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Collaborative Argumentation through Role-play by Students on a Degree Programme in Social Services

The aim of this study was to investigate the nature of collaborative argumentation by students enrolled in a degree program in social services. Students ($n = 29$) in a University of Applied Sciences participated in role-play discussions and problem solving on adolescents' substance abuse. The discussions were conducted either online (15 students) or face-to-face (14 students). The data comprise the students' asynchronous online and face-to-face discussions, which were analysed by identifying discussion fragments relevant in collaborative argumentation, and by comparing the results of the two groups. The results showed that the face-to-face discussions were more collaborative than the online discussions. Collaboration during the face-to-face interaction was particularly evident in the higher number of explanations and acceptances. The online discussions, in turn, exhibited a higher quality of argumentation than the face-to-face discussions. However, the level of students' justifications in both discussion types was rather low. In conclusion, these results emphasise the importance of developing methods of learning collaborative argumentation in social work education for students' multifaceted understanding of issues encountered in the field.

Keywords: collaborative argumentation, ill-structured problems, role-play, social work education, statistical analysis

Introduction

Problems encountered in social work are often open-ended, requiring that attention be paid to the viewpoints of different stakeholders such as service users, people they are close to and social work professionals (Kokko & Veistilä, 2016; Raunio, 2010). To avoid confrontation between viewpoints and to support shared understanding of the problem at hand, collaborative interaction and argumentation are needed (Knight & Gitterman, 2014; Quinn-Lee, 2014). Collaborative argumentation may also help service users form and justify their viewpoint on a problem, when seeking the best possible solution to a problematic situation involving other parties. The importance of multifaceted viewpoints

in problem solving in social work also warrants greater emphasis in social work education. Proctor (2007) and Tew, Holleyn and Caplenin (2012) have criticised social work teaching methods for favouring the passive transformation of knowledge instead of supporting its active construction through discussions and practical application. This paper reports a study in which bachelor students studying for a social services degree practised collaborative argumentation through online and face-to-face role-play discussions. The role-play discussions were planned to support students' collaborative argumentation, understanding of different viewpoints and joint knowledge construction (see Simon, Johnson, Cavell, & Parsons, 2012). The aim of this study was to investigate the nature of collaborative argumentation among students.

Theoretical background

Collaborative argumentation in learning and social work

Collaborative argumentation refers to a situation where two or more participants engage in an argumentative discussion with the common goal of achieving a shared understanding of the issue through the construction of multidimensional viewpoints and arguments for and against each other's claims (Noroozi, Weinberger, Biemans, Mulder, & Chizar, 2012). Thus, the aim is not to win the debate or simply change others' views, but to broaden and deepen understanding through collaborative endeavours (Baker, 2009; Noroozi et al., 2012). According to Marttunen and Laurinen (2002), collaborative argumentation, especially in resolving complex and controversial problems, offers participants a space for learning through discussion. A refined and expanded discussion that includes multiple viewpoints deepens both understanding of the topic and collaborative learning (van Amelsvoort, Andriessen, & Kanselaar, 2007).

During collaborative argumentation, two issues are especially important. First, the construction of multiple viewpoints is needed, as addressing problems that lack unique solutions necessitates their discussion from different perspectives (van Amelsvoort et al., 2007). Second, according to Hinds and Weisband (2003), shared understanding can be regarded as a major aim of collaborative argumentation. This means collectively finding a way to organise and communicate the relevant knowledge. Creating shared understanding also requires that people learn together and develop mutual expectations, for example, regarding task-related goals, processes and information (Hinds & Weisband, 2003).

The problems encountered in social work are often complicated and ill-structured (Osimo & Landau, 2006). Characteristics of ill-structured problems include unclear aims, alternative solutions and solution paths, and complex systems of evaluation (Jonassen & Kim, 2010). Väisänen (2010), for example, discusses the kinds of social problems encountered in youth social work, which often concern dropout from education, problems in life management and human relationships, and the feeling that life is meaningless.

