Applying Adult Cooperative Learning Underpinning Principles to Learning with Social Media

An Overview and Implications for Research

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Abstract. Borrowing from Cooperative Learning (CL) elements as well as from principles used in Study Circles (SC) to define Adult Cooperative Learning (ACL), this paper proceeds to examine the applicability of principles to learning with social media. Following the appraisal of the principles in the context of learning with social media, conclusions are drawn on areas worthy of research to provide for conditions favourable to learning cooperatively in the realm of internet technologies and social media networks.

Keywords: Adult Cooperative Learning · Study Circles · e-Learning · Social media

1 Introduction

Adult Cooperative Learning [16] designates processes taking place in adult learning communities in which members are concerned with the learning of their peers. Being concerned with the learning of one's peers implies that one's own learning is supported by the entire community one is taking part in. By following some principles, one may contend, a learning environment that is more enabling and supportive can be designed. Principles to be followed in such learning communities may lay the foundation for creating an environment that upholds interest, engagement, volition and agency. This paper begins with a description of Cooperative Learning elements [13] and Study Circle principles [24]. Study Circles are advocated in Sweden where the practice is culturally embedded as a format for adult learning. The Study Circle format used in Nordic countries has also inspired a re-appropriation of this timeless practice in other parts of the world. Study Circle or Learning Circle principles provide the basis for a model of Adult Cooperative Learning [14–17]. In this paper these principles are examined in light of their applicability to learning through the use of social media.

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2 Cooperative Learning Elements

Cooperative Learning (CL) is a field of practice and research in education that has attracted much attention. Application of CL to the classroom began in the early 1970s [35]. Many methods of CL have been researched,[1] though it is what is in common that establishes the approach. CL methods are intended as instructional designs in which students learn with each other in a cooperative manner to enhance learning. Cooperating to enhance learning is based on the premise that each learner is a member of a collective effort who is concerned by the learning of his or her peers and will therefore benefit from the learning effort his or her peers put into his or her own learning. In such a configuration interactions that are taking place among learners are directed at helping each other in the process of learning, rather than selfishly dealing with solely one's own learning objectives. This, and the idea of sharing members' resources, combining effort and enjoying being part of a group that shares a common goal characterises positive interdependence [13]. Learning with concern with only oneself is often the result of learning in competitive environments. When one is concerned with the learning of one's peers, one can most probably rely on the goodwill of peers to help in accomplishing one's own learning goals and benefit from the rewards of sharing. The conditions for such co-learning efforts can be promoted by appealing to principles that enable cooperation and establish a basis for benevolence.

Promoting positive interdependence is one of five elements of CL referred to in the work of David Johnson et al. [13]. Their "learning together" model of CL is intended to also be used in higher education and can therefore be considered in light of its applicability to other contexts of learning in adulthood. Cooperative Learning elements comprise of: (1) positive interdependence, (2) face-to-face promotive interaction, (3) individual accountability and personal responsibility, (4) social skills, (5) group processing. According to these authors, positive interdependence leads to promotive interaction. For promotive interaction, social skills are needed as well as being skilled at evaluating and adjusting the group process.

There is one element that could be set aside – Individual Accountability and Personal Responsibility. This element can be understood by a need for instructors to ensure that individual effort is contributing to group learning. It can be explained by the constraint in educational contexts to grade students; a practice that promotes competitive attitudes and produces counter-beneficial behaviours to CL aims. This institutionally required practice of grading can be seen as defying benevolence, a trait that can hardly be expected to arise as a result of external prompting i.e., by the instructor. Hence, Individual Accountability and Personal Responsibility can be interpreted as a constraining element. It coerces students to act appropriately and in conformity with CL's expectations. Unfortunately, this supposes that benevolence cannot emerge of its own. As a result, it substitutes it with controlled motivation [8,26,29,30,32] to act in a manner favourable to the emergence and the sustaining of interactions that pro-

[1] More than 600 studies over 90 years of research were claimed in 1991 by Johnson et al. [13].

mote learning for all group members, that bring about appropriate social skills and that support reflective and evaluative action to regulate and improve group processing. Individual Accountability and Personal Responsibility is perhaps a legacy of the early use of CL methods in primary and secondary education where CL was first applied. It is not perhaps as appropriate to adult learning where motivation is far more autonomous.

