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To cite this article: Lisa Steffensen, Marit Johnsen-Høines & Kjellrun Hiis Hauge (2022): Using inquiry-based dialogues to explore controversial climate change issues with secondary students: An example from Norway, *Educational Philosophy and Theory*, DOI: [10.1080/00131857.2022.2144221](https://doi.org/10.1080/00131857.2022.2144221)

To link to this article: <https://doi.org/10.1080/00131857.2022.2144221>



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Published online: 11 Nov 2022.



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Using inquiry-based dialogues to explore controversial climate change issues with secondary students: An example from Norway

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ABSTRACT

Young people around the world show considerable engagement with climate change. How can education draw on this engagement in order to benefit students and society? In this article, we discuss how inquiry-based dialogues can support students' development in their societal engagement. We argue that such dialogues should include real-world problems involving disagreement, which promote students' agency. We elaborate on qualities of dialogues, such as developing argumentation and perspectives together through respect, attentive listening and recognition of others' viewpoints. Central theoretical perspectives include inquiry-based dialogues and students' lived democracy. This research draws on data from a classroom activity where 15–16-year-old students in Norway investigate controversial issues related to electrifying offshore oil platforms. The students are in a learning situation, and the teacher wants them to learn about climate change and the oil industry and the skills and attitudes needed to participate in inquiry-based dialogues. The dialogues show that students bring knowledge, opinions and attitudes from outside school, characteristics that are crucial for students' engagement. We discuss how teachers can facilitate students' further engagement by addressing multiple aims of inquiry-based dialogues.

ARTICLE HISTORY

Received 31 October 2021

Accepted 26 October 2022

KEYWORDS

Inquiry-based dialogues; lived democracy; political controversies; climate change

Introduction

Young people have shown an increased dedication to the issue of climate change (Fløttum *et al.*, 2016). Their argumentation is present in the public debate, such as in the school strikes for climate change. However, their climate change engagement did not start with Greta Thunberg and the school strikes, as it was already rooted in the cultures of young people worldwide (Marris, 2019). The young argue that climate issues are more important for their future lives than prior generations, calling for action and responsibility.

While there is a scientific consensus on anthropogenic climate change, the problem is complex and there is still considerable disagreement about how best to respond to it. Controversial issues call for scrutiny of different perspectives and critical thinking. People can learn by actively

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engaging with societal issues relevant to their lives, especially through inquiry-based dialogue—a tool through which they can develop knowledge and influence democratic processes. By engaging students in such dialogues, teachers can provide students with opportunities to express their opinions, and contribute to changing the world, including creating new understandings of the world and influencing others' perceptions of the world.

Studies show that young students can handle controversial issues and disagreements in discussions, draw on their own experiences, and develop arguments based on factual knowledge while listening to others and reconsidering their own arguments (Breivega et al., 2022; Hess, 2009; Hess & McAvoy, 2014; Stray & Saetra, 2016). The controversies and discussions about climate change surround the young as a cultural phenomenon and influence their socio-political awareness. The urgency of climate change and the engagement of the young challenge schools to educate students for democratic participation, supporting their democratic practices.

In this article, *we investigate how teachers facilitate inquiry-based dialogues into climate change related issues and what dialogical qualities support students' democratic practices.* We draw on data from one teacher and his 15-16-year-old students in a Norwegian secondary school who explored the issue of electrifying offshore oil platforms. Our data includes transcriptions of classroom dialogues and observations of the classes.

Controversial climate change issues in the classroom

Stradling (1984) described controversies as issues where communities are clearly divided, and where groups offer conflicting explanations and solutions based on values. Climate change is a complex problem with no single best solution, which has moved from being perceived as merely a physical phenomenon to simultaneously being a social phenomenon (Hulme, 2009). Thus, there is still controversy regarding how to respond to climate change. Facing climate change issues can be overwhelming due to its seriousness, complexity and the political and social controversy surrounding it. Young people across the globe are worried and disillusioned about whether appropriate actions will be taken to address climate change (Hickman *et al.*, 2021). The polarised debate on climate change is also emotionally charged, which may discourage people from participating in discussions and contributing to political actions.

