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BZT AKADEMi YAYINEVi®

TÜRKiYE, GERMANY

TR: +90543 671 0123 GR: +491774586777

internationalbaskentcongress@gmail.com

https://www.baskentkongresi.com/

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SOCIAL-EMOTIONAL LEARNING IN COMPUTER-SUPPORTED COLLABORATIVE LEARNING: EXPLORING THE ROLE OF GROUP COHESION AND GROUP ATMOSPHERE

Ramazan YILMAZ[1], Fatma Gizem KARAOĞLAN YILMAZ[2*]

[1,2] Bartin University, Faculty of Sciences, Information System and Technology

https://orcid.org/0000-0002-2041-1750

https://orcid.org/0000-0003-4963-8083

Abstract:

Computer-supported collaborative learning (CSCL) is used in hybrid learning activities today due to its advantages, such as making students work collaboratively, providing common structuring of knowledge, and putting active learning to work. One of the main goals of CSCL is to improve students' social-emotional learning experiences. However, not every CSCL application is successful at this point. When the studies are examined, it is stated that factors such as the CSCL groups students are involved in, and the structure of the collaborative learning environment they use in the CSCL process can affect social-emotional learning. In this study, the potential of using a CSCL environment in terms of providing socio-emotional learning is discussed. The advantages and limitations of the CSCL environment in creating social-emotional learning, group cohesion and group atmosphere are discussed.

Keywords: computer-supported collaborative learning; social-emotional learning; group cohesion; group atmosphere

Introduction

Social-emotional learning (SEL) is a concept related to the acquisition of social and emotional competencies to enable individuals to be socially and emotionally competent and successful in their lives (Collaborative for Academic, Social, and Emotional Learning - CASEL, 2005). SEL is the process of being aware of one's own emotions, managing their emotions, taking other people into account, making effective decisions, displaying ethical and responsible behaviors, developing positive relationships, and avoiding negative behaviors (Zins & Elias, 2006). In other words, SEL is a set of skills that enable students to work in collaboration with others, learn effectively and have an effective place in the family, society, and workplace (Elias, 2003). CASEL (2003) addressed SEL skills in five basic dimensions. These are self-awareness, self-management, social awareness, relationship skills, and responsible decision-making skills. These dimensions emphasize the importance of developing both

personal competencies, such as self-awareness and self-management, and interpersonal competencies, such as relationship skills and social awareness.

Studies show that SEL skills can be taught and contribute positively to academic learning (Ashdown & Bernard, 2012; Corcoran et al., 2018). Research shows that SEL skills are effective in subjects such as motivation, taking responsibility, study habits, class participation, and problem-solving (Corcoran et al., 2018; Corcoran et al., 2020; Hoffman, 2009; Hromek & Roffey, 2009; Karaoglan Yilmaz, Yilmaz, & Erdogdu, 2023; Murano et al., 2020; Zins et al., 2004).

Various instructional methods and techniques are used to provide students with SEL skills and to improve their existing skills. One of these techniques is computer supported collaborative learning (CSCL). CSCL has emerged as a research area that deals with how people learn together with the help of computers (Stahl & Hesse, 2006). CSCL is the process of connecting participants in an online learning environment by making a coordinated effort to construct knowledge while solving a problem or completing a task (Stahl, 2006). The purpose of CSCL is to enable learners to communicate and share through technology, thus allowing them to learn. As an approach, CSCL has been enriched by the results of studies based on the philosophies of constructivism and social cognition (Resta & Laferrière, 2007).

In CSCL environments, learners can come together synchronously and asynchronously, regardless of place and time. Thanks to the communication and knowledge-sharing options of CSCL environments, learners can establish text-based or video communication and can perform information sharing and information configuration using the features of the CSCL environment such as whiteboard (Han et al., 2021; Kreijns et al., 2003; Stegmann et al., 2012). Although the CSCL environment offers many opportunities for students to develop their SEL skills, sometimes the expected benefit from CSCL may still need to be obtained. It is thought that the structure of CSCL groups as well as the technological features of the CSCL environment are essential for an effective CSCL process. Group cohesion is identified as individuals' perception of belonging or the amount of liking by group participants (Knight et al., 2008). According to Man and Lam (2003), group cohesion is better understood when group members support each other and feel connected to each other. Williams et al. (2006) defined group cohesion as the closeness of group members to each other and their desire to join the group. Group atmosphere is how participants sense the collaborative setting (Krejns et al., 2004). The group atmosphere can play an important role in developing students' sense of belonging to the virtual learning environment. It is stated that the motivation, engagement, and satisfaction of virtual groups with a high group atmosphere may also be high (Oren et al., 2002). The perceptions of the virtual group members about the learning environment in which they collaborate are expressed as the group atmosphere (Krejns et al., 2004).