3 A Brief Overview of the Study Circle Format

A Study Circle (SC) is a small group of adult learners who get together on a regular basis to gain knowledge and develop new understandings, approaches, and sometimes newly thought solutions to a problem, on a specific topic. Learning Circles are ideally composed of five to eight participants [7] but SCs can practically be organised with up to 12 participants. Study Circles are organised usually around one or two weekly sessions, each lasting two to three hours. Learning can range all domains and can lead to further action once the SC ends if its participants so decide. Ultimately, participants determine their learning objectives and the means to attain them. One of the SC's participants acts as facilitator (sometimes referred to as the Leader). Study Circles are known though to vary in practice [1]. It therefore makes sense to define SCs on the premise of their guiding principles. These principals will be discussed in Sect. 4.

Study Circles organised by educational bodies usually have a facilitator appointed; or preferably, *proposed* by the organiser. But, SCs can also exist informally. In informal SCs i.e., SCs that are initiated by the participants themselves without registering the activity with an educational organisation, naturally no facilitator is appointed to the group; rather, a facilitator may be chosen among the group members. This can be paralleled to informal learning communities that use the Internet to get together. In other online communities a moderator is present. The moderator's role may be assimilated in some cases to that of a SC facilitator. Then again, some online communities include members who are recognised as specialists in the domain. This is also the case in e-learning. It may be paralleled to SCs in which the facilitator is recognised as a specialist in the field of study.

Although descriptions of SC principles and merits do exist [2–4,24,25,36], little research has sought to observe practice. Known research on SC practice was conducted in Sweden by Bystrm [6] and in Norway by Brattset [5]. More recently, quasi-experimental research in France [15,17] has explored strategies used by SC participants to regulate their learning. Study Circles have gained momentum around the world since the mid-1980s. A quick detour to provide some background is therefore worthwhile.

In the Nordic countries, particularly in Sweden where SCs are culturally embedded as a popular format for learning, they have also attracted attention concerning their presumed role in shaping a democratic society and in fostering active citizenry [9,19,20]. In many English-speaking countries though, where SCs are sometimes referred to as Learning Circles, attention has been mostly directed

to the opportunities they offer in bridging gaps between people from different ethnic background. Reference is made to the inclusiveness of SCs; not only of people as such, but of differing outlooks, understandings, and epistemologies. In these countries, educators are using them to foster community-wide action.

Several authors have explored non-Western epistemologies where differences in "ways of knowing" [22] serve as a basis for learning and development in multicultural societies. This is reinforced by the ethical consideration that the majority should no longer impose its worldview on minorities, be they related to lifestyle choices or to cultural background. Parallel to these tendencies and complementarily, a steady shift away from a focus on education as an individualistic and competitive means, to a social and cooperative means to a better life, is gaining terrain. Study Circles are invoked as providing for these too.

One may wonder about the suitability of the SC format for developing knowledge in distinct disciplines. Accounts of the use of the format however do not point to it being ill-suited for studying certain disciplines, such as engineering for example. The SC format can be apprehended as a framework within which learners are able to choose suitable techniques and methods for the study they are engaged in. The SC is dynamically shaped in accordance with study objectives and other factors that can be taken into account. Assessment of knowledge developed in SCs can be approached in numerous ways too. Again, learners should be associated in deciding appropriate means under prevailing circumstances. By following SC principles, an enabling learning environment can be cultivated; one in which learners shape the environment in accordance with their requirements.

4 Study Circle Principles

Eight SC principals are proclaimed by ABF (Worker's Educational Association, the largest organiser of SCs in Sweden) and are invoked in part or fully in different sources [15,17,24]. They are: (1) equality and democracy, (2) liberation of potential, (3) cooperation and companionship, (4) freedom and self-determination, (5) continuity and planning, (6) active participation, (7) use of printed study materials, (8) change and action.