Education can play a role in engaging students in constructive ways and developing hope for their future. Science teachers are reportedly teaching about climate change in order to promote citizenship, critical thinking, and learning about climate change as a topic (Borgerding & Dagistan, 2018; McLaine & Dowden, 2011; Olsson, 2021). In general, discussing controversies in classrooms has been promoted as a way to engage students in political issues. Students who regularly discuss controversial issues become more interested in politics and are more likely to discuss issues with people with different views (Hess, 2009; Hess & McAvoy, 2014).

Choosing controversies that are part of students' lives can be particularly engaging and create learning opportunities. For example, a study of students discussing oil exploitation close to their hometown showed students building on each other's arguments. They connected a range of associated topics based on their knowledge and experience, explaining how they agreed or disagreed with previous speakers (Breivega et al., 2022). This resulted from thoughtful planning and implementation, where the emphasis was placed on valuing students' contributions and opinions (Alrø & Johnsen-Høines, 2022; Breivega et al., 2022; Johnsen-Høines & Alrø, 2022). Because students in the same class normally have different interests, values and worldviews, classrooms can be an important place for students to practice how to handle disagreements. However, it is vital that the students feel sufficiently safe and that their interactions and mutual learning processes support a common belonging. Iversen (2014; 2019) refers to classrooms that foster this as *communities of disagreement*. He explains this term as 'a group with identity claims, consisting of people with different opinions, who find themselves engaged in a common

process, in order to solve shared problems or challenges' (2019, p. 324). He describes how these communities create a shared identity within the group but with internal disagreement.

While there are good reasons to include dialogues into controversial issues in classrooms, some teachers have shown reluctance. Reported reasons include lack of time, fear of loss of authority and control, fear of provoking conflict amongst students, negative reactions from parents, or lack of competence in dealing with controversies (Göregen & Cornelissen, 2020; Stradling, 1984). Some teachers also point to the fact that the curriculum provides little room for examining the controversy surrounding climate change (Abtahi et al., 2017; Steffensen & Rangnes 2019). Another challenge with introducing climate change in classrooms is that teachers' own values have been shown to influence their choices of teaching material on climate change (Steffensen et al. 2018).

Although teachers have found including environmental and political controversies quite challenging, some still maintain that such controversies should be taught in school, throughout the years of schooling and across a range of subject areas (McLaine & Dowden, 2011). This suggests that some topics are too important to exclude from teaching and learning, and climate change is one such topic. However, much climate change education focuses on concepts such as the carbon cycle but avoids addressing the political aspects of climate change (Bhattacharya et al., 2021). Knowledge of climate systems is important but coping with climate change also requires recognising the ethical and political aspects of climate change. As Hess and Gatti (2010) argue, politics should be placed where it belongs, namely in the classroom. They emphasise both the importance of learning about controversies and discussing and disagreeing in inclusive and productive ways.

Discussing and exploring controversial issues in the classroom has been denoted as a proxy for democracy (Hess, 2009). This can occur as students' *lived democracy*: a situation where students experience democratic practice through discussing real-life problems or pursuing democratic virtues (Hauge et al., 2022). Such discussions are not make-believe discussions but actually influence students' thinking and lives. Democratic virtues such as freedom of speech and respectful listening have been regarded as crucial when introducing controversial issues into classrooms (Hauge et al., 2022; Hess, 2009; Stray & Saetra, 2016).