The diversity of the technological possibilities of the learning environment, in other words, the advanced features of interaction and collaboration, the improved group cohesion and group atmosphere in collaborative learning groups can ensure an effective CSCL process. As a result, it will be possible for students to develop their SEL skills in the CSCL environment.

Discussion and Conclusion

This research explores the role of group cohesion, group atmosphere and SEL structures in CSCL. Kreijns et al. (2007) stated that it is important to develop the perception of social presence by considering the elements of sociability and pedagogical techniques for developing social space in CSCL environments. According to Karaoglan Yilmaz & Yilmaz (2019), improving the quality of student-student, student-teacher, student-content, student-interface, and student-learning environment interactions in the learning environment will contribute to developing the perception of social presence. The social space quality of the CSCL environment can be increased depending on the increase in social

presence and interaction. Considering the student interface and student-learning environment interaction features, it is also important that the interface of the CSCL environment can be used and that the features of the learning environment meet the needs of the students in terms of providing social interaction. These may contribute to increasing the social space quality of the CSCL environment (Al-Samarraie & Saeed, 2018; Costley, 2022; Rubens et al., 2005). According to literature, pedagogical approaches such as assigning roles to students, choosing approaches such as fixed and transformational leadership, and using the Jigsaw method can be used in CSCL groups (Dunbar et al., 2018; Hämäläinen & Vähäsantanen, 2011; Pozzi, 2010; Xie et al., 2019).

As seen in many studies, there are various suggestions have been made to improve group cohesion and group atmosphere in CSCL. Studies have shown that creating CSCL groups, making group planning, determining the duties of group members, and establishing assistance and coordination among group members are important in improving group cohesion and atmosphere (Uz Bilgin & Gul, 2020; Xie et al., 2019). In this sense, it is important that group planning and the distribution of tasks among group members are well structured. In addition, pedagogical approaches such as gamification (Uz Bilgin & Gul, 2020), role assignment (Yilmaz & Karaoglan Yilmaz, 2020; Zhang et al., 2014), pedagogical agent support and learning analytics (Karaoglan Yilmaz & Yilmaz, 2019) in group collaboration processes can be adopted. These will indirectly contribute to developing students' SEL skills by enabling the development of group cohesion and group atmosphere processes. In future research, extensive research can be planned to examine the socio-emotional learning skills of students in artificial intelligence supported CSCL environments (Yilmaz & Karaoglan Yilmaz, 2023a, 2023b). It may be useful to integrate artificial intelligence-supported language models (such as ChatGPT) into CSCL environments, to examine the interaction of these tools with group members and to evaluate the effects of these results on learning outcomes.

References

Al-Samarraie, H., & Saeed, N. (2018). A systematic review of cloud computing tools for collaborative learning: Opportunities and challenges to the blended-learning environment. *Computers & Education, 124*, 77-91.

Ashdown, D. M., & Bernard, M. E. (2012). Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children?. *Early Childhood Education Journal*, *39*(6), 397-405.

Collaborative for Academic, Social, and Emotional Learning. (2005). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning (SEL) programs*—Illinois edition. Chicago, IL: Author.

Corcoran, R. P., Cheung, A. C., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review, 25*, 56-72.

Corcoran, R. P., O'Flaherty, J., Xie, C., & Cheung, A. C. (2020). Conceptualizing and measuring social and emotional learning: A systematic review and meta-analysis of moral reasoning and academic achievement, religiosity, political orientation, personality. *Educational Research Review, 30*, 100285.

Costley, J. (2022). How system functionality improves the effectiveness of collaborative learning. *Interactive Learning Environments, 30*(6), 971-983.

Dunbar, R. L., Dingel, M. J., Dame, L. F., Winchip, J., & Petzold, A. M. (2018). Student social self-efficacy, leadership status, and academic performance in collaborative learning environments. *Studies in Higher Education, 43*(9), 1507-1523.

Elias, M. J. (2003). *Academic and social-emotional learning*. Brussels, Belgium International Academy of Education.

Hämäläinen, R., & Vähäsantanen, K. (2011). Theoretical and pedagogical perspectives on orchestrating creativity and collaborative learning. *Educational Research Review, 6*(3), 169-184.

Han, J., Kim, K. H., Rhee, W., & Cho, Y. H. (2021). Learning analytics dashboards for adaptive support in face-to-face collaborative argumentation. *Computers & Education, 163*, 104041.

Hoffman, D. M. (2009). Reflecting on social emotional learning: A critical perspective on trends in the United States. *Review of Educational Research, 79*(2), 533-556.

Hromek, R., & Roffey, S. (2009). Promoting Social and Emotional Learning With Games: "It's Fun and We Learn Things". *Simulation & Gaming, 40*(5), 626-644.