Typically, problem solving in social work involves struggling with ethical principles and professional norms and values (Pullen-Sansfacon, 2010). When solving social problems, social workers must also consider such guidelines as human rights, self-determination and involvement (Osimo & Landau, 2006; International Federation of Social Workers, 2014). Gray and McDonald (2006) highlight the importance of integrating ethical reasoning and social work practice. Ethical reasoning can be learned through practical reasoning (Pullen-Sansfacon, 2010), which has several dimensions in common with collaborative argumentation, such as reasoning, sharing values, skills and knowledge, and evaluating and modifying one's own practical judgments. Argumentation that includes moral, aesthetic, or value-based issues can aid multiple understanding

(Nussbaum, 2011). In the social work context, unpredictable situations and problems often manifest as confrontations between service users and professionals. Thus, exploring different viewpoints is important (Fook, 2002).

In addition to justifying their own decisions, social work professionals should also encourage service users to justify their decisions, and in this way support their self-determination and empowerment instead of passivising them by giving direct answers (Fook, 2002; Payne, 1997). Törrönen et al. (2013) stress that empowerment is the core aim in social work, as empowered people possess the skills needed to act in society. Social work professionals use dialogue to encourage people to evaluate their life situations, find solutions to perceived challenges, and take responsibility for their own future (Väisänen, 2010).

Not only in case work, but also when working in multi-professional teams, professionals need to engage in collaborative argumentation. They need to justify their viewpoints to other professionals and stakeholders in order to arrive at a common solution. Isoherranen (2012) states that the problems encountered in social work and health care nowadays are so complicated that multi-professional work is indispensable. She nevertheless emphasises that multi-professional work can also be ineffective and lead to conflict, if professionals' interaction skills are inadequate. Thus, interaction involving collaborative argumentation should be practised. One way to practise it is through role-play.

Collaborative argumentation and role-play discussions

Role-play discussions can be used as an open-ended learning environment for improving collaborative argumentation. In such discussions, students assume a fictional role and related viewpoint and attempt to solve a given problem in collaboration with others (Kettula, 2012). In social work education, role-play enhanced students' personal

understanding of their own behaviour and provided them with an opportunity to understand other people's experiences, needs, values, behaviours and feelings (Koltai & Thomas, 1977). Furthermore, role-play enhanced dialogue among students (Duffy, Das, & Davidson, 2013), activated students' creative and intuitive potential, supported them in practising social work communication situations, and improved students' trust in their counselling skills and their ability to apply their knowledge in practical counselling situations (Gockel & Burton, 2014; Hafford-Letchfield, 2010).

While several workable examples exist on how to successfully use role-play in social work education, more research knowledge is needed, particularly on the collaborative discussion environments available for solving problems. This study investigated the nature of collaborative argumentation by bachelor students of social services trying to solve a problem through role-play discussions conducted in two learning environments: online and face-to-face.

Aim and research questions

The study aim was to investigate the nature of students' collaborative argumentation by focussing on their collaborative interaction and the kinds of argumentation they use in online and face-to-face role-play discussions on a given problem. A further aim was to find out what solutions students offer to the problem during their collaborative argumentation online and face-to-face.

The research questions concern the various components of collaborative argumentation: collaborative interaction, argumentation, and solution achievement. The specific research questions were as follows:

1. What was the nature of the students' collaborative interaction aimed at solving the problem?
2. What was the nature of students' argumentation aimed at solving the problem?

3. How did the students construct solutions to the problem?
4. What differences, if any, were there between the face-to-face and online groups?

Study design and methodology

Participants

In total, 29 students enrolled on a degree program in social services engaged in collaborative argumentation either asynchronously in an online discussion environment ($n = 15$) or face-to-face ($n = 14$).

