Perceived Support in E-Collaborative Learning: An Exploratory Study Which Make Use of Synchronous and Asynchronous Online-Teaching Approaches

Stefanie Andrea Hillen and Tero Päivärinta

University of Agder, Gimlemoen 25, 4604 Kristiansand, Norway
stefanie.a.hillen@uia.no
Luleå University of Technology, 97187 Luleå, Sweden
tero.paivarinta@ltu.se

Abstract. This study compares four different learning environments for e-collaborative learning in two European countries related to the dimension of student's mutual support. The theoretical baseline is Vygotsky's zone of proximal development (ZOPD) and the socio-genetic approach of Piaget. The analyzed data are based on questionnaires collected over the time period of an entire semester including four different courses at the master's level. These courses applied different e-collaborative approaches including a variety of tools for supporting communication. It is assumed that these courses including communication tools e.g. virtual face-to-face meetings enhance the chances for better communication, and finally, for mutual support of students themselves. The objective is to investigate how the different environments have affected the students' perception related to different e-collaborative learning platforms in the dimensions of social support, information exchange, and task support.

Keywords: e-collaborative learning, mutual support, blended learning.

1 Introduction to Online Teaching Applications, Objectives of the Study and Theoretical Framework on E-Collaboration

1.1 Orientation about Online Teaching Applications

The differentiation between synchronous and asynchronous online-teaching applications is taken as a decisive and distinct attribute in online teaching. Empirical research uses this distinction and makes it thereby difficult to analyze and compare teaching effectiveness with their underlying instructional models. On the one hand the term asynchronous online teaching is predominantly used for the application of Learning Management Systems (LMS) in teaching. This kind of learning uses preferentially online discussion-boards as one way of constructing knowledge (Salmon, 2004).

On the other hand synchronous online-teaching by video-conferencing is more seen as capturing lessons in a digital format. This classification does not mirror

appropriately the potential and variety of application modes in online teaching. Even if these criteria seem obvious this distinction has to be seen rather analytically. Instead of looking for the separating factor between these approaches, this research project wants to open up alternative perspectives in online teaching through an integrated e-collaborative learning approach. A continuum of these approaches is necessary to explore, including a variety of physical tools and pedagogical means which target on different objectives in online teaching should replace this dichotomy.

1.2   Objectives of the Study and Theoretical Framework on E-Collaboration

Major goals of collaborative learning are to support social interaction and encourage learner's cognitive processes (Ertl, Kopp, & Mandl, 2005). The cognitive dimension of collaborative learning processes is "… as comprising two relatively independent cognitive systems which exchange messages. It can also be viewed as a single cognitive system with its own properties." (Dillenbourg et al., 1996, p. 3). The research group of Ertl differentiates between three specific mechanisms in collaborative learning, that is, to raise cognitive conflicts, the need for elaborated explanations and negotiations and the co-construction of knowledge.

Regarding social interactions Cecez-Kezcmaniv and Webb (2000) mention that "… by enabling social interactions via an electronic medium, unrestrained by space, time and pace, web technologies actually expand and transform the social interaction space of collaborative learning. Students can work together, achieve shared understanding, and cooperatively solve problems in the new web-mediated environment." The study of Martinez et al. (2002) analyzes the collaboration among students applying different educational designs and tools in online-teaching. One of the results is that the students "… developed new collaborative attitudes beyond the ones they reflected in the initial questionnaire" (Martinez et al., 2002, p. 632). At any rate, e-collaboration does not automatically secure effective learning or improve learning processes and outcomes. Rather, it offers just extended chances for collaborative learning. "These benefits, however, are only achieved by active and well-functioning learning teams." (Soller, et al., 1998). In addition, the impact of collaborative learning cannot easily be transferred to e-collaborative learning.

One phenomenon in e-collaboration is virtual distance which affects the efficacy of collaboration in groups (Lojeski & Reilly, 2008; Lojeski et al., n.d., p. 1). Virtual distance is "… a perceived, psychological distance that accumulates when individuals and team members rely heavily on electronic communication." (Lojeski, et al., n.d., p. 8). "When Virtual Distance is high, team members do not share knowledge with one another. Therefore, they do not collaborate or reflect upon lessons learned from any given work initiative or project." (Lojeski et al., n.d., p. 24). Lojeski mentions various factors which contribute to reduce (f2f communication) or contribute to enhance (cultural differences) the perceived virtual distance. It is important to reduce virtual distance so that virtual socialization can take place as one prerequisite for learning in virtual rooms (Salmon, 2004). Face-to-face (f2f) communication, para-verbal and non-verbal communication are crucial elements in communication processes. A specification in the concept of virtual distance is the one named 'communicative distance' (Lojeski & Reilly,

2008, p. 33ff) which can be explained as the perception or feeling of being separated because of the lack of opportunities for common meaning making. Hence, the choice of an appropriate communication tool is crucial to reduce 'communicative distance'.