Based on the research in France, in which collective processes of regulation of the learning were observed as predominant [15,17], one may regard SC principles as sustaining collective direction by means of cooperation. Drawing on that research, a brief review of the principles will serve to highlight how they may underpin cooperation: Equality and democracy (1) support horizontal interaction among participants through dialogue as a means for all to express their points of view and understandings gained through their life experiences. Liberation of potential (2) pertains to valuing and using these life experiences to promote learning for all participants. This requires that recognition and sharing give everyone an equal opportunity to express their ideas and opinions. Empathy sustains cooperation and companionship (3). Freedom (4) to choose the study topic, plus objectives and means to attain them, promotes autonomous self-regulation [8,32]. The research pointed to the collective dimension in the

process of regulation. This included support for continuity and planning (5) that were sustained individually and collectively. Active participation (6) was evidenced in the interviews that were conducted for the research. Printed materials (7), designed into the research, were used systematically as well as other learning resources that were chosen by participants. Change and action (8) pertain to continued action after the SC ends. This is a key principal in relation to the potential power SCs hold for social change. This principle was not an object of the research, as an inquiry into the internal processes was considered a prerequisite to the inquiry into the role that SCs play in shaping encompassing communities, or possibly society.

5 Adult Cooperative Learning

Adult Cooperative Learning (ACL) [15–17] needs to take into account characteristics of learning in adulthood [23]. For example, motivation can be reckoned to be autonomous and cooperation can be expected to be the outcome of relatedness [31,34] and connectedness [27,28], contributing to well-being. Well-being can sustain volition in various ways, though coercing learners to cooperate through rewards could jeopardize these advantages.

Study Circle principles are intended to promote an environment that is enabling for SC participants to bring into play their innate resourcefulness in learning from and with each other. These principles are not intended as a blueprint for a method. Study Circle principles can be acknowledged as reminders for setting the frame of mind of the community of learners. The frame of mind is not one to which participants are estranged. One may even dauntingly advance the idea that these principles simply echo customary ways of learning that were immutably present in small human communities that people grew up in and lived most of their lives with. These communities differ from many of today's communities which are made up of people beforehand strangers to one another.

Which of the SC principles can be useful to reestablishing the sense of community that was once part and parcel of living in a world not yet a "global village" [21]? Examining the principles one by one may help to answer this question.

Equality and democracy, the first of the principles, establishes the equal power that participants share as a foundational element of democratic learning. By establishing the equality of all members, one is preventing any one person from taking over power and dominating when choices are being made by the group. This intrinsically democratic value is meant to enable individual members and the group as a whole to be self-determining. Self-determination is foundational to autonomous motivation.

Liberation of potential, the second principal, is closely related to autonomous motivation, as one cannot expect people to express their full potential in contributing to the group's learning if it is not through free will that they do so.

Cooperation and companionship, the third principle, buttresses the idea of helping each other. Obviously, cooperation cannot be enforced and companionship can only result from empathy toward one's peers. Cooperation and companionship follow from dialogue between group members.

Freedom and self-determination, the forth principle, is here to remind participants that it is them and not someone exterior to their group who determine and decide what the topics are that they will be working on and how they shall go about it. This principle links the previous favourable condition-establishing principles with the learning tasks.

The fifth principle is one which distinguishes the SC from other types of groups that use dialogue: a SC is a group set out to pursue learning goals. Continuity and planning require that members plan to meet on a regular basis and plan what topic they will be studying during each session. According to choices group members make, some may wish to design learning activities for one or several sessions. As different techniques and methods can be used by the group, one should not refer to the SC as to a method; rather, the SC is a model that is used to inaugurate and maintain enabling [33] learning conditions suitable to adult learners.

The sixth principle, active participation, can be understood as a reminder for participants to watch for signs of fatigue or loss of interest. After all, learning is an activity that requires cognitive effort.

Use of printed study materials, the seventh principle, dates back to times when printed media was predominant. The principle evokes the necessity to build on knowledge that others have come to accept as valid, as well as to acquire knowledge of diverse points of view on the topic being studied. Having access to differing points of view is essential to initiate dialogue among participants. It enables to consider different ways of understanding and explaining the topic that participants can discuss and use to put their own experiences into perspective. From a constructivist epistemological standpoint, having several understandings of a topic is what stimulates cognitive activity and reflexivity. In present times, obviously all media that enable conveying the expression of others can be used.