Inquiring into climate change issues through dialogue

Dialogues and inquiry-based teaching and learning have been promoted as productive ways of addressing the political and societal aspects of climate change (Hauge & Barwell, 2022; Steffensen, 2020, 2021). Approaches to socio-ecological controversies in the classroom should, according to Jiménez-Liso et al. (2020), be dialogical, discursive, and social in nature. We adopt their approach to teaching controversies because they argue that learning tasks should trigger students to inquire, express and discuss controversies, and that inquiry processes should 'become the backbone of teaching' (p. 5). Edwards-Groves and Hearty (2013) highlighted that collaborative, critical, and reflective classroom dialogues contributed significantly to dialogical practices, such as listening and speaking skills. They describe dialogues as a shared platform, allowing participants to engage in deeper learning, meaning-making and new understandings, promoting critical thinking through genuine inquiry-based dialogues. Dialogues should not seek one correct answer. Instead, they could include hypothesising, elaborating, exploring, sharing lines of thought, and synthesising. They further highlight how students can control the dialogue without the presence of the teachers, allowing students more opportunities to engage dialogically in each other's ideas, leading to more democratic talk practices where power shifts away from teacher-dominated talks.

Saetra (2021) highlighted three elements as important when enabling discussions on controversial issues: Social relationships, appropriate norms for social interactions, and skilful

facilitation. Relational and empathic respect and tolerance, e.g. careful listening, acknowledging different opinions in a friendly way, and openness towards different perspectives, were essential for students when discussing. Furthermore, the controversy needed to be presented as genuinely open and legitimate to disagree on.

Steffensen (2020) and Steffensen and Kacerja (2021) describe lower-secondary students' inquiry-based dialogues about climate change issues. Students discussed governmental incentives to phase out fossil cars and investigated a carbon-footprint calculator. Features of their dialogues included inviting group members to join, and they were thinking aloud, allowing disagreement and showing respect for each other's perspectives. During their dialogues and exploration, they critically reflected on how incentives would impact CO₂-emissions and citizens and their carbon footprint.

Taken together, this underpins that dialogues and inquiry-based dialogues should be regarded as fruitful learning tools for approaching climate change issues in classrooms. However, the term inquiry-based dialogue has not been elaborated on in these publications but applied with implicit meanings. Neither has the role of inquiry-based dialogues been explained in connection with controversial issues. In this article, we explicitly connect ideas from inquiry-based dialogues and controversial issues to develop thoughts on how learning about climate change as a controversial issue can be facilitated.

Theoretical framework

Inquiry-based dialogues where students learn to express their opinions, respond to each other, and respectfully learn from each other are crucial learning aspects for democratic engagement in society. When we emphasise the importance of dialogue, we attach certain qualities to the context and to the dialogue itself. Figure 1 provides an overview of characteristics we highlight as essential for inquiry-based dialogues. It is largely inspired by Alrø and Johnsen-Høines (2010, 2012).