If students communicate only by means of text-based discussion boards a reduction of stimulation of senses is occurring which is called channel reduction[1]. This relates to the filter-theory according Döring (2000, p. 355). The opportunity to enhance visual and nonverbal parameters in online-communication by video which include gesture, mimic and *contextual* information, will reduce the 'filter-effect' in electronic based communication.

The blended learning courses mentioned above applied different e-collaborative approaches, including a variety of tools for supporting e-communication. It is assumed that these courses including various communication tools e.g. virtual face-to-face meetings enhance the chances for better communication, and finally, for mutual support of students themselves.

Empirical research has shown that computer-based communication enhances the interaction between learners and increases critical thinking in online discussions (Derry, Levin, & Osana, 2000; Gokale, 1995). According to Vygotsky (1978) one explanation can be seen in the model of ZOPD. In collaborative online teaching this includes the students' colleagues, and teachers as well as the technology supporting communication and interaction as well as access to information. From Piaget's point of view (socio-genesis) the individual cognitive development is seen as a process of equilibration as reaction to external disturbance (cognitive conflicts) induced by social interactions. Lehtinen (2003) remarks that both approaches are essential theoretical foundations for collaborative learning.

To analyze the participation in collaborative learning processes seen as a social interaction process it is analytically divided in three aspects, an action which contributes to learning; information exchange, task support, and social support. The types are adapted of Haythornthwaite's approach (2000, 2002, 2003):

Collaborative work with information exchange: To guarantee learning, information has to be shared and circulated to increase the ability of (re-) constructing knowledge by members of the learning community. One prerequisite for learning is the members' perceived 'safe' community. This 'enables' the participant to ask 'dumb' questions.

Task support: Task support is any activity to try to accomplish the objectives given by the online community and the teacher and /or the teaching objectives. Online distributed learners need means to accomplish these exchanges as well as means to deliver the end-products like papers, or presentations. (Haythornthwaite, 2002). But task support is more than just the technical infrastructure it is the use of the competence of the people involved considering the idea of ZOPD.

Social and emotional support: "Although information exchange is the key to learning environments, communities are not built on instrumental exchanges only." (Haythornthwaite, 2002, p. 172). Social support of peers in e-collaborative learning is needed because of the missing learning and interaction opportunities learners are used to having compared to traditional learning situations. When examining a learning

---

[1] A reduction of information take place through constrained communication channels (para-verbal, non-verbal and visual).This loss of information have an impact on the perception of the collaboration partner (Döring, 2000, p. 355).

community there is a need to analyze the social and emotional support given between the participants. This is because "… information exchange, social support and task support relations are the three major categories of interaction, that are important for building and sustaining learning communities." (Haythornthwaite, 2002, p. 175).

This study asks how the different environments have affected students' perception related to e-collaborative learning in the dimension of social support, information exchange and task support. These dimensions are chosen as dependent variables because they are seen as a prerequisite for e-collaborative learning (Gorghiu, Lindfors, Gorghui & Hämäläinen, 2011; Haythornthwaite, 2000, 2002, 2003; Kopp, Matteucci, & Tomasetto, 2012).

If focusing on the mutual support based on (virtual) socialization that students had experienced during the course, it must be said that these processes lead to stronger or weaker ties between the collaborative learners. Therefore it is not useful to polarize because the strength or weakness of ties leads to different functionalities in collaborating communities. Weak ties are primarily functional; they enable access to new information (exchange of content related information) which stretches over the current knowledge status quo of the single student (Granovetter, 1973, p. 137). Strong ties are rather of an emotional and social nature because they can be traced back to tight relationships (Wellmann & Wortley, 1990, p. 566).