Change and action is the eighth principle. It bears on the aim of the SC to provide a means for change. Looking back at the model's emergence at the start of the 20th century can help grasp the importance this principle had in the context of popular movements and workers developing their skills in order to fend for their rights and improve their conditions. In particular, the fact of thinking at the end of a SC about what further action can be taken on the basis of the new knowledge just developed, links the study undertaken by the participants to their personal, social and work-life contexts. Deliberately linking one's experiences and prior knowledge at the beginning of the learning process and again contextualising the new knowledge at the end, give knowledge meaning. Learning as adults enables using knowledge gained through past experience as a resource for further learning. Learning is goal-oriented action. Thinking about how the newly developed knowledge can open up opportunities for future action reinforces implication and agency.

Adult cooperative learning may be described as learning that takes place within a community of adult learners in which the relationships between learners are based on caring for each other's learning. This perhaps overly narrow definition is nevertheless sufficient in that it recognises the social and affective

dimensions of learning. Caring for each other's learning can only be sustained if one acknowledges that each person with her or his life experience through which she or he *knows*, and each one's way of knowing, are unique. The acceptance of the diversity of ways of knowing and of knowledge is the cornerstone for dialogue as defined by Isaacs [10–12]. Hence the mutual respect that leads to a horizontal social organisation of the learning, as opposed to a hierarchical one. Exchanges between learners through dialogue establish a process of collective meaning-making.

Based on the elements used by the cooperative learning method developed by Johnson et al. [13] and on the principles promoted by ABF [15,17,24], what principles can be used to guide ACL as a practice in the age of social networks using Cloud computing technologies? Before looking at the applicability of these elements and principles, the next section briefly examines what the use of these technologies changes in the ways learners interact.

6 Learner Interactions in Social Media

One of the main differences between face-to-face and online communities is that in the latter, members have probably never met in person. Members acquire knowledge of each other through the mediating technologies they use to discuss and interact. Can this difference imply less strong bonding between participants or bonding of a different kind? If bonding is affected, are empathic feelings between participants weaker? The ability to understand and share feelings using dialogue is essential for cooperation to emerge. Cooperation and companionship can be expected to emerge if conditions enable bonding. They will in turn lead to promotive interaction between members pursuing learning goals in a joint effort.

The kind of bonding that occurs through social media is perhaps more utility oriented. If this were the case, should CL elements guide instructors or online tutors to coerce students to cooperate? The problem, as stated earlier, is that in situations where learner motivation is controlled, regulation of the learning will be expected by the students to occur in a controlled manner too. Under these circumstances, learners will not be as autonomous.

Networks of learners using social media are vast, they often enable thousands of people to engage in interaction. The success of social media has affected the design of e-learning applications. As a result, learning management systems are in the process of shifting to mobile learning (m-learning). Responsive Web-based applications are being backed up with applications devised specifically for m-learning that offer functionality similar to social media applications. Furthermore, the current trend for some higher education establishments to offer Massive Open Online Courses (MOOCs) requires of learners to be autonomous in managing and conducting their learning with the support of their peers. This is particularly the case in MOOC designs that rely on peer interaction [18]. Can interactions take place on the basis of empathy bonding students in small groups that form within these vast networks? If this were the case, learners would be more autonomous in regulating their learning. These are questions that need

researching. As a first step, the next section suggests focusing on the applicability of ACL principles to learning with social media.

7 Applying Principles to Learning with Social Media

Examining the principles that could be used to guide ACL should assist in reflecting on their applicability to instructional designs that make use of social media.

Equality and democracy are perhaps more easily enacted by learners interacting online. This may be due to ethics of respect that have developed over the Internet. It is customary if not essential to be nonjudgmental as one is only acquainted in a limited manner with the person with whom one is interacting through channels of communication at a distance.

Social media also liberate potential as online media are perceived as spaces of free expression where one can safely publish opinions and thoughts. It is therefore worth stressing the need to remind learners using social media that they can and should feel free to use their online means of communication to express themselves without constraint. This freedom is required in order to seek better understanding of the topics at hand through dialogue that enables examining areas of interest from different perspectives.

If dialogue is free and co-occurs with empathy then cooperation and companionship should follow.

Perceiving oneself as being free and hence unshackling self-determination depends on the content and form of instructions that are given by teachers, tutors and facilitators. Factors that can affect perceptions of liberty include the way instructions are communicated to learners. Are these instructions commanding? Conversely, do they enable making choices within designated limits? The answers to these questions may help apprehend perceptions of freedom that learners have. The degree of liberty designed into applications used for online learning and instructional design will potentially similarly affect perceptions. Choice is central to the perception of liberty.