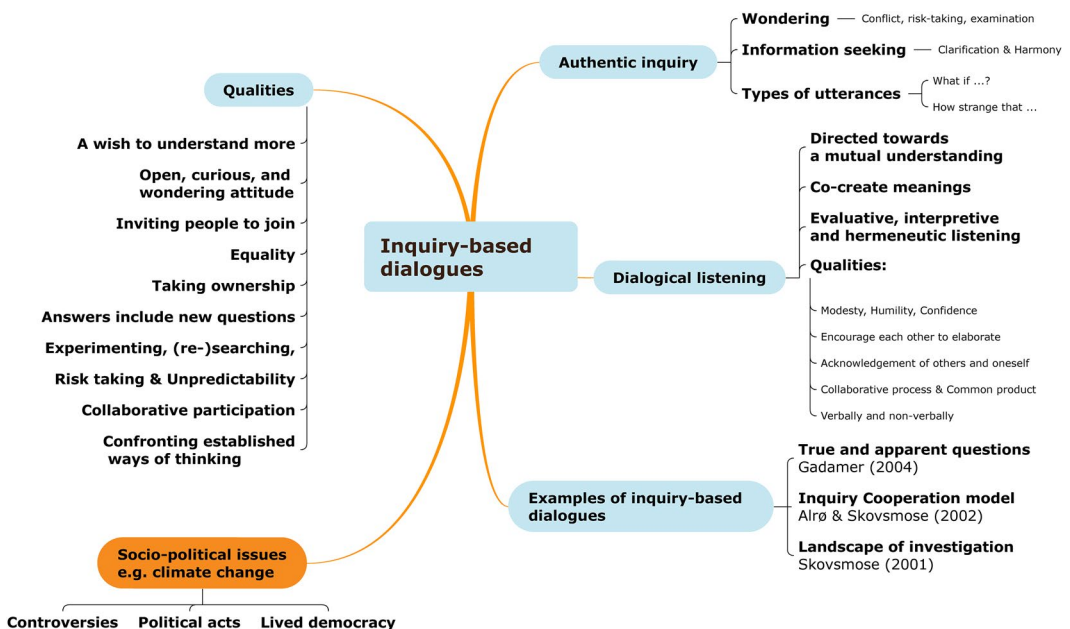


Figure 1. Characteristics of inquiry-based dialogues inspired by Alrø and Johnsen-Høines (2012).

Inquiry-based dialogues are rooted in the Inquiry-Cooperation (IC)-model as described by Alrø and Skovsmose (2002), Landscapes of Investigations (Skovsmose, 2001), and genuine questions as described by Gadamer (2004). The IC-model describe dialogues as 'a process involving acts of getting in contact, locating, identifying, advocating, thinking aloud, reformulating, challenging and evaluating' (p. 128).

In inquiry-based dialogues, the intention in learning plays a vital role (Alrø & Johnsen-Høines, 2012; Alrø & Skovsmose, 2002). It is about being interested in and willing to search for understanding as a basis for viewpoints and argumentation. Inquiry-based dialogues are conversations of inquiry aiming to develop new insight (Alrø & Johnsen-Høines, 2012; Alrø & Skovsmose, 2002). This requires participants to have an open and curious attitude towards the topic and others' contributions, including understanding oneself in relation to others. It implies a willingness to question things, examine what is new and different, and reflect on acquired knowledge and perspectives. Inquiry-based dialogues presume that there are no pre-defined answers, and the collaboration requires an equal and inquiring approach.

Students should take ownership of the learning process and partake in authentic inquiries more than information seeking, clarification and harmony (Alrø & Johnsen-Høines, 2012). Dialogical listening is essential and includes modesty, confidence, encouragement, acknowledgement, and displayed through verbal and non-verbal gestures. The aim is mutual understanding and the co-creation of meanings. Inquiry-based dialogues could occur between researchers, teachers, or students and are considered a learning community between participants.

This perspective corresponds with Jennings and Mills (2009). They investigated how inquiry-based dialogues supported academic and social learning when children and pre-school teachers negotiated, shared ideas, and collaboratively worked on problems. They found that dialogic, attentive, thoughtful, socially responsible, relational, reflective, and interdisciplinary practices supported students as engaged learners and community members. For instance, students were encouraged to pay attention to each other's contributions in a relational and compassionate way and to build communities across classrooms.

The orange branch in [Figure 1](#) refers to socio-political issues. When inquiry-based dialogues involve climate change, we find that three interrelated aspects come into play; controversies, political acts, and students lived democracy. Regarding controversies, students have different interests, values, and worldviews. Even when students accept climate the evidence for anthropogenic climate change, they do not share common ideas on how to cope with climate change and what change is desirable. The classroom provides spaces to practice discussions, learn to disagree, and treat each other with dignity and respect (Breivega et al., 2022; Hauge et al., 2022; Hess, 2009; Hess & McAvoy, 2014). Students can be encouraged to explore and change their minds, showing how they can be multi-voiced, complex beings in their personal development (Iversen, 2019). It may be impossible for teachers to guarantee their classroom is a safe space when discussing controversial issues. Rather, students should be prepared for disagreement, discomfort, and courage, requiring a culture where dignity is maintained. Either way, classrooms can be an area where students are empowered to deal with complexities and controversies, counteracting the polarisation related to these issues.

