceived reliability of the word of other group members and genuine interest in the welfare of group members), respect, belonging (i.e., recognition of membership) and satisfaction (Kreijns 2004; Nichani 2001; Rovai 2002). Social interaction enhances the emergence of social space. Task-driven interaction directed towards the completion of assigned tasks, however, could negatively influence the growth of this social space. When, for exam-

ple, as part of the goal of a particular ad-hoc transient community, it is the members' task to assess each other, fear of criticism or reluctance to criticise could interfere with feelings of trust (Rovai 2002). Furthermore, mistaken expectations of what a community should bring, could also negatively influence social interaction and hence the emergence of social space. According to Brown (2001), individuals who felt that people needed to join voluntarily or felt that face-to-face association was necessary, only developed a sense of belonging and trust if they joined a face-to-face community of their own volition. So social interaction and, as a consequence, the emergence of social space is facilitated when socially and emotionally driven interaction is stimulated instead of task-driven interaction; the same facilitation is observed when people's expectations about a community are fulfilled.

More generally still, three social prerequisites should be met in order for social interaction, in particular cooperation, to occur: (1) all individuals must be able to identify each other (recognisability), (2) all individuals must be able to know how any other person has behaved in the past (history), and (3) any two individuals must be likely to meet again in the future (continuity). If individuals only meet once, they are very much tempted to behave selfishly, which negatively influences the cooperation process. In addition, if individuals are not identifiable and no history of a person's behaviour is available, group members are more likely to act selfishly because they cannot be held accountable for their actions (Kollock 1998). (See Chap. 2 for a different tack on these desiderata.)

First, the recognisability of learners can be ensured by forbidding the use of (multiple) aliases such as screen names. However, this may be hard to accomplish in practice. So, if one does not want to ban pseudonymity entirely, learners that go by a pseudonym should adopt a persistent one. Persistence can be guaranteed by using the learner profile as proxy for someone's identity (see Chap. 3). Note that different personal details can be made visible to different actors, depending on, for example, the privacy of the learner, the goal of the community, or the role of each learner in the community. So in the vintage motorcycles Learning Network, Jannie adopted the pseudonym 'Guzzi godmother' when she signed up for it. This pseudonym does not directly tell newbies that she is an expert when it comes to the Moto Guzzi V7 and a veteran in the Learning Network. However, Jannie's privacy settings allow every visitor of the Learning Network to take a look at a general part of her personal profile in which she flags her expertise and experience of the Moto Guzzi and her long involvement in the network. Her personal profile may also contain a lot of personal photos. Jannie's privacy settings allow specific members of the network to access these.

A historical record of user activities can be maintained by logging all the learner's activities. The ones significant for knowledge sharing, for example those that reflect content competence or knowledge-sharing competence, become part of the learner's profile. Content competence reflects the learner's mastery of the content within the Learning Network. To underpin content competence, the profile contains the products that resulted from a learner's activities, such as papers, re-

ports, or even assessments. Knowledge-sharing competence refers to the ability of a learner satisfactorily to support peers during a process of knowledge sharing. This information could be acquired directly, by letting learners rate each other's performance in the ad-hoc transient communities they both participated in; or indirectly, by monitoring the achievements of the learners with whom the learner to be rated has shared his or her knowledge. Learner profiles should also incorporate this information. Furthermore, the parts of the personal profile that are accessible to all network members, should display the ad-hoc transient communities these members were active in.

Continuity of contact within a Learning Network can be guaranteed by the ad-hoc transient community structure that is implemented. Furthermore, the ad-hoc transient communities will continuously surface in the Learning Network to serve different purposes and, although they continuously change with regard to their composition, learners will likely meet again some time in some newly started ad-hoc transient community or other. Because Eddy had this problem with repairing the carburettor of his Guzzi V7 he came in contact with Jannie and Jessica, who appeared to be the right persons to help him given their personal profiles. Since especially Jannie has a lot of expertise with motorcycles, it is likely that Eddy and she will meet again when Eddy runs into another problem during his renovation project.

4.4.2. Goal Orientation

Ad-hoc transient communities should have a clear goal optimally to promote knowledge sharing. The goal could result from a request of a learner, for example, a content-related question (see Chap. 5). The learner request then forms the incentive for the process of knowledge sharing. Indirectly this request strongly influences the social interaction. One can imagine, for example, that a knowledge-sharing goal tied to answering content-related questions elicits interaction patterns different than a request to comment on a paper. Answering a content related question is a well-structured problem and therefore yields a limited amount of interaction. So if Eddy were to ask a question, Jannie and Jessica would give an initial answer, sometimes to be followed up by a few more exchanges of messages, to clarify the answer or even the question itself. Commenting on a paper, however, is an ill-structured problem and is likely to yield more and more prolonged interaction. Since there is no right or wrong answer to, for example, the question of what style or structure is best given the circumstances, answering this kind of request will lead to a fair amount of discussion between group members. So, the personal profile of Bas contains his business plan for his garage and upon his request an ad-hoc transient community arises to discuss this business plan. Jannie and Jessica join in and since Bas, Jannie and Jessica are all experts and thus know their business, it is likely that a vivid discussion will evolve around his request for help.