Continuity and planning are generally built into learning environments through instructional design, learning programmes and deadlines for learning tasks. Freedom for learners to organise small team work can also be built into course designs including freedom to self-manage activities.

Active participation can be expected in situations where learners are enjoying the learning activities and enjoy carrying out their assigned tasks. Working in small groups can also affect effort to participate as groups can co-regulate task efforts when they are organised through cooperative interaction [18].

Concerning the use of study materials, as it is inherent to most educational provision at a distance it does not pose any significant challenge to learning through the use of social media.

Finally, change and action, as mentioned earlier, are reminders of the need to relate learning to previous experience and to seek continuity in the use or the application of the newly developed knowledge to further future endeavours. Linking experience and future prospects can be stimulated no matter the mediating technologies being used in educational settings.

8 Discussion and Conclusions

Dialogue and empathy are two areas that require further investigation. Is learning how to be dialogic needed for students using social media? If so how does one go about enabling to learn to listen and accept differing opinions than one's own? Letting each peer express herself or himself is in fact easier when using the written word; each expressing alternately their thoughts and ideas in a forum for instance. Empathy, which entails feelings, cannot be taught. Empathy requires social bonding to occur first. What favours bonding over social media channels remains to be explored. Another aspect still to be explored concerns group sizes that enable forming communities in which participants feel close to one another and responsible for each other's learning. These are communities in which learners are confident that their peers share similar feelings; in turn helpful for one's own learning through peer efforts to help in building one's knowledge.

Borrowing from CL elements and the SC model, ACL as a framework opens avenues for exploring conditions for learners to form cooperative learning communities over social media channels. The relationships between social bonding, social belonging, dialogue, empathy and cooperation are some directions suggested for research to take.

References

1. Andersson, E., Laginder, A.M., Larsson, S., Sundgren, G.: Cirkelsamhället, Studiecirklars, betydelse för individ och lokalsamhälle. Utbildningsdepartmentet (1996)
2. Bjerkaker, S.: The study circle - a method for learning, a tool for democracy. In: FACE (Forum for the Advancement of Continuing Education) Annual Conference (2003)
3. Bjerkaker, S.: Learning to be democrats. Adults Learn. **15**(8), 20–21 (2004)
4. Bjerkaker, S.: The study circle - for learning and democracy. Convergence **39**(2/3), 49–60 (2006)
5. Brattset, H.: Adult learning - the study circle as a method. IACE Research Seminar, Kungälv, Sweden, June 24–27, p. 13 (1979)
6. Byström, J.: Alla S̈tudiecirklarB̈lirinte Studiecirklar (All Study Circles are not Study Circles). Report of the Institute of Pedagogy of Stockholm University, Stockholm (1977)
7. Collay, M., Dunlap, D., Enloe, W., Gagnon, G.W.: Learning Circles: Creating Conditions for Professional Development. Corwin Press, Thousand Oaks (1998)
8. Deci, E.L., Ryan, R.M.: Intrinsic Motivation and Self-Determination in Human Behavior. Perspectives in Social Psychology. Plenum, New York (1985)
9. Gougoulakis, P., Bogataj, N.: Study circles in Sweden and Slovenia - learning for civic particiaption. In: Frane, A. (ed.) Social Capital and Governance - Old and New Members of the EU in Comparison, pp. 203–235. Lit Verlag, Berlin (2007)
10. Isaacs, W.: Dialogue. In: Senge, P., Kleiner, A., Roberts, C. (eds.) The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization, pp. 357–364. Currency, New York (1994)
11. Isaacs, W.: Dialogue and the Art of Thinking Together: A Pioneering Approach to Communicating in Business and in Life. Currency, New York (1999)