A political act includes verbalisation (Pocock, 1973). Breivega et al. (2022) and Hauge et al. (2022), inspired by Mellin-Olsen (1987), describes that political acts for young learners can take place in school, where they get involved in the classroom community. It could be expressing one's opinion in a discussion or justifying your stance. It requires the knowledge and skills to participate, a belief that participation matters, and an intention and a willingness to act. Students who express their opinions to peers exercise their democratic right to freedom of speech, having an opportunity to influence others' perspectives and potential future actions. Their argumentation can be met with counter-argumentation, adding new insights that may affect their own perspectives and future actions. Such changes of perspectives can have an

important role in student learning. Breivega et al. (2022) highlights how such enriching discussions support students' lived democracy through reconsidering one's own and others' argumentation and viewpoints.

As part of students' lived democracy, respectful dialogues are essential for handling controversial issues, allowing for an unfolding of complexity, different perspectives, disagreement and change of mind (Breivega et al., 2022; Hauge et al., 2022). The challenge for education is to facilitate these dialogues. Iversen (2019) describes how these dialogues are accompanied by certain qualities, promoting students' learning, where both teachers and students contribute to creating a community of disagreement where dignity is supported (Iversen, 2019).

Alrø and Johnsen-Høines (2022) describes approaches teachers can use to foster such dialogues. For instance, they can mirror students' phrases, paraphrase, and emphasise utterances or points, or they can question the students' argumentation in order to encourage further reasoning. Similarly, Stray and Saetra (2016) encourage teachers to support students' dialogues through openness, interest, counter-perceptions, and critique. A key aim of these approaches is that teachers participate in ways that invite students to take ownership and control of the dialogue (Alrø & Johnsen-Høines, 2022; Johnsen-Høines & Alrø, 2022).

We use this theoretical framework to reflect on how inquiry-based dialogues can create opportunities for students to reflect on dilemmas and controversies related to climate change. We are inspired by empirical data from a classroom activity where a teacher challenges his students to explain their stance on a particular issue related to petroleum production.¹ The teacher recognises the students' interest and knowledge about climate change issues where the political and cultural context includes living in an oil-rich community.

A Norwegian climate identity

Engagement in climate change, environmental issues, and the implications of energy sources are part of the Norwegian culture and reflected in Norway's school curriculum. Students shall, for instance, 'Explain how energy production and energy use can affect the environment locally and globally' (Ministry of Education & Research, 2019). Although this may seem like a straightforward task for teachers and students to inquire about, the Norwegian climate identity is split and is often referred to as the Norwegian paradox. On one side, the identity is connected to fighting climate change and being a people with an active outdoor life, caring about pristine and clean nature (see, e.g. Fløttum *et al.*, 2016). On the other side, Norway is a major petroleum export nation, and the income contributes to funding a wealthy social democratic welfare society. Citizens relate to the narrative that oil and gas production is good because it provides jobs and funds social welfare. Children grow up surrounded by this paradox. Parents work in the petroleum industry while simultaneously treasuring pristine nature. Students' engagement in finding new ways of living challenges established views on the oil industry.

Norway is committed to the Paris Agreement and aims to reduce 50% of its emissions by 2030. In Norway, the primary polluter of greenhouse gas is the extraction of oil and gas, and it is an ongoing debate on whether to continue with this activity. One way of meeting the Paris Agreement is a much-discussed policy concerning the electrification of oil and gas operations on platforms. Electrification can be achieved by replacing existing gas power plants with renewable energy from offshore wind turbines or hydropower through submarine cables from the mainland. Although this would reduce the Norwegian emission budget, opponents in the public discourse point to the increased capacity requirement of renewable energy and that the gas will be exported so that global emissions will not decrease. This politically charged issue was the context where the teacher facilitated inquiry-based dialogues where students should reflect on the associated dilemmas.

Methodology

A research partnership between a researcher (the article's first author) and three lower-secondary teachers explored how to include climate change in the mathematics classroom (Steffensen 2021). The teachers combine mathematics and natural science competence aims to create local goals for their students. Among these are that students should:

- Be able to reason about global and local climate challenges related to fossil fuels and explain different views on this.
- See the connection between Norway's oil production and the country as a welfare state.
- Discuss Norway's role as an oil and gas producing country.