Data collection through role-play discussions

A six-week teaching experiment, including both online and face-to-face role-play discussions in small groups, was implemented with the aim of supporting students' collaborative argumentation. The discussion topics were related to alcohol and drug abuse prevention.

To form the small groups for the subsequent role-play discussions, the students first wrote an essay describing how they would solve a problem of drug abuse by a young person. They were asked to approach the problem from various viewpoints and to justify their solution. The students' argumentation was analysed by identifying their claims and their justifications for and against the possible solutions presented in their essays. Based on the analysis, the students were then divided into three online and three face-to-face groups, each including students with low- and high-level argumentation skills, the aim being to form groups of students who were heterogeneous in their argumentation skills. Noroozi et al. (2012) have found groups composed in this way beneficial for learning. Five of the six groups contained five students and one face-to-face group four students.

After group formation, the students were given instructions on their online and face-to-face discussions. The discussion was to centre on a fictional situation where a

young woman living and studying in an adult education college had a drinking problem. In the scenario, the group of students had organised parties where alcohol was allowed. Along with her increased use of alcohol, the young woman was more frequently experiencing problems in her daily life. This fictional scenario represents a social situation and interaction that a Bachelor of Social Services working as a social counsellor in educational institutions might encounter. Although alcohol use among young people in Finland has decreased during the last few years, it remains closely related to the independence process of many Finnish adolescents, and sometimes causes tensions between adults and young people (Simonen, Kataja, Pirskanen, Holmila, & Tigerstedt, 2016).

Each student was assigned a role to act out in the discussion. The students were asked to familiarise themselves with the details of both the situation and their role. They were not given information on the other students' roles.

The fictional roles simulated real life roles and were created to promote argumentative discussion on the problem drinking of a young woman (Liisa), and student-organized celebrations in which alcohol was available. Two roles (a 19-year-old student, and the school principal) represented the protagonists, who favoured the student-organized celebrations, and two roles (a 20-year-old student peer mentor, and the young woman's father) represented the antagonists, who opposed celebrations which included alcohol. A fifth role, that of 'Liisa', was intended to represent a neutral viewpoint in the discussion. The persons represented in all five roles were over age 18 and legally permitted to make choices on their use of alcohol. The Finnish youth law concerns persons under age 29 and supports growth and progressive independence (Youth Law 285/2016).

After familiarizing themselves with their roles and the situation, the students were to discuss, in their groups, the problem relating to alcohol and to agree on a solution. Both the face-to-face and online groups received the same instructions on the case and role descriptions and all six groups had to find a joint solution to the problem. In these respects, the online and face-to-face discussions are comparable. The students' online discussions on a Moodle platform in the three groups were saved for analysis. The face-to-face groups, in turn, separately pondered the case and alternative solutions to the problem in preparation for their public discussion in front of the other students. When all the face-to-face groups were prepared, the public face-to-face session was started, each group discussing the problem and formulating their solution for 15 minutes. These three public face-to-face discussions were recorded for analysis.

The data comprise a discourse corpus including students' asynchronous online discussions (three groups) and transcriptions of their public face-to-face discussions (three groups). The total number of words in the online group discussions was 5 014 ($M = 1671$; $SD = 336.1$), and in the face-to-face groups 3 058 ($M = 1 019$; $SD = 402.4$).

Data analyses

As our focus of interest was on students' collaborative argumentation, we reduced the large discourse corpus to a manageable amount by using a text fragment ($n = 575$) of relevance to collaborative argumentation as the unit of analysis. Examples of corresponding strategies for condensing large discourse corpora are the use of segments of discourse (Weinberger & Fischer, 2006) and discussion episodes (Erkens, Jaspers, Prangma & Kanselaar, 2005) as units of analysis. In this study, the text fragments were selected on data-driven basis (Hsieh & Shannon, 2005) by identifying fragments of discussions relevant in terms of collaborative argumentation. These fragments included indicators of collaboration like questions, acceptances or collaborative completions

(Teasley & Roschelle, 1993; Weinberger & Fischer, 2006), argumentative discussion including argumentative elements like a standpoint and related justifications (Fulkerson, 1996; Nussbaum, 2011), and discussion including joint suggestions for solutions to the given problem along with related justifications. Finally, three fragment types were identified: 1) Collaboration fragments ($n = 242$), 2) Argumentation fragments ($n = 317$) and 3) Solution fragments ($n = 16$). Fragment length varied from one word to 136 words.