Karaoglan Yilmaz, F. G., & Yilmaz, R. (2019). Impact of pedagogic agent-mediated metacognitive support towards increasing task and group awareness in CSCL. *Computers & Education*, *134*, 1-14.

Karaoglan Yilmaz, F. G., Yilmaz, R., & Erdogdu, F. (2023). The Relationship Between Nomophobia, Emotional Intelligence, Interpersonal Problem-Solving, Perceived Stress, and Self-esteem Among Undergraduate Students. *Journal of Technology in Behavioral Science*, *8*(1), 27-35.

Knight, M. B. J. Pearson, M., & Hunsinger, D. S. (2008). The role of media richness in information technology-supported communication in group Cohesion, agreeability, and performance. *Journal of Organizational and End User Computing, 20*(4), 23-44.

Kreijns, K., Kirschner, P. A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research. *Computers in Human Behavior, 19*(3), 335-353.

Kreijns, K., Kirschner, P. A., Jochems, W., & Van Buuren, H. (2007). Measuring perceived sociability of computer-supported collaborative learning environments. *Computers & Education, 49*(2), 176-192.

Man, D.C. & Lam, S.K. (2003). The effects of job complexity and autonomy on cohesiveness in collectivistic and individualistic work groups: A cross- cultural analysis. *Journal of Organizational Behavior, 24*(8), 979 – 1001.

Murano, D., Sawyer, J. E., & Lipnevich, A. A. (2020). A meta-analytic review of preschool social and emotional learning interventions. Review of Educational Research, 90(2), 227-263.

Oren, A., Mioduser, D., & Nachmias, R. (2002). The development of social climate in virtual learning discussion groups. *International Review of Research in Open and Distance Learning, 3*(1), 1-19.

Pozzi, F. (2010). Using Jigsaw and Case Study for supporting online collaborative learning. *Computers & Education, 55*(1), 67-75.

Resta, P. & Laferrière, T. (2007). Technology in Support of Collaborative Learning. *Educational Psychology Review, 19*(1), 65-83.

Rubens, W., Emans, B., Leinonen, T., Skarmeta, A. G., & Simons, R. J. (2005). Design of web-based collaborative learning environments. Translating the pedagogical learning principles to human computer interface. *Computers & Education, 45*(3), 276-294.

Stahl, G. (2006). *Group cognition: Computer support for building collaborative knowledge*. Cambridge, MA: MIT Press.

Stahl, G., & Hesse, F. (2006). Social practices of computer-supported collaborative learning. *International Journal of Computer-Supported Collaborative Learning, 1*(4), 409-412.

Stegmann, K., Wecker, C., Weinberger, A., & Fischer, F. (2012). Collaborative argumentation and cognitive elaboration in a computer-supported collaborative learning environment. *Instructional Science, 40*(2), 297-323.

Uz Bilgin, C., & Gul, A. (2020). Investigating the effectiveness of gamification on group cohesion, attitude, and academic achievement in collaborative learning environments. *TechTrends, 64*(1), 124-136.

Weissberg, R. P., Cascarino, J. (2013). Academic learning + social-emotional learning = national priority. *Phi Delta Kappan, 95*(2), 8–13.

Williams, E. A., Duray, R., & Reddy V. (2006). Teamwork orientation, group cohesiveness, and student learning: A study of the use of teams in online distance education. *Journal of Management Education*, *30*(4), 592-616.

Xie, K., Hensley, L. C., Law, V., & Sun, Z. (2019). Self-regulation as a function of perceived leadership and cohesion in small group online collaborative learning. *British Journal of Educational Technology, 50*(1), 456-468.

Yilmaz, R., & Karaoglan Yilmaz, F. G. (2020). Examination of the effectiveness of the task and group awareness support system used for computer-supported collaborative learning. *Educational Technology Research and Development, 68*, 1355-1380.

Yilmaz, R., & Karaoglan Yilmaz, F. G. (2023a). Augmented intelligence in programming learning: Examining student views on the use of ChatGPT for programming learning. *Computers in Human Behavior: Artificial Humans, 1*(2), 100005.

Yilmaz, R., & Yilmaz, F. G. K. (2023b). The effect of generative artificial intelligence (AI)-based tool use on students' computational thinking skills, programming self-efficacy and motivation. *Computers and Education: Artificial Intelligence*, 100147.

Zins, J.E., Weissberg, R.P., Wang, M.C., & Walberg, H.J. (Eds.). (2004). *Building academic success through social and emotional learning: what does the research say?*. New York: Teachers College Pres.

Zins, J. E. & Elias, M. J. (2006). Social and emotional learning. In G. G. Bear and K. M. Minke (Eds.), *Children's needs III: Development, prevention and intervention* (pp. 1- 13). Washington, DC, US: National Association of School Psychologists.