During one school year, 42 lessons took place in four classes. The 15–16 years old students worked in groups, and selected groups (chosen due to consent) which were audio and video-recorded. The first author transcribed the data, and perspectives emerged during the process of thematic coding and discussing with co-authors. Data collection followed the guidelines of the Norwegian centre for research data, and all data was anonymised. As Tracy (2010) explains, we consider it an ethical responsibility to provide thorough descriptions of the data, including the oral language, gestures and atmosphere.

This article focuses on one lesson in Kim's class. We chose this because the context (electrification of oil installations) and the pedagogical approach provided opportunities for students to reflect on contemporary and controversial issues. The teacher designed a dialogue game containing claims to be discussed in groups of 3–4 students. Kim asks them to read a claim out loud, then place a board piece on one of the areas on the board saying 'agree', 'partly agree', or 'disagree', and then present a reason for their choice. One claim from the dialogue game is discussed in this article:

Norway's oil and gas platforms produce their electricity through gas power plants. By replacing gas power supplies with electric power through cables from the mainland, CO₂-emissions from Norwegian gas will decrease.

At the end of the lesson, the groups presented their discussions in plenary. This lesson's excerpt is used to get insight into how dialogical qualities can be developed and support students' engagement in climate change issues. Kim says that he wants the students to learn about climate change and what it means to learn in collaboration in a dialogical mode. We study this data to get insight into such learning processes, implying that we also reflect on dialogical qualities that are not present in the activity and the significance of this absence.

Inquiry-based dialogues in the classroom

In the following sections, we elaborate on two situations from the classroom activity to illuminate aspects crucial for supporting or invigorating student engagement. The first situation concerns the teacher's facilitation of the dialogue game on a climate change issue. The second situation shows qualities in student dialogues.

The teacher's facilitation of students' inquiry-based dialogues

Participating in inquiry-based dialogues requires abilities that must be developed and learned. Teachers are challenged to facilitate a dialogical milieu and provide opportunities for engaging students. When the teacher, Kim, invites his students to participate in inquiry-based dialogues, he presumes his students are embedded in a culture where the Norwegian climate paradox is

significant. He challenges his students to express their views, to agree or disagree with the claim. He encourages them to listen to each other's arguments and that they 'are allowed to bring forward your perspectives, you don't have to think about right or wrong [...] you don't have to agree, you should provide and explain your argumentation'. Thus, the teacher emphasises students' argumentation. He tries to nurture a classroom milieu where conflicting opinions are expressed, listened to and respected, qualities crucial when discussing controversies, as highlighted by Hess (2009), Jennings and Mills (2009), Iversen (2019), Jiménez-Liso *et al.* (2020), Saetra (2021). Kim continues, 'You can try to influence others through your argumentation and be open to changing your view. For instance, if Peter says, "that makes sense, I hadn't thought about that, this makes me change my mind"'. Kim encourages students to develop inquiry-based dialogues through dialogical listening and co-constructing of meanings, where they can learn from each other and practice skills beneficial for democratic citizenship. Giving students an opportunity to express their argumentation and influence others' opinions facilitates students' lived democracy in line with what Hauge *et al.* (2022) and Breivega *et al.* (2022) described.

Kim invites his students to share ideas through argumentation which are essential dialogical features as they may challenge, broaden and perhaps change perspectives. This hinges on the students keeping an open mind and a curious attitude towards their own and others' understanding of climate change issues. Challenging students' listening, willingness to question things, examining what is new and different, and considering knowledge already acquired are central features in inquiry-based and learning-oriented dialogue, as described by Alrø and Johnsen-Høines (2012) and Alrø and Skovsmose (2002). Achieving such qualities in dialogues when discussing climate change issues facilitates students' lived democracy. He actively chose a controversial political issue, contrary to what climate change education typically includes (c.f. Bhattacharya *et al.*, 2021). He puts politics in the classroom, which Hess and Gatti (2010) argued as important. Kim shows that he wants the students to be investigative, develop arguments, listen to each other, be multi-voiced, and challenge their own and others' perspectives. He wants them to engage, take agency and be empowered.