There were notably fewer Solution than Collaboration or Argumentation fragments as the Solution fragments differed in nature from the two other types. Solution fragments were typically located at the end of the discussions, when the group members jointly formulated their solutions to the given problem. The number of suggested solutions varied from 0 to 7, depending on the group. The discussions preceding suggestions for solutions generally included several Collaboration and Argumentation fragments during which solutions for the problem were collaboratively negotiated by the group members. For this reason, the discourse corpus included a higher number of Collaboration and Argumentation fragments than Solution fragments.

The analyses of the various fragment types are presented in the following.

Collaboration fragments

The Collaboration fragments show students' collaborative interaction. The fragments were analysed for the variable 'Type of collaborative interaction', which refers to the various ways in which the students considered the ideas for achieving a common solution presented earlier by the other students in their group. The analytical categories demonstrating collaborative interaction have been summarised by Weinberger and Fischer (2006) and Marttunen and Laurinen (2009). The analytical categories of the variable in the present study were drawn from these previous studies and were Question, Explanation, Acceptance, Support, Understanding, Appreciation, and Completion.

Argumentation fragments

Three variables were formed to evaluate the Argumentation fragments. The first, 'Level of justification of the standpoint', measured how well the students had justified their standpoints. Level of justification was evaluated as low (value 0) if the standpoint was presented without any justifications and as Moderate (value 1) if the standpoint was justified but the relevance of the justification remained unclear. Following Nussbaum (2011), who states that one essential way to assess the quality of argumentation is to look at the use of argumentation strategies, the level of justification was coded as High (value 2) if the standpoint was justified in a relevant way by using some of the following general strategies of argumentation presented by Fulkerson (1996; cf. Walton, 1996): Consequence, Generalisation, Analogy, Sign, or Principle. These argumentation strategies represent the general types of relationships between standpoints and justifications in non-formal argumentative discussions. Argumentation strategies may occur as single types, or strategies, in constructing an argument, but they often occur in combination (Fulkerson, 1996). The following text fragment (Fragment no 190; Role: Father) illustrates a high-level justification (value 2):

I'm worried about Liisa's situation [Standpoint]. Namely, Liisa has had a little trouble with alcohol, her studies are going badly, and her financial situation is very bad. Her health has gotten worse. [Justification].

The standpoint of this fragment is Liisa's father's concern about her situation, and four relevant justifications utilising the argumentation strategy 'Consequence' support it: Liisa's problems with 1) alcohol, 2) studies, 3) finances and 4) health.

The second variable 'Type of argumentation strategy' focuses on justifications assessed as high. The variable indicates the frequency of the various argumentation strategies used to support standpoints.

The third variable, 'Novelty of viewpoint', comprised two categories. Value 1 (New) was awarded if the viewpoint was presented for the first time in the discussion. The externalisation of new viewpoints during a discussion indicates its multifaceted nature (Weinberger & Fischer, 2006). Value 2 (Old) was awarded if the viewpoint had already been presented.

Solution fragments

The aim of collaborative argumentation is to reach a shared solution to a given problem (Scheuer, Loll, Pinkwart, & McLaren, 2010). In this study, Solution fragments are a measure of how well the students constructed shared solutions in their role-play discussions. Solution quality was analysed for 'Level of justification of the solution' and for 'Level of sharing the solution'. In addition, the variable 'Nature of solution' was created.