The social interaction pattern elicited by a request for knowledge sharing may be mediated by different interaction structures, many of which also characterise formal learning communities. Examples of such structures are *peer tutoring*, *Group Investigation* (Sharan and Sharan 1992), *Student Teams Achievement Division* (Slavin 1995), *Jigsaw* (Aronson and Thibodeau 1992; Bielaczycs 2001), *Structural Approach* (Kagan 1994) (each structure is a scenario to teach specific skills and, though not similarly articulated, it is implicitly assumed that situations are not identical), *Progressive Inquiry* (Rahikainen et al. 2001), the use of *scripts* (O'Donnell 1999; Weinberger et al. 2001), *scenarios* that prescribe collaboration activity (Wessner et al. 1999), *feedback rules* or requirements of a minimum degree of contributions to a discussion (Harasim 1993; Harasim et al. 1995). See Strijbos (2004, p. 33) for a detailed discussion. Strongly structured interactions, such as peer-tutoring or Jigsaw, are most suitable for knowledge-sharing goals that inherently elicit little interaction, because such interactions guarantee at least a minimum amount of social interaction. King et al. (1998) advocate a three-step structure for peer tutoring that consists of communication guidelines (i.e. listening, encouraging and giving feedback), an explanation procedure (i.e. the TEL WHY-procedure; telling in one's own words, explaining why and how, and linking of content), and questioning guidelines (e.g. asking comprehension questions or thinking questions). Jigsaw (Aronson et al. 1978; Slavin 1995) is a technique suited to situations in which students have to learn from written materials (e.g. textbooks, fact sheets). In Jigsaw, the academic content is divided up into as many sections as there are team members. They then have to study the section of the content allotted to them with members of the other teams, who are invited to study the same section. Together they form an 'expert group'. After they all have become 'experts' on that section, they each return to their original team to share with it what they have learned (Kreijns 2004, p. 40).

Suppose Eddy, Bas, Jannie and Jessica are classmates instead of learners in a Learning Network. Eddy still has a problem with repairing the Moto Guzzi V7 carburettor and Jessica is assigned to help him. So, Eddy asks Jessica how to repair the carburettor and Jessica gives him the answer. In this example the interaction is very limited. The interaction could be increased for instance, by using the peer tutoring strategy of King et al. (1998). In this case, Jessica asks Eddy to explain the problem while giving him feedback, then they discuss the origin of the problem and then Jessica helps Eddy to find the solution of his problem himself by asking him relevant questions. Such a method increases the interaction between group members, which could enhance the effectiveness of knowledge sharing in terms of learning.

Weakly structured interactions, such as Progressive Inquiry, however, seem to be most suitable for knowledge sharing goals that inherently elicit much interaction. Progressive inquiry seeks to stimulate the same kind of productive practices of working with knowledge that characterise scientific research communities. By imitating the practices of these kinds of communities, students are encouraged to engage in extended processes of question- and explanation-driven inquiry. Ac-

cordingly, an important aspect of progressive inquiry is to guide students in setting up their own research questions and working theories. In practice, this means that students are making their conceptions public and working together to improve shared ideas and explanations. It is an essential element of this approach to constrain emerging ideas by searching for new information. Participation in progressive inquiry is usually embedded in computer-supported collaborative learning environments that provide sophisticated tools for supporting the inquiry process as well as sharing of knowledge and expertise. Imagine Bas, Jannie and Jessica are entrepreneur trainees and they are working on a business plan together. They write this business plan for the Chamber of Commerce where they have to register their business. Such a tasks already elicits a lot of discussion and the group would be helped if they were supported in explaining their ideas to the others, develop shared ideas et cetera by tools such as for example templates or external representations.

4.5 Conclusion

This chapter described how ad-hoc transient communities could be deployed effectively and efficiently to date for knowledge sharing. We discussed various guidelines for setting up such communities, the specific nature of the guidelines depending on whether they were about knowledge dating or knowledge sharing. Together, they form a recipe for increasing the success of ad-hoc transient communities. If successful, they should increase social cohesion of a Learning Network and give rise to the emergence of more permanent communities in it. Below, we summarise the guidelines discussed.

1. To foster knowledge dating, ad-hoc transient communities should be populated by a *heterogeneous* group of people (i.e. veterans and newbies, lurkers and posters or domain novices and experts).

2. To foster knowledge dating, the members of ad-hoc transient communities should have distinct and recognisable *roles*, for example, those of novice or expert.

3. To foster knowledge sharing, members of ad-hoc transient communities should be *accountable* for their actions. Therefore they have to be *recognisable* with a persistent identity; their *history* in the Learning Network should be made public and *continuity* of contact between members should be stimulated.

4. To foster knowledge sharing, each ad-hoc transient community should have a single, clear-cut goal, which may come in different kinds (e.g. content related questions or requests for comment).

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