Students' inquiry-based dialogues

Karen, Mari, and Robert have discussed and agreed that electric cables from the mainland will reduce CO₂-emissions. Robert, taking a leading role in the group, shows engagement and agency. He considers electrification a good idea but suspects it will never happen. His tone rises when he explains, 'It is probably too expensive for those greedy bastards who own those platforms'. His uttering can be seen as a political act (in line with Hauge *et al.*, 2022; Pocock, 1973; Mellin-Olsen, 1987), as it is a protest and a frowning towards those putting profit before the environment.

Towards the end of the lesson, after the students have continued with other statements, they return to the claim on electrification, and Robert says:

Robert: If you think that all CO₂ will be emitted, right? [pauses] If we are platform owners [pauses], let us say I have excellent power from hydropower. However [emphasising this word], what do you do with the oil you produce? [looks at Mari] If you did not use this to produce power? What do you do with this, then?

Mari: Ahum, sell it to ...

Robert: ... sell it to other countries, or use it ourselves.

Mari: Yes [nodding].

Robert: And then you burn the gas [in an explanatory tone].

Mari: Ahum [confirmative].

Karen: Yeah, but if we don't need to use ...

Robert: [Interrupts] Yes, but it will be burnt. It will be burnt no matter what. So, really, it will be burnt regardless. What makes it is [in an eager tone], CO₂ emissions from Norwegian gas [emphasising Norwegian] because it depends on whether that gas is, in a way, sold to other countries or not. As it most likely will be. Since most of the gas and oil we produce is sold to other countries. So really ...

Karen: [interrupts] But if Norway tries to make it more environmentally friendly, they will not sell to other countries. And then they will end oil production.

Robert takes a new perspective when picturing what happens to the oil and gas if not utilised as power supplies on the platforms. When asking Mari and Karen to imagine themselves as platform owners, obliged to decide what to 'do with the oil', he shows that he wants to engage them. His questions seem apparent and not true, as denoted by Gadamer (2004). With the use of pauses and by adding 'right?' at the end of his sentences, he turns his statements into questions; he invites his group to follow his line of thought, step by step, either to think for themselves from this new perspective or to convince them. Although he appears inviting, he neglects counter-argumentation and seems more eager to tell or convince the group members than to explore new perspectives together. Robert shows a willingness to inquire, has confidence and competence to present argumentation and attempts to include others in his reasoning. He shows that he can pose arguments and draw conclusions, for instance, when arguing that gas is used as power sources elsewhere, indicating that electrifying the platforms will not be more environmentally friendly after all.

Mari confirms she follows Robert's line of argumentation by mirroring what he says, nodding, and making affirmative sounds. She thereby shows essential features of dialogical listening as described by Alrø and Johnsen-Høines (2012). Similarly, Karen confirms Roberts' argumentation. By imagining that Norway stops oil production, she may picture a more environmentally friendly future. Her attempts to inquire and think aloud about what Robert is saying, imagining different scenarios and bringing in different perspectives, correspond with essential qualities of authentic inquiries described by Alrø and Johnsen-Høines (2012). Such reorienting of perspectives is fundamental in student learning and inquiry-based dialogues (Breivega et al., 2022; Hauge et al., 2022).

However, Robert cuts Karen off, and her ideas are not pursued. In Robert's eagerness to present his argumentation, he does not listen to others or provide space for them. Thus, he does not show relational and empathic respect and tolerance by carefully listening and acknowledging different opinions. Furthermore, Robert does not show curiosity towards others' perspectives; a quality highlighted as crucial in inquiry-based dialogues (Alrø & Johnsen-Høines, 2012; Alrø & Skovsmose, 2002). The students miss opportunities for new insights. They fail to invite each other to share their opinions and perceptions. They do not provide space for dialogical listening and developing new insights collaboratively by bringing perspectives from all participants.