Level of justification of the solution was evaluated in three categories. In the category High (value 2), the solution was justified according to the criteria proposed for the general strategies of argumentation, i.e., Consequence, Generalization, Analogy, Sign, and Principle (Fulkerson, 1996; Nussbaum, 2011). The level of justification was assessed as Moderate (value 1), if the solution had been justified but it had not been clearly indicated what made the solution a potentially good one. The level of justification was assessed as Poor (value 0), if the solution had been presented without any justifications.

Solution quality was also evaluated by assessing to what extent the students shared the proposed solution. Sharing a solution increases shared understanding (Hinds & Weisband, 2003), which is an important aim in collaborative argumentation. Therefore, a three-category variable 'Level of sharing the solution' (values 0–2) was formed. The highest value (value 2) was given if all the group members agreed on the solution. The

Level of sharing the solution was assessed as Moderate (value 1) if from two to four group members agreed on it, and as Low (value 0) if no one supported it.

For the variable ‘Nature of solution’, the students’ discussion-based solutions were categorised into three categories (Educational cooperation, Controlling, Guiding and Counselling) by using a conventional content analysis method, meaning that the categories are data-driven (Hsieh & Shannon, 2005).

Summary of the analyses

A summary of the analyses of the three different text fragments on collaborative argumentation is presented in Table 1.

[Table 1 here]

The three fragment types were not mutually exclusive. The same fragment could apply to collaborative argumentation in more than one way, as illustrated below:

Still I would maintain the opinion that Liisa should move back home, at least for a while, and think seriously about her own behaviour and the meaning of “the friendship celebration” for each student’s life. [Argumentation fragment no 19, Collaboration fragment no 6; Role: Fellow student].

The argumentative nature of this fragment appears in the standpoint (Liisa should move back home) relating to Liisa’s increased use of alcohol. The same fragment also represents collaboration, as it completes a statement presented earlier in the discussion, viz. that Liisa should move back home and learn to drink more responsibly in a safe environment with her family and acquire everyday life management skills.

Statistical analyses

For statistical analyses, 12 dichotomous variables (yes/no) were formed based on the analytical categories of variables 'Type of collaborative interaction' and 'Type of argumentation strategy'. The dichotomous variables indicated whether the property in question appeared in the text fragment. The chi-square (asymptotic two-sided) test was used with variables that met the test requirements (Bewick, Cheek, & Ball, 2004). The chi-square test was used also for the variable 'Novelty of viewpoint'.

The difference in the variable 'Level of justification of the standpoint' between the online and face-to-face discussion groups was tested with independent samples t-test, and for the variables 'Level of justification of the solution' and 'Level of sharing the solution' with a non-parametric Mann-Whitney test. Parametric tests could not be used as the number of solution fragments was insufficient (see Bland, 1988; Gall, Borg, & Gall, 1996). The variable 'Nature of solution' was analysed using qualitative content analysis.

Results

Nature of collaborative interaction aiming at a solution

The chi-square (χ^2) test revealed statistically significant differences between the online and face-to-face groups in the types of collaborative interaction. Table 2 shows the frequencies, percentages and chi-square values for the different types of collaboration by type of group. Chi-square test was conducted only for the five variables (Question, Explanation, Acceptance, Appreciation and Completion) that met the test requirements.

[Table 2 here]

The students presented more questions (54.5% vs. 28.5%) and appreciations 8.9% vs. 0.8%) online than face-to-face (Table 2). In contrast, explanations (23.8% vs. 10.7%) and acceptances (25.4% vs. 8.0 %) were presented more often in the face-to-face than online discussions. More collaboration fragments were present in the face-to-face than online discussions (130 vs. 112; 53.7% vs. 46.3%, calculated from the total number of all three fragment types in the related study mode; see Table 1); however, the difference was not statistically significant.