"It is important for individuals to have such a balance of ties in their networks: Weak ties provide exposure to a range of ideas and viewpoint, and strong ties provide the social and emotional support needed to support work in the online environment" (Haythornthwaite, 2000, p. 221).

2   Techniques of Inquiry, Settings, Research Methods, and Research Question

For the purpose of data collection two different questionnaires (Q1,2) were applied (see Table 1). The first one (Q1) was used before the course started to gain access to the students' 'general attitude'[2] to online learning. The second one (Q2) aims at the representation of the perception of the students during the courses with respect to satisfaction, social support, information exchange and task support. These questionnaires were applied voluntarily after each lecture over a time period of an entire semester.

The settings of the different Platforms (A-D) followed the idea of blended learning, realized by e-collaborative learning combined with on-campus lectures. Beside on-campus lectures the course settings differed mostly by their synchronous (Platform C, D) and asynchronous teaching (Platform A, B) offers and learning opportunities. The tools to be used in the University courses in IS and EDU (Platform C, D) included an Intelligent round table camera[3], Wikispaces, Fronter etc. The VET students' courses (Platform A, B) used primarily asynchronous learning platforms (discussion boards)

---

[2] The students' general attitude of the different platforms A,C,D have been significantly different towards online learning (pre-test). Conference Paper Earli 2012 SIG 6/7: Attitude, Satisfaction and Support in Blended Learning Approaches (accepted paper).

[3] Microsoft LiveMeeting see `http://www.microsoft.com/online/de- de/prod-Livemeeting.aspx`

in combination with three on-campus sessions. The VET2 students used additionally prescheduled (sound based) Skype meetings without a camera[4]. The applied e-collaboration tools were didactically adjusted to the curricula, the pre-knowledge and the experience of the involved students e.g. the EDU students received additionally two introduction courses how to participate using LiveMeeting (see Table 2).

Even if it appears that a distinction in these approaches were done by their synchronicity and the tools applied it has to be stressed that the focus were on the opportunities given by these different setting for the mutual support of students, interactions and learning in the dimensions of task support, social support, and information exchange which is presumably seen as a prerequisite for e-collaborative learning (see section 1.2). A qualitative study analyzes these dimensions supported by asynchronous learning opportunities as well[5]. An additional analysis is planned for the learning journals of the students.

Thus, the main research hypothesis is: The four e-collaborative learning approaches differ in respect to the perceived task support, social support, and information exchange by the students.

Table 1. Stages of inquiry (selected for this paper)[6]

Stage 1	Data collection tool	Stage 2	Data collection tool
Analysis over all approaches (A-D) on all dep. variables		Analysis between single approaches on one dep. variable	
Information support (dep.v.)	Q2		
Social support (dep.v.)	Q2	Social support (dep.v.)	Q2
Task support (dep.v.)	Q2		
General satisfaction (dep.v.)	Q2		
General attitude (dep.v.)	Q1		

3   Data Sources, Materials and Findings

The data collection is based on n=53 students. This includes the questionnaires about the 3 dimensions of support and students' general satisfaction. The master students are from 2 different universities in Europe and are enrolled in 4 different master's program courses and belong to 3 different departments (Education, VET, Information Systems). In addition, verbal data is collected by discussion boards, and learning journals over the period of an entire semester as well as examination results.

---

[4] This is a restriction by the provider for group meeting sessions.

[5] Conference paper ECER 2012, Cadiz, Spain: The role of discussion boards in e-collaborative learning (accepted paper).

[6] The development of the tools for data collection and the data collection itself was conducted by the authors.

Table 2. Database[7]

Blended learning approach	Students (n)	University	Question-naires2 (N)	Tools[8]	Artifacts[9]
Platform A (VET1)	23	Germany	29	OC; R;	D; G
Platform B (VET2)	7	Germany	15	OC, R; S	D; G
Platform C (EDU)	13	Norway	21	OC; LM	V; G
Platform D (IS)	10	Norway	59	OC; LM;W	V; G; D; J;
Total	53		124		

A non-parametric test[10] was used to analyze the e-collaborative learning approaches named platform A-D. One test was conducted for each dependent variable: social support, information exchange, and task support. While all three hypotheses had to be rejected, the hypothesis with the dependent variable 'social support` (see Table 3) was just barely not to be confirmed with a p-value of 0.057.