Developing inquiry-based dialogical practices in the classroom is not a simple task but hinges on the teacher's ongoing efforts. It requires learning processes where students experience investigative inquiries and critically reflect on these together. As described above, Robert, Karen and Mari showed important dialogical features, and their interest in the topic gave energy and stimulated their agency during their investigative process. To develop dialogical practices, Kim could facilitate the students to become more attentive to each others' contributions to co-create new perspectives. Kim encouraged the students to disagree and change their minds. He was not present to support the student discussion in this specific teaching and learning situation. Inquiry-based dialogue is a demanding approach for teachers and students, and skills need to be developed through continuous practice.

Concluding reflections

We investigate how a teacher, Kim, facilitates inquiry-based dialogues in his classroom on a controversial climate change issue and what dialogical qualities support students' democratic practices. Kim deliberately chooses a controversy by engaging them in a dialogue game regarding the electrification of oil and gas platforms. To include controversies in the classroom is not straightforward, and research indicates that some teachers avoid this for various reasons (Abtahi et al. 2017; Göregen & Cornelissen, 2020; Stradling, 1984). However, teachers engaging students in controversies are highlighted as important by researchers such as Hess and Gatti (2010), McLaine and Dowden (2011), Hess and McAvoy (2014), Stray and Saetra (2016), and Hauge et al. (2022). By choosing this controversy to engage the students, Kim treats them as democratic citizens and supports their learning.

When Kim introduces the controversy, he presents it as genuinely open. He encourages his students to be investigative, develop argumentation, deepen and challenge their own and others' perspectives, and take ownership. Introducing a controversy as open to students is essential (Hess & McAvoy, 2014; Saetra, 2021). However, it is insufficient to facilitate controversies as open and expect students to discuss; dialogical teaching and learning competencies are required. Research on dialogical learning shows how the power of dialogue can emancipate students to reason together, strengthen their independent thinking, form their own opinions, and become empowered to participate in debates (Breivega et al., 2022; Edwards-Groves & Harday, 2013; Jiménez-Liso et al., 2020; Steffensen, 2020).

Qualities such as equality, a wish to understand more, wondering, authentic inquiry, advocating, and dialogical listening needs to be present in inquiry-based dialogues (Alrø & Johnsen-Høines, 2010, 2012; Alrø & Skovsmose, 2002) emphasise. The students in this study are in the process of developing communication in line with inquiry-based dialogue. They put forward political acts as described by Pocock (1973), Mellin-Olsen (1987) and Hauge et al. (2022). They follow lines of reasoning, add new perspectives, and support and question each other. The students seem comfortable with changing standpoints, a valuable quality emphasised by Hauge et al. (2022) and Saetra (2021). The two girls mirror their peers' utterances, use body language, and are dialogical listening. Robert does not seem to be listening in the same way and neglects his peers' perspectives in his eagerness to present his own views. Saetra (2021) described that students experience it as problematic when peers do not listen. Instead, they wait for opportunities to present their own argumentation. Dialogical listening is essential in inquiry-based dialogue (Alrø & Johnsen-Høines 2012, 2010), and students must learn to develop competencies as dialogical listeners. Kim was not present to facilitate the development of the dialogue. The students' dialogues could have been more investigative, paying more attention to each other and exposing more counter-argumentation. However, he and his students are in the process of learning.

Our research contributes to the theoretical framework of inquiry-based dialogues introduced by Alrø and Johnsen-Høines (2010, 2012) by including perspectives on controversies, political acts, and students' lived democracy. It adds to the empirical research involving dialogical approaches regarding controversies by investigating a teacher's facilitation of students' inquiry-based dialogues. Further research should focus on how teachers can give space to explore contemporary societal issues, requiring a range of approaches. Dialogical listening and equal opportunities for all students should be emphasised. Young people's voices matter, and inquiry-based dialogues can strengthen their agency and empowerment.

Note

1. The controversy on climate change and petroleum production may be specific to Norway, but we expect similar controversies exist elsewhere.

Disclosure statement

No potential conflict of interest was reported by the authors.

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