Nature of argumentation aiming at a solution

The overall level of the students' argumentation during the discussions was rather low ($M = 0.77$). Low-level justification was present in 79 (41.8%) of the 189 argumentation fragments in the online groups, and in 68 (53.1%) of the 128 argumentation fragments in the face-to-face groups. Furthermore, the students justified their standpoints moderately in 58 (30.7%) online fragments, and in 34 (26.6%) face-to-face fragments. High-level justifications were present in 52 (27.5%) argumentation fragments in the online discussions, and in 26 (20.3%) fragments in the face-to-face discussions. The mean level of justification was higher in the online than face-to-face groups (0.86 vs. 0.67, $t = 1.995$, $p < .05$, $df = 315$).

Table 3 shows the frequencies, percentages and chi-square values for the different types of argumentation strategies used in the different groups in the text fragments with a high level of justification. The chi-square test was conducted only for the two variables (Consequence and Principle) that met the test requirements. The test results showed no statistically significant differences between the online and the face-to-face groups.

[Table 3 here]

Examination of the frequencies of the students' argumentation strategies showed that the most frequently used strategy was 'Principle' in both the online (14.8%) and face-to-face (14.8%) groups. The second most frequently used argumentation strategy was 'Consequence' (8.5% in the online and 3.9% in the face-to-face groups). The strategies 'Analogy', 'Generalization', and 'Sign' were used very infrequently (from 0% to 2.6%). Argumentation fragments were more frequent in the online than face-to-face discussions (189 vs. 128; 62% vs. 47.4%), although not significantly.

For the variable 'Novelty of viewpoint', the chi-square (χ^2) test showed that the students presented new viewpoints significantly more often face-to-face than online (71.9% vs. 58.2%, Table 4) while the old viewpoints were more common in the online groups (41.8% vs. 28.1%). New viewpoints were, yet, more common than old ones in both environments.

[Table 4 here]

Constructing a solution to a problem

The students in the online groups presented a total of four and the students in the face-to-face groups 12 solutions to the given problem. The category 'Educational co-operation' ($n = 6$) included solutions aimed at strengthening preventive educational work by enhancing student-staff collaboration in the school. The solutions in the category 'Controlling' ($n = 4$) typically included sanctioning the young woman who has a problem with alcohol and finding ways of controlling student behaviour in general. The solutions in the category 'Guiding and counselling' ($n = 6$) involved discussions with professionals and guidance in everyday affairs, particularly in financial matters.

The students in the online discussion groups justified their solutions well ($M = 1.5$), as three of the four solutions were supported with high-level justifications, while the

level of justification for the fourth solution was low. The level of justification in the face-to-face groups was poorer ($M = 0.8$): four of the 12 solutions were presented with high-level justifications, two with moderate-level justifications, and six with low-level justifications. However, the difference between the groups' means was not statistically significant.

Two solutions in the online groups, and one solution in the face-to-face groups were shared with all the group members (category High). For one online solution and 11 face-to-face solutions, solution sharing was Moderate (accepted by 2–4 group members). One online solution received no support (category Low). The difference between the online ($M = 1.3$) and face-to-face ($M = 1.1$) groups was not statistically significant.

Discussion

Face-to-face interaction seems to support students' collaborative discussion, as the results showed that more fragments categorised as collaborative interaction occurred in the face-to-face than online discussions. Further, the proportions of both explanations and acceptances were higher in the face-to-face than online interaction. Explanations were mostly concerned with clarification. Thus, they increased multifaceted understanding and furthered progress towards a common solution. Acceptances were often in the form of short expressions, like 'yes' or 'right', which encourage participants to continue constructing their standpoints. To continue the discourse and improve collaboration, learners need to build consensus quickly, such as by acceptances (Weinberger & Fischer, 2006). These results are supported by Marttunen and Laurinen (2009), who found synchronous modes of interaction (face-to-face and computer chat) to be beneficial for students' collaboration. In their study, students commonly presented questions, requested clarification, and responded to issues put forward by their interlocutor.