Table 3. Kruskal-Wallis test over all approaches to the dimension of 'social support'[11]

Blended learning approach	N (delivered questionnaires)	Average rang	Social support
Platform A (VET1)	29	50,24	
Platform B (VET2)	15	68,87	
Platform C (EDU)	21	76,36	
Platform D (IS)	59	61,97	
Total of N	124		
Chi- Square			7,50
df			3
Asympt. significance			,057

The effect size was = 0.061, that is, 6% of the differences of the average rang can be explained by the different blended learning approaches[12]. Even if this group difference is not significant it has to be interpreted as evidence to be further investigated in a single study. The first analysis (see Table 3) was conducted by a Kruskal-Wallis test over all platforms but not individually between these groups. An additional analysis by a single non parametric-test was carried out - each with two platforms using an

---

[7]   see footnote 6.

[8]   Tools: R = Reader (LMS), asynchronous text based tool;
      OC = On Campus lectures; S = Skype, synchronous video-tool, LM = LiveMeeting, synchronous video tool; W = Wiki, asynchronous text based tool.

[9]   Artifacts: D = students' Discussion boards, G = students` Grades, V = Video-taped lecture, J = students' learning Journals.

[10] A non-parametric test had to be chosen because of the data's distribution.

[11] The presented enquiry is based on the master thesis of Lecher (2012).

[12] From Cohen's (1988, p. 27) point of view this has to be treated as a low effect size. An average or high effect size is between 0.5 and 0.8.

apriori-hypothesis[13] which can be verified or falsified. This test confirmed a statistical significant (p=0,018) difference between platform A and C (C applied LiveMeeting) regarding the dependent variable 'social support' (see Table 4.). It is to be stressed that the single tool application was not in focus; rather the entire course (approach) included all communication chances and tools which were proposed and used for the analysis. With regard to enhancing the readability, just one tool was mentioned.

Table 4. Individual Kruskal-Wallis test to the dimension of 'social support'[14]

Experiment	N (delivered questionnaires)	Average rang	Social support
Platform A (VET1)	29	21,43	
Platform C (EDU)	21	31,12	
Total of N	50		
Chi- Square			5,643
df			1
Asympt. significance			,018

An additional analysis was conducted applying a Kruskal Wallis test to examine the 'general satisfaction' both Platforms C and D ranked significantly higher (p =0.00) than the others.[15] These platforms C and D were using the tool 'LifeMeeting' which is an intelligent face to face (f2f) communication tool.

4   Conclusions and Scientific and Scholarly Significance of the Study

Referring to Haythornthwaite (2000) it can be concluded that the average ranking *of all* the three relevant dimensions of support (task, information, and social) for well-functioning virtual learning groups has been perceived stronger in IS and EDU (Platform C,D) than in the learning approaches of VET1 and VET2 (Platform A, B)[16]. According to Granovetter (1973) it can be concluded that in both learning approaches VET1 and 2 less stronger or less weaker ties have been developed over one entire semester compared to IS and EDU.

One exception to these results was indicated by the learning approach of VET2 (Platform B) regarding 'social support'. In VET2 the perceived 'social support' was ranked in second place with 68,87 (see Table 3) that is, they have built stronger ties compared to IS students (Platform D). From Granovetter's (1973) point of view,

---

[13] An apriori hypothesis is an assumption, formulated before the analysis is conducted to be able to predict a presumed result (Bortz & Döring, 2006, p. 379). Platform A – Platform C: p=0,018 < 0,05.

[14] see footnote 11.

[15] Accepted Conference Paper Earli 2012 SIG 6/7: Attitude, Satisfaction and Support in Blended Learning Approaches.

[16] These results over all dependent variables are not shown in this paper.

strong ties generate social support whereas week ties are rather content related. So it can be concluded that stronger ties have been developed in VET2 or were already there before (because the master's students had eventually met one another before - during their bachelor studies). In addition, they have used synchronous, sound based Skype-meetings for communication.

If we take the theoretical construct of virtual distance into account it may be assumed that the perceived virtual distance of the VET1and 2 students was higher. Support is based on the estimation of the other(s). Using primarily text-based communication[17] the psycho-social background of the collaborative partner is hardly visible because of channel reduction[18], potentially leading to a negative impact on the perceived virtual distance; hence, this can have hampered support. The mostly asynchronous and text-based interaction of the VET1 and VET2 students might explain the lower values of perceived support (task, information and social) compared to those of EDU and IS.