12. Isaacs, W., Smith, B.: Designing a dialogue session. In: Senge, P., Kleiner, A., Roberts, C. (eds.) The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization, pp. 374–385. Currency, New York (1994)
13. Johnson, D.W., Johnson, R.T., Smith, K.A.: Cooperative learning: increasing college faculty instructional productivity. ASHE-ERIC High. Educ. Rep. **20**(4), 157 (1991)
14. Kaplan, J.: Vers la construction d'un modèle d'évaluation dans les apprentissages coopératifs autodirigés. Master's thesis, Aix-Marseille 1 University, Lambesc (2006)
15. Kaplan, J.: Self-direction in cooperative learning - the case of study circles. Ph.D. thesis, Paris 10 University, Nanterre (2009)
16. Kaplan, J.: From self-direction to co-direction in adult cooperative learning. In: Brigham, S.M., Plumb, D. (eds.) Connected Understanding: Linkages Between Theory and Practice in Adult Education, pp. 176–180. Adult Education - Congresses, Montreal (2010)
17. Kaplan, J.: L'autodirection dans les apprentissages coopératifs: Le cas des Cercles d'Étude. Éditions Universitaires Européennes, Sarrebrücken (2010)
18. Kaplan, J.: Co-regulation in technology enhanced learning environments. In: Uden, L., Sinclair, J., Tao, Y.-H., Liberona, D. (eds.) LTEC 2014. CCIS, vol. 446, pp. 72–81. Springer, Heidelberg (2014)
19. Kaplan, J., Carré, P.: Self-direction in study circles - a hypothesis in support of active citizenship in 21st century Europe. In: Lucio-Villegas, E., del Carmen Martinez, M. (eds.) 5th ESREA European Research Conference. Adult Leaning and the Challenges of Social and Cultural Diversity: Diverse Lives, Cultures, Learnings and Literacies, vol. 2, pp. 80–87. Diálogos, Seville (2007)
20. Larsson, S.: Seven aspects of democracy as related to study circles. Int. J. Lifelong Educ. **20**(3), 199–217 (2001)
21. McLuhan, M.: Understanding Media - The Extensions of Man. Routledge, London, New York (1964)
22. Merriam, S.B. (ed.): Non-Western Perspectives on Learning and Knowing. Krieger Pub. Co, Malabar (2007)
23. Merriam, S.B., Caffarella, R.S., Baumgartner, L.: Learning in Adulthood: A Comprehensive Guide. The Jossey-Bass Higher and Adult Education Series. Jossey-Bass, San Francisco (2007)
24. Oliver, L.P.: Study Circles: Coming Together for Personal Growth and Social Change. Seven Locks Press, Cabin John (1987)
25. Oliver, L.P.: Building community through study circles. In: Medel-Anonuevo, C. (ed.) Integrating Lifelong Learning Perspectives, pp. 226–243. UNESCO, Hamburg (2002)
26. Reeve, J., Ryan, R.M., Deci, E.L., Jang, H.: Understanding and promoting autonomous self-regulation: a self-determination theory perspective. In: Schunk, D.H., Zimmerman, B.J. (eds.) Motivation and Self-Regulated Learning : Theory, Research, and Applications, pp. 223–244. Lawrence Erlbaum Associates, New York (2008)
27. Rovai, A.P.: Development of an instrument to measure classroom community. Internet High. Educ. **5**(3), 197–211 (2002)
28. Rovai, A.P.: Sense of community, perceived cognitive learning, and persistence in asynchronous learning networks. Internet High. Educ. **5**(4), 319–332 (2002)
29. Ryan, R., Deci, E.L.: Intrinsic and extrinsic motivations: classic définitions and new directions. Contemp. Educ. Psychol. **25**, 54–67 (2000)
30. Ryan, R.M., Deci, E.L.: Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am. Psychol. **55**(1), 68–78 (2000)

31. Ryan, R.M., Deci, E.L.: The darker and brighter sides of human existence: basic psychological needs as a unifying concept. Psychol. Inquiry **11**(4), 319–338 (2000)
32. Ryan, R.M., Deci, E.L.: Overview of self-determination theory: an organismic dialectical perspective. In: Deci, E.L., Ryan, R.M. (eds.) Handbook of Self-Determination Research, pp. 3–33. University of Rochester Press, Rochester (2002)
33. Sen, A.: The Idea of Justice. Penguin Books, London (2010)
34. Sheldon, K.M., Filak, V.: Manipulating autonomy, competence, and relatedness support in a game-learning context: new evidence that all three needs matter. Br. J. Soc. Psychol. **47**(2), 267–283 (2008)
35. Slavin, R.E.: Cooperative Learning: Theory, Research and Practice. Allyn & Bacon, Needham Heights (1995)
36. Suda, L.: Learning circles: democratic pools of knowledge. ARIS Resour. Bull. **12**(3), 1–4 (2001)