Nonverbal communication during the face-to-face discussions may also have assisted collaboration between students by facilitating consensus building, as quick consensus can be expressed through nonverbal as well as verbal gestures. Another factor influencing student collaboration may have been the public arena presentation. Although appearing in front of an audience may sometimes cause social pressure hampering performance, this was presumably not a problem in this study: the students were familiar with each other, and, based on the observations of the course teacher, the group dynamics were good. Presenting their group work in a public situation through role-play may even have fostered collaboration between the students. According to Burke (2013), role-play implemented as a face-to-face contextual drama, as was the case in this study, distances participants from their own real-life roles, and in this way provides a safe place for treating the fictional, but realistic situation as ‘a serious play’ (Burke 2013).

Online interaction, in turn, contained higher proportions of questions and appreciations than the face-to-face discussions. Questions require that participants work harder to justify their standpoints in comparison to simple acceptances (Weinberger & Fischer, 2006). Students’ online discussions were also more argumentative than the face-to-face discussions: both the number of argumentation fragments and the level of justifications related to resolving the problem were higher in the online environment. The high number of questions in the online discussions probably obliged the participants to test multiple perspectives to find more and better justifications for their standpoints and decisions (Weinberger & Fisher, 2006). Nussbaum (2011) also highlights the importance of critical questions for high-level reasoning.

The general level of justification in both the face-to-face and online discussions was rather low. Most (47.5%) of the students’ standpoints were either poorly justified or lacked justifications or were moderately justified (28.7%). Only 23.9% of standpoints

were supported with high-level justifications. In cases where the level of justification related to the resolution of the problem was high, the most commonly used argumentation strategy was appeal to principle in both environments. This is unsurprising in social work, where problem solving is typically based on ethical principles, including professional norms and values (Pullen-Sansfacon, 2010).

The number of proposed solutions was higher in the face-to-face than online discussions. The discussions also turned out to be more inventive face-to-face than online, as the face-to-face students presented new viewpoints more often. New viewpoints indicate that the discussion is multifaceted in nature (Weinberger & Fischer, 2006). The larger number of both new viewpoints and acceptances presented face-to-face than online may indicate that the face-to-face discussions were conducted in a trusting and safe atmosphere, a factor that seems to encourage free expression of proposals for a solution. Van Amelsvoort et al. (2007) emphasize the importance for effective argumentation of a trusting and safe space, as this encourages argumentation without fear of loss of face. Another influential factor that may have encouraged the face-to-face students to proffer inventive solutions to the problem may have been the study mode, role-play, as it has been found to provide a safe learning environment for investigating and solving complex situations (Villadsen, Allain, Bell, & Hingley-Jones, 2012). Asynchronous online learning environments, in turn, provide more time for discussion, and thus better possibilities to create solutions based on a critical exchange of ideas (Cheung & Hew, 2004). Possibly, for this reason, the number of both argumentation fragments and questions was higher in the online than face-to-face discussions. This may also have produced the better-justified solutions, although the number of solutions was lower than in the face-to-face environment.

In general, in their proposed solutions to the problem, the students emphasised greater co-operation between the different parties and controlling actions as well as guiding and counselling actions. These all reflect the dual role of social workers when seeking solutions to problems encountered in their jobs (Niemelä, 2016). Further, the proposed solutions seem to be relevant for the identity work of young people in Finland. Simonen et al. (2016) found that youth want adults to act as authorities in questions pertaining to the use of alcohol, not only through control and guidance, but also through dialogue.

The low justification skills of students when discussing a social work problem strongly suggest that argumentation should be practised during social work education. Role-play may be one method of practising argumentative discussion and applying theoretical knowledge in practical situations (Gockel & Burton, 2014; Hafford-Letchfield, 2010).

While the present study contributes to understanding of the nature of social work students' collaborative argumentation, it is not possible to generalise the results to large populations, as the number of participants (29 students) was rather small. Thus, more research with bigger samples is needed.

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