Continuing this argumentation the average and higher ranking of IS and PED approaches (Platform C; D) can be explained by the implemented communication tools in combination with the methodical conception of the courses. The ratio of presences' of EDU students was around 80 % and 73 % of the IS students. Beside the actual f2f interactions, LiveMeeting was applied which is quite close to natural f2f conversations. Because of the less reduced interaction chances (less channel reduction) the virtual distance was presumable perceived less high. At any rate, the general satisfaction was significantly highest (p= 0,00) with the platforms C (EDU) and D (IS) (see section 3), having most actual and most virtual f2f interactions. Summarizing these findings and conclusions one can say that the significance of the study relies on the evidence that e-collaborative learning needs more than a well-designed instructional model with a variety of technological tools. The challenge is not just to investigate synchronous or asynchronous online tools as competitive or complementary but to stress social aspects as well. Understanding the phenomenon 'support' -for instance being able to validate the meaning of stronger and weaker ties in e-collaboration- can help instructional designers and facilitators to better design and support collaborative activities to enhance learning processes.

References

1. Bortz, J., Döring, N.: Forschungsmethoden und Evaluationen für Human- und Sozialwissenschaftler, 4th edn. Springer, Heidelberg (2006)
2. Brody, C.M., Davidson, N.: Introduction: Professional development and Cooperative learning. In: Brody, C.M., Davidson, N. (eds.) Professional Development for Cooperative Learning- Issues and Approaches, State University of NY Press, Albany (1998)

---

[17] VET2 students have worked 67% of their time virtually asynchronously whereas the VET1 students have worked 100% virtually asynchronously beside their three on campus sessions.

[18] A reduction of information take place through constrained communication channels (para-verbal, non-verbal and visual).This loss of information have an impact on the perception of the collaboration partner (Döring, 2000, p. 355).

3. Bruffee, K.A.: Sharing our toys - Cooperative learning versus collaborative learning. Change, 1–2, 12–18 (1995)
4. Cecez-Kecmanovic, D., Webb, C.: Towards a communicative model of collaborative web-mediated learning. Australian Journal of Educational Technology (1), 73–85 (2000), http://www.ascilite.org.au/ajet/ajet16/cecez-kecmanovic.html retrieved June 08, 2011)
5. Cohen, J.: Statistical Power Analysis for the Behavioral Science, 2nd edn. Lawrence Erlbaum, New Jersey (1988)
6. Derry, S.J., Levin, J.R., Osana, H.P.: Fostering students' statistical and scientific thinking: Lessons learned from an innovative college course. American Educational Research Journal 37(3), 747–775 (2000)
7. Dick, W., Cary, L.: The systematic design of instruction, 3rd edn. Harper Collins, New York (2000)
8. Dillenbourg, P., Baker, M., Blaye, A., O'Malley, C.: The evolution of research on collaborative learning. In: Spada, E., Reiman, P. (eds.) Learning in Humans and Machine: Towards an Interdisciplinary Learning Science, pp. 189–211. Elsevier, Oxford (1996)
9. Döring, N.: Kommunikation im Internet: Neun theoretische Ansätze. In: Batinic, B. (ed.) Internet für Psychologen, 2nd edn., pp. 345–379. Hogrefe, Göttingen (2000)
10. Ertl, B., Kopp, B., Mandl, H.: Supporting Collaborative Learning in Videoconferencing using Collaboration Scripts and Content Schemes (Research report No. 176). Germany: Ludwig-Maximilians-University, Department of Psychology, Institute for Educational Psychology, Munich (2005)
11. Gorghiu, G., Lindfors, E., Gorghiu, L.M., Hämäläinen, T.: Acting as Tutors in the ECSUT On-line Course - How to Promote Interaction in a Computer Supported Collaborative Learning Environment? Procedia Computer Science 3(1), 579–583 (2011)
12. Gokhale, A.A.: Collaborative Learning Enhances Critical Thinking. Journal of Technology Education 7(1), 22–31 (1995)
13. Granovetter, M.S.: The Strength of Weak Ties. American Journal of Sociology 78(6), 1360–1380 (1973)
14. Haythornthwaite, C.: Online Personal Networks: Size, Composition and Media Use among Learners. New Media Society 2(2), 159–226 (2000)
15. Haythornthwaite, C.: Building social networks via computer networks: Creating and sustaining distributed learning communities. In: Renninger, K.A., Shumar, W. (eds.) Building virtual Communities: Learning and Change in Cyberspace, pp. 159–190. Cambridge University Press, Cambridge (2002)
16. Haythornthwaite, C.: Supporting distributed relationships: social networks. In: Joinson, A.N., McKenna, K., Postmes, T., Reips, U.D. (eds.) The Oxford Handbook of Internet Psychology, pp. 121–138. University Press, Oxford (2003)
17. Jonassen, D.H.: What are cognitive Tools? In: Kommers, P.A.M., Jonassen, D.H., Mayes, J.T. (eds.) Cognitive Tools for Learning, pp. 1–6. Springer, Heidelberg (1991)
18. Kopp, B., Matteucci, M.C., Tomasetto, C.: E-tutorial support for collaborative online learning: An explorative study. Computers & Education, 58(1), 12–20, 3270–3273 (2012)
19. Lecher, R.: E-Kollaboratives Lernen im Studium - Eine Pilotstudie. Johannes Gutenberg University Mainz. Unpublished master thesis (2012)
20. Lehtinen, E.: Computer Supported Collaborative Learning: An Approach to Powerful Learning Environments. In: De Coerte, E., Verschaffel, L., Entwistle, N., van Merrienboer, J. (eds.) Powerful Learning Environments: Unravelling Basic Components and Dimensions, pp. 33–55. Elsevier, Oxford (2003)

21. Lojeski, K.: Virtual Distance. A proposed model for the study of virtual work. Stevens Institute of Technology. Dissertation (2006)
22. Lojeski, K.S., Reilly, R.: Uniting the Virtual Workforce: Transforming Leadership and Innovation in the Globally Integrated Enterprise. John Wiley & Sons, New Jersey (2008)
23. Lojeski, K.S., Reilly, R., Dominick, P.: The Role of Virtual Distance in Innovation and Success. System Sciences (35), 25–34 (2006)
24. Lojeski, K.S., London, M., Reilly, R.: The Role of Virtual Distance and Group Learning: A Case Study from Big Pharma and Financial Services (n.d.),
    `http://www.industrystudies.pitt.edu/pittsburgh11/documents/`
    `Papers/PDF%20Papers/7-6%20Sobel%20Lojeski.pdf` (retrieved January 17, 2012)
25. Panitz, T. (1996), `http://www.londonmet.ac.uk/deliberations/`
    `collaborative-learning/panitz-paper.cfm` (retrieved June 08, 2011)
26. Piaget, J.: Meine Theorie der geistigen Entwicklung. Beltz, Weinheim/Basel (2003)
27. Reigeluth, C.M.: Instructional design: What is it and why is it? In: Reigeluth, C.M. (ed.) Instructional Theories and Models: An Overview of Their Current Status, pp. 1–36. Lawrence Erlbaum, Hillsdale (1983)
28. Rockwood, R.: Cooperative and collaborative learning. National Teaching and Learning Forum 4(6) (1995) (retrieved June 2011), `http://home.capecod.net/~tpanitz/`
    `tedsarticles/coopdefinition.htm`
29. Roschelle, J., Teasley, S.: The construction of shared knowledge in collaborative problem solving. In: O'Malley, C.E. (ed.) Computer Supported Collaborative Learning, pp. 69–97. Springer, Heidelberg (1995)
30. Säljö, R.: Learning as the use of tools: a sociocultural perspective on the human-technology link. In: Littleton, K., Light, P. (eds.) Learning with Computers: Analysing Productive Interaction, pp. 144–161. Routledge, London (1999)
31. Salmon, G.: E-moderating, 2nd edn. The key to teaching and learning online. Routhledge Falmer, London (2004)
32. Soller, A., Goodman, B., Linton, F., Gaimari, R.: Promoting Effective Peer Interaction in an Intelligent Collaborative Learning System. In: Goettl, B.P., Halff, H.M., Redfield, C.L., Shute, V.J. (eds.) ITS 1998. LNCS, vol. 1452, pp. 186–195. Springer, Heidelberg (1998)
33. Vygotsky, L.S.: Mind in society: The development of higher psychological processes. Harvard Business Press, Cambridge (1978)
34. Wellman, B., Wortley, S.: Different Strokes from Different Folks: Community Ties and Social Support. American Journal of Sociology 96(3), 558–588